

Ministry of Finance's Advisory Council on Investment Strategy

Ministry of Finance
Economic Policy Department
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The equity portion in the benchmark portfolio of the Government Pension Fund – Global

1. Background

In a letter of 17 February 2006, the Ministry of Finance's Advisory Council on Investment Strategy (the "Strategy Council") was requested by the Ministry to render a recommendation respecting the equity portion to be chosen for the benchmark portfolio of the Government Pension Fund – Global (the "GPFG"). Reference was in this context made to a letter of 10 February 2006 from Norges Bank to the Ministry, as well as to the Ministry's letter of 16 December 2006 to the Strategy Council, wherein which the Council was requested to examine return and risk issues in relation to the choice of benchmark portfolio for the GPFG.

The role of the Strategy Council

The Strategy Council has been established to assist the Ministry in its work on the long-term investment strategy of the GPFG. The terms of reference of the Strategy Council refer to the following general principles governing the Fund's investments in foreign securities:

- 1) The objective of the management of the Fund is to achieve the maximum possible return, subject to moderate risk.
- 2) The Fund shall be a financial investor, and not a tool for strategic ownership in individual companies.
- 3) The Fund shall be well diversified.
- 4) A long-term investment horizon shall be adopted.

The first three general principles are all concerned with risk. The first general principle stipulates that "moderate risk" shall be assumed, but without any additional detail. The requirements that strategic ownership in individual companies be excluded, as set out in principle 2), and that the Fund shall be well diversified, also imply a significant curtailment of the risk assumed by the Fund. The average return on a large number of individual equities is much more stable over time than the return on the equities of one or a limited number of selected companies. Consequently, the risk of accumulated losses is reduced significantly by spreading the equity investments across thousands of different companies in various countries and on various continents. Moreover, these equity investments are liquid because they are traded on large, well-organised stock markets. Yet another risk-reducing effect is achieved by the equity investments being made over a long period of time.

The fourth principle is a long-term investment horizon. The purpose of the Fund is to smooth the spending of petroleum revenues over a long period of time, and the Fund will operate as a general reserve fund which strengthens government finances and foreign exchange revenues far into the future. This long-term horizon implies that stable returns from one year to the next are not an objective as such. The important considerations are expected return and risk in the long term. Since the GPF is not saddled with any legal payment obligations – unlike private pension funds such as those managed by life insurance companies – there is no need for the asset side of the Fund to be designed with a view to achieving a reasonably stable revenue flow from the Fund. Therefore, this type of fund does not have the same need for bonds that offer stable and predictable nominal interest revenue each year as do private pension funds.

The background to the current 40-percent equity allocation

A key feature of the investment strategy of the GPF is the benchmark portfolio's allocation between listed equities and bonds. The current allocation, featuring 60 percent bonds and 40 percent equities, was decided upon in 1997 and has been maintained ever since. Given the current size of the Fund and the prospects for continued strong growth in the market value of the Fund, it is evident that which equity portion to choose has turned out to be of much greater importance both to government finances and to the Norwegian economy than one had reason to expect only a few years ago.

In 1997, what equity portion to opt for was not perceived as a question of major macroeconomic importance. The size of the Fund was very modest at that time (47.8 billion kroner at the beginning of the year), and expectations as to the future growth of the Fund did in no way anticipate the strong growth experienced by the Fund during 1998-2006 or present projections as to the annual inflow of new capital. The perception at the time was that opting for a 40-percent equity portion would in itself present Norges Bank with major challenges, as it would have to establish a new investment management department. Moreover, it was, internationally speaking, highly unusual for central banks to invest in equities. Traditionally, central banks in small countries like Norway have maintained very liquid foreign exchange reserves in order to be able to fund imports in a potential emergency situation.

The recommendation of Norges Bank

In the abovementioned letter of 10 February 2006 from Norges Bank to the Ministry of Finance, the Bank pointed out that the percentage of equities chosen must be based on an assessment, performed by the owner of the Fund, as represented by the Ministry of Finance, of the trade-off between the expected gain from a higher equity portion and the increased risk of loss. It was the recommendation of Norges Bank that the Ministry of Finance should consider increasing the equity portion from the present level of 40 percent. The main argument of the Bank was that the expected gains in the form of a higher return in the longer run would be considerable, compared to the increased risk of loss:

"If we adopt the consensus view amongst large fund managers of an expected equity premium of no less than 2 percentage points ahead, an increase in the equity portion from 40 to 60 percent will increase the expected return on the Fund by at least 0.4

percentage point a year. This corresponds to about 6 billion kroner in the first year with the current portfolio, and about 135 billion kroner accumulated over 15 years.

Norges Bank is of the view that an overall assessment of historical evidence and our present market perception suggests that the percentage of equities held by the Government Pension Fund – Global should be increased. The Ministry of Finance should weigh the expected gain from a 50 or 60-percent allocation to equities against the increase in risk.”

Norges Bank’s own risk analyses are based on model computations of the probability distribution of accumulated losses incurred by the Fund over a 15-year period. Such analysis suggests that increasing the equity portion from 40 to 60 percent has fairly modest effects in terms of increased risk.

Norges Bank has also compared the investment strategy of GPFG and the portfolio allocations of large international funds which, like the GPFG, adopt a long-term horizon for their investments and aim for a high level of return. This comparison yields the following conclusion:

”The main impression from other funds that are facing more or less the same choice parameters as the Government Pension Fund is that these have chosen to assume more risk, both by way of a higher percentage of equities and by way of investments in other asset classes which involve more risk than bonds. The low percentage of equities and the high percentage of bonds held by the Government Pension Fund are indicative of more risk aversion than is common on the part of comparable funds.”

2. The equity portion in a broader risk perspective

Risk analyses relating to the GPFG are typically based on a risk concept that is limited to the risk, i.e. the risk associated with the future return achieved by the Fund. Such a limitation is useful because it enables the quantification of such risk. Nevertheless, both the State and the Norwegian population are facing other, and more prominent, challenges as far as risk is concerned, such as, for example, the risk of a major drop in the oil price or other events in the world economy with a negative impact on national wealth and national income. Moreover, in a welfare state like Norway, the State has assumed an important role as a provider of social insurance, through, *inter alia*, the tax and transfer system. The Strategy Council has considered whether weight should be attached to other sources of risk in the Council’s assessment as to what constitutes an appropriate equity portion, as well as whether the social insurance obligations of the State should be accorded weight in relation to this issue.

Most nation states have more risk-bearing capacity than private investors and pension funds. As a consequence, most national states also have much greater obligations in terms of providing social insurance. Overall, the Strategy Council has been unable to identify clear grounds for arguing that, generally speaking, nation states are in a better position to absorb the risk in global capital markets than is the average, global investor.

A special characteristic of the Norwegian economy is the major impact of the oil price on national income and wealth. Calculations of the State's petroleum wealth in the form of the expected net present value of future petroleum revenues suggest that it is more than twice the current market value of the GPFG. However, the petroleum wealth is highly sensitive to future oil prices. This oil price risk is much greater than the isolated risk associated with an equity allocation of either 50 or 60 percent on the part of the GPFG. This is both a consequence of an uncertain future oil price and of the rules of SDFI and the petroleum taxation system. The latter rules imply that it is the State (and not the owners of the private oil companies) that bears most of the oil price risk. Over time, the exhaustion of petroleum resources will gradually result in a reduction in the oil price risk as well as an increase in the risk associated with the GPFG. Nevertheless, if we focus on the overall risk relating to the oil price and the GPFG as a whole, the overall risk will decline in the longer run even if all new capital inflows were to be invested in equities and other real assets. This has to do with the fact that the Norwegian economy is, to begin with, exposed to a considerable degree of oil price risk as a result of the petroleum sector being quite large relative to the Mainland economy.

If one looks at the isolated risk associated with the Fund in a broader risk perspective, it is also relevant to point out that the equities held by the Fund offer the State, in its capacity of owner, a stake in global economic growth. In the context of the State's exposure to oil price risk and to the risk of weak economic growth in Mainland Norway, the equities held by the GPFG provide favourable diversification, similar to that achieved when one creates a portfolio comprising many equities instead of only a few.

Legitimacy risk

There has been broad-based political agreement as to the investment strategy of the Fund. A different type of risk is associated with the political basis for the investment strategy of the GPFG. Such risk is here referred to as legitimacy risk. It has to do with the risk of a major decline in international equity prices, which may result in political support for the investment strategy being eroded.

It may therefore be argued that concern for the legitimacy of the Fund favours a rather risk-averse investment strategy, which limits annual variations in the return achieved by the Funds, although one must then expect the return to be lower than would otherwise have been the case.

The period 2000-2002 saw a steep decline in equity prices in the United States, which also resulted in declining equity prices in Europe. This decline in equity prices was of the same order of magnitude as the stock market crash in the United States in 1929. It resulted in negative nominal returns for the GPFG in both 2001 and 2002. However, such negative development did not lead to the investment strategy of the GPFG coming under political pressure. Norwegian politicians appear to be prepared for the fact that annual returns will fluctuate, and that such variations are an acceptable price to pay for higher expected average returns over time. It is likely that one factor which contributed to preventing the equity price decline in 2000-2002 from threatening the political legitimacy of the investment strategy, was the fact that the fiscal rule is not based on the actual returns of the Fund, but rather on a normalised return which is not sensitive to actual returns in the short run. Reduced room for fiscal policy manoeuvre

as a result of the decline in the value of the Fund was smoothed out over several years. Besides, transfers to the Fund during this period were large relative to the value of the Fund, which contributed to further stabilising the room for manoeuvre. Consequently, the equity price decline in 2000-2002 had no major effect on the room for fiscal spending as defined by the fiscal rule.

The international equity price decline of 2000-2002 occurred during a period when the Fund and the equity holdings of the GPFG were smaller than at present. It is uncertain whether support for the investment strategy of the Fund will turn out to be equally stable in case of a similar decline in equity prices in a future situation characterised by a much larger Fund and a higher equity portion than the present 40 percent. On the one hand, such a decline in equity prices will result in a more pronounced reduction in the value of the normalised return on the Fund, as calculated in kroner. On the other hand, expected returns will be lower in the longer run if bonds are held instead of equities.

The Strategy Council has not considered an assessment as to whether or not the Ministry of Finance should attach weight to the issue of legitimacy risk, or, if applicable, how much weight, to fall within the scope of its terms of reference.

3. Return and risk

In the Appendix to the present letter, the Strategy Council has examined the historical real returns and risks associated with investments in international equities and bonds over the period 1900-2005 in some detail, cf. Section A1 of the Appendix, wherein which the statistical basis for measuring the annual real returns on hypothetical portfolios comprising equities and bonds (geometric means) is also explained in further detail. The main conclusions from this analysis are that investments in equities have yielded considerably higher average returns than investments in bonds. The average excess return on equities for the whole period (the equity premium) has been 5.7 percent per annum (the difference between a 6.7 percent real return on equities and a 1 percent real return on bonds). On the other hand, annual returns on equities have fluctuated considerably more than have the returns on bonds, although the historical difference in risk between equities and bonds has been considerably less if one looks at the variation in mean return figures as measured over longer investment periods. In other words, bond investments have been relatively more risky in the long run than in the short run. At the same time, long-term returns on bonds and equities have been significantly more closely correlated than have, for example, annual return figures, thus implying that bonds have provided less diversification of risk in the longer run.

A comparison of portfolios with equity allocations of 40 and 60 percent

In the Appendix, we have also compared the real returns on two hypothetical portfolios featuring equity portions of 40 and 60 percent, respectively, and with regional weightings matching those adopted by the GPFG. The remainder of the portfolios were made up of bonds. We have refrained, in order to ease presentation, from explicitly showing the results for a portfolio comprising 50 percent each of equities and bonds. We have measured long-term real returns as a geometric mean over overlapping 15-year investment periods over the 1900-2005 period. Real returns

over these 15-year periods are set out in Chart 5 of the Appendix. This Chart is reproduced below:

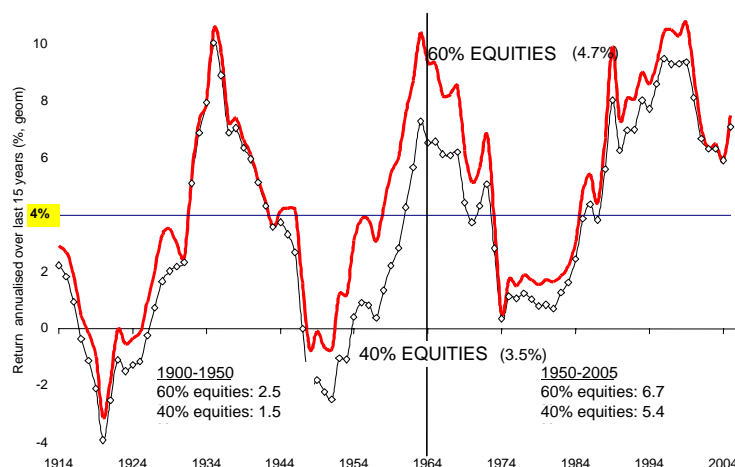


Chart 5. Continuous 15-year real returns on portfolios featuring equity portions of 60% and 40%, respectively.

Source: DMS and computations performed by Thore Johnsen.

We note from this Chart that the return graph for the portfolio featuring a 60-percent equity portion is above the graph representing the portfolio featuring a 40-percent equity portion as far as all 15-year periods are concerned, with two exceptions; the periods 1920-1934 and 1990-2004. During the said two periods, average returns were higher on bonds than on equities. The average difference in terms of real returns has been approximately 1.1 percentage point per annum. This corresponds to the 20-percentage point difference in equity portions, as multiplied with a equity premium of 5.7 percent.

The Appendix also features an analysis of real returns on equities and bonds over the period 1950-2005, i.e. the relatively stable post-war period, excluding the late 1940s. Over this period, the average real return on equities was 8.9 percent per annum, and on bonds 2.6 percent per annum, i.e. a equity premium of 6.3 percentage points. The main reason why we have refrained from using data for the years 1900-1949 is that real returns on bonds were much lower during this latter period than during 1950-2005. The conclusions would have been even clearer, especially as far as the risk associated with bonds is concerned, if we had also included observations from 1900-1949.

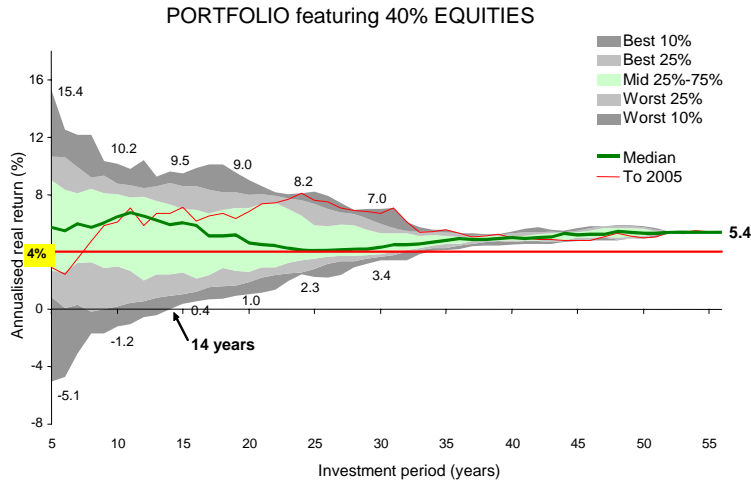


Chart 7. Average real returns for investment periods from 5 to 56 years for combined equity and bond portfolios with a 40% equity portion, 1950-2005.
Source: DMS and computations performed by Thore Johnsen.

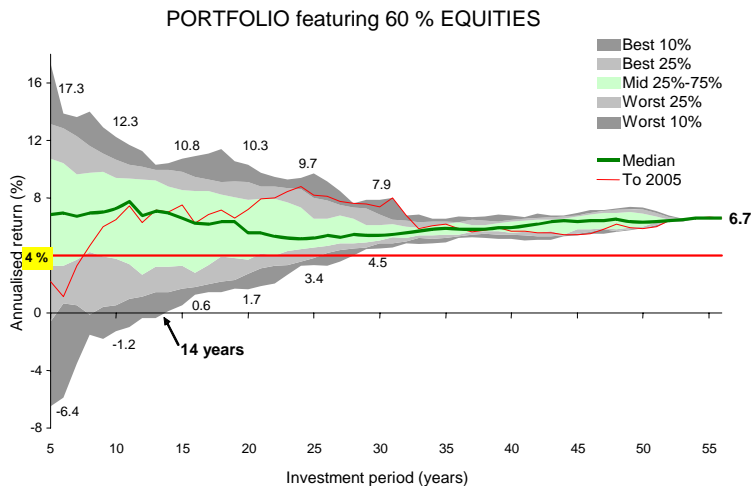


Chart 8. Average real returns for investment periods from 5 to 56 years for combined equity and bond portfolios with a 60% equity portion, 1950-2005.
Source: DMS and computations performed by Thore Johnsen.

Charts 7 and 8, which are also reproduced from the Appendix, show the range of distribution of average real returns on the two portfolios for different investment horizons from 5 years upwards (shown along the horizontal axis). The data are from the period 1950-2005. For a given investment period, the range of distribution shows real returns over all overlapping time periods of the specified duration. The interpretation of this type of chart is explained in more detail in the Appendix. Average real returns per annum over the entire period for the two portfolios were 5.4 (40-percent equity portions) and 6.7 (60-percent equity portions), respectively, i.e. a difference of 1.3 percentage point per annum.

A comparison of Charts 7 and 8 demonstrates that, as far as the shorter investment horizons at the leftmost side of the Charts are concerned, the range of distribution of real returns on the portfolio featuring the highest equity portion is greater than the range of distribution of the one featuring the least equities. However, it also shows that the range of distribution of real returns on the portfolio featuring the highest equity allocation narrows *more swiftly* in response to a lengthening of the investment horizon than does that representing the portfolio featuring the most bonds. Consequently, as demonstrated by the Charts, bonds have only to a minor extent contributed to reducing the overall risk achieved over investment horizons of 25-30 years, when increasing the equity portion from 40 to 60 percent.

This relative increase in the risk associated with bonds when the investment horizon is lengthened, may be attributed to two factors. Firstly, the difference in the computed standard deviation between the real returns on equities and bonds has declined sharply when the investment horizon is lengthened from 5 to 25-30 years. Secondly, it turns out that the correlation between the average real return on equities and bonds has been significantly higher for longer investment horizons than for shorter ones.

Future equity premium

The high excess return on equities reflected in the historical data has been described as a puzzle in financial literature, cf. the discussion thereof in Section A2 of the Appendix. As pointed out therein, it was primarily during the period from 1900 and until the early 1960s that the average excess return was particularly high. If we address the return data from the last 40-45 years, the average excess return on equities is less. This decline may be explained by the expansion and enhanced efficiency of financial markets, a process which accelerated during the 1960s. Political risk was diminishing, access to information, as well as the scope for control and supervision, was gradually improving, and opportunities for reducing portfolio risk through international diversification were gradually expanding. The inflow of savings looking to reap risk premium gains, therefore became larger than before.

It also follows from the analyses set out in the Appendix that the excess return on equities has tended to be particularly high during periods characterised by unusually low returns on bonds, like during periods of high inflation, as well as during, and just after, the two World Wars. Such observations indicate that changes in the equity premium over time may also be related to variations in the real returns on bonds.

An issue disputed in financial literature is whether there is a measurable tendency towards so-called mean reversion in equity prices and returns, or whether equity prices follow a so-called random-walk stochastic process. In case of mean reversion, we would expect a period of an unusually high mean return on equities to be succeeded by lower future returns (negative serial correlation), and vice versa in case of an unusually low historical return. Such mean reversion in the return on equities would imply a risk reduction for equity investments over longer investment periods, relative to what would be the case under the common assumption that equity prices are subject to a random walk.

In the model analyses performed by Norges Bank there have been assumed that equity prices and returns display a weak tendency towards mean reversion. The calculations

of expected average returns and risks with and without mean reversion over the next 15 years demonstrate, unsurprisingly, that this limits both the worst and best outcomes when compared to the alternative of a random walk in equity prices. The Strategy Council's recommendation that the equity portion be increased from the present 40 percent is under any circumstance not conditional upon an assumption that equity prices are subject to mean reversion.

In assessing the long-term expected return on capital and the distribution thereof between owners and creditors, one cannot take it for granted that history will repeat itself. Most analysts who assess future equity premiums attach more weight to data from the last 3-4 decades than to observations from the more remote past. As mentioned above, the average excess return on equities is considerably lower for these decades than for the period from 1900 and until the early 1960s.

Like most other analysts, Norges Bank is assuming that the equity premium will in future be significantly lower than what can be estimated from historical data going back to the beginning of last century. It is a common assumption that the equity premium will in future be in the region of 2 to 2.5 percent per annum (calculated as a geometric return), which is also the assumption adopted by Norges Bank in its model computations. It is difficult to arrive at precise estimates for the future equity premium, but the Strategy Council is of the view that the assumptions adopted by Norges Bank respecting the future equity premium are sober, and more compatible with theoretical considerations respecting equity and bond market equilibrium than an assumption to the effect that the future equity premium will revert to a long-term historical mean.

4. A comparison with other funds

The Government Pension Fund - Global is a fund construction without any parallels in other countries. There is no other democratic country with large government petroleum revenues and experience in managing a large international securities fund. Nevertheless, the Strategy Council has examined whether the allocations of other funds may be of relevance to how the trade-off between expected return and risk should be handled. In Section A3 of the Appendix, the Council has taken a closer look at the allocation of various assets on the part of a number of foreign funds.

We have divided such international funds into three main groups. The funds in the first group are of the same magnitude as the GPFG, but have been established to accumulate the pension premiums of a group of employees, and to manage such capital with a view to meeting clearly defined pension obligations in future. The main difference between such funds and the GPFG is that the GPFG is not, unlike the funds in this group, an integrated part of any pension system. What makes such funds particularly interesting for purposes of our analysis is the fact that they have large management staffs, high competency and long experience in managing large international portfolios comprising various assets.

The second group is made up of government funds which have been established to create a reserve for governmental pension schemes, in order to strengthen government finances before future ageing of the population results in especially high pension

payments. The ownership and purpose of such funds correspond to those of the GPF, but these will typically be much smaller, both in terms of value and relative to GDP.

The third group of funds comprises large university funds, so-called endowment funds. These funds are much smaller than the GPF, but have like the GPF adopted a very long time horizon. Their purpose is to contribute to funding the operation of their universities into the distant future. They are known for their high management competencies and for average rates of return on capital which have been significantly in excess of the average return on the part of the GPF. The leading funds within this group are Yale Endowment and Harvard Endowment. The Yale fund, in particular, has commanded international attention by achieving unusually high real returns over a long period of time.

There are, first and foremost, two factors that distinguish the investment strategy of the GPF from those of all three abovementioned groups of funds, cf. Table 1, wherein which we have presented the unweighted average percentage portfolio allocations for the three asset classes bonds (including inflation-linked bonds), other assets and equities.

Fund type	Portfolio allocation bonds (percent)	Portfolio allocation other assets (percent)	Portfolio allocation equities, incl. private equity (percent)	Sum allocations (percent)
Large pension funds	32	15.5	52.5	100
Reserve funds	30	7.7	62.3	100
Endowment funds	17.5	37.5	45	100
GPF	60	0	40	100

Table 1. Portfolio allocations of the GPF, large pension funds (6 observations), reserve funds (5 observations), and endowment funds (Yale Endowment and Harvard Endowment), unweighted averages. Both domestic and international holdings. Source: Norges Bank.

Firstly, we note from Table 1 that the 60-percent bond allocation of the GPF is much higher than the bond allocations of the three abovementioned groups of funds. Large pension funds have average bond allocations of 32 percent, reserve funds have an average of 30 percent, and the two large endowment funds have average bond allocations of 17.5 percent. These include both domestic bonds and bonds issued in other countries. Secondly, the GPF has refrained from investing in "other assets". This asset class comprises real assets that are less liquid than equities, such as real estate, infrastructure, natural resources, hedge funds and other assets. As shown in Table 1, large pension funds featured a portfolio allocation of 15.5 percent for other assets, whilst reserve funds held 7.7 percent, and the two large endowment funds held on average as much as 37.5 percent in the form of other assets.

A reserve fund which is even younger than the GPF is the governmental New Zealand Superannuation Fund ("NZ Super"), which was established in 2001. This

Fund was included in the sample of reserve funds in the letter of 10 February 2006 from Norges Bank (and in Table 1 above). Its objective is similar to that of the GPF, i.e. to achieve the maximum return in the longer run "without undue risk to the Fund as a whole". The rationale behind this fund accumulation is to ease the fiscal burdens which an ageing population will impose on the public pension system in New Zealand. The strategy of this fund is based on the premise that the state of New Zealand is better placed to absorb risk than the average investor in the international capital markets, thus implying that NZ Super may contain a lower bond portion than does the global average portfolio (which global average is approximately 40 percent). Therefore, in 2003 the Fund opted for a bond portion of 20 percent (divided equally between domestic and international bonds), and an equity portion of 67 percent, of which 7.5 percentage points are invested in domestic equities. The remaining 13 percent have been invested in other real assets that are less liquid than bonds and listed equities. In other words, this fund is taking on more risk than the GPF in order to be able to achieve a higher expected return in the long run.

In 2005, NZ Super adopted a new investment strategy which it argues will produce a higher expected return without increasing the overall portfolio risk. The new strategy involves reaping additional returns by significantly increasing the percentage of the portfolio invested in other, less liquid, real assets. This is the same thinking as characterises the investment strategy of the large US endowment funds. In the longer run, NZ Super aims to increase its investments in other assets to 35 percent, whilst at the same time scaling back the bond portion to 15 percent and the portion of listed companies to 50 percent.

The above discussion shows that other large funds with a long time horizon for their investments have opted to keep their bond portions at 30 percent or less. Moreover, they have chosen to invest in other, less liquid, real assets than listed equities. Many of these funds nevertheless hold a higher percentage of their assets in the form of equities of listed companies than does the GPF.

The Strategy Council has examined whether the comparison with other funds amounts to an indication that the level of risk assumed by the GPF should be increased, or whether other factors than the trade-off between expected return and risk has been decisive in determining the percentages of equities held by other funds. Surveys of other pension funds demonstrate large variations between funds in terms of their allocations between various assets. It is likely that the formulation of actuarial and accounting standards also plays a major role in determining the percentages of equities held by pension funds. For example, the actuarial and accounting standards developed in England, and adopted in Australia, Canada, Ireland and South Africa, will lessen the effect of market volatility as far as the need for new pension contributions is concerned. This facilitates investments in equities, and may have resulted in the observed percentage of equities reflecting something more than a straightforward trade-off between expected return and risk. Since actuarial and accounting standards are of no relevance to the Council's analyses in relation to the percentage of equities to be held by the GPF, the large variation in asset portions amongst pension funds across the world is of limited informational value for purposes of assessing the percentage of equities to be held the GPF.

The analysis shows, generally speaking, that other long-term funds have allocated a significantly higher percentage of their investments to equities and investments in less liquid real assets, and have allocated significantly less of their investments to bonds, than has the GPF. Moreover, the ability of the Norwegian State to absorb risk ought to be no less than that of the owners of these other funds. Against this background, the Strategy Council is of the view that the comparison with other funds suggests that the percentage of equities held by the GPF ought to be higher than the present 40 percent.

5. Conclusions

In its letter of 17 February 2006 to the Strategy Council, the Ministry of Finance specifically requests the Council to examine whether there are factors indicating that one ought to change the overall risk level of the benchmark portfolio, and requests the Council to render a recommendation as to the percentage of equities to be featured by the benchmark portfolio. The Ministry of Finance also requests the Council to take a view on which considerations one should attach weight to in determining the equity portion, and on whether sufficient light has been shed on such considerations. The Ministry goes on to state that "The recommendations should shed light on the return and risk profile associated with different percentages of equities in the benchmark portfolio, under the assumption that the composition of the portfolio is otherwise in conformity with current guidelines. The assessments made by the Strategy Council on the basis of the Ministry's letter of 16 December 2005 should also be incorporated into the Council's recommendation."

The GPF has turned into a much larger fund than one had reason to expect only a few years ago. If the prospects for continued strong growth in the size of the Fund are taken into consideration, it would seem evident that the percentage of equities selected in future will have much more of an impact on government finances and on the Norwegian economy than was previously assumed.

One of the premises underpinning the assessments made by the Strategy Council respecting the equity portion of the GPF, has been that the risk of accumulated losses should be looked at in a broader risk perspective. As pointed out above, the risk of a persistently low future oil price is of much greater importance to long-run government finances than is the risk associated with the long-term return on the equities held by the GPF, when taken in isolation. However, this status will change as more wealth is converted from petroleum wealth on the continental shelf to international securities held by the GPF.

The empirical analyses and model computations undertaken by Norges Bank itself suggest that an increase in the equity portion from 40 to 50 percent and from 50 to 60 percent will result in significant expected gains in the longer run, whilst the increased risk of accumulated losses in the longer run is relatively modest. The Strategy Council agrees with the assessments of Norges Bank respecting the marginal trade-off between expected return and risk, based on both an evaluation of the calculations performed by Norges Bank and its own analyses. The Council would like to point out, in this context, that Norges Bank has assumed that the equity premium (the excess return on equities relative to bonds) will be no more than about half of the equity

premium observed in international return data from the last 100 years. As we have pointed out above, there has during the post-war period been a considerable long-term risk associated with holding bonds, whilst the correlation between the long-term real returns on bonds and equities has been higher than the corresponding correlation over short investment periods. The Council is of the view that it is unlikely that these long-term risk characteristics associated with investments in bonds will change significantly in the future. These are the characteristics associated with long-term investments in nominal bonds which, in combination with low expected returns on such investments, are the primary determinants of the favourable trade-off between expected return and risk for the Fund as a whole from increasing its equity portion from the present level of 40 percent.

Norges Bank has also compared the investment strategies of other funds with that of the GPF. The Bank has specifically addressed the following three groups of funds: large pension funds, governmental reserve funds and US endowment funds. Although none of these groups include funds which may serve as a direct model for the GPF, the funds belonging to these three groups are facing many of the same challenges as is the GPF, not least when it comes to reaping long-term gains in the form of high expected returns on their investments, whilst at the same time adequately controlling the risk of low or negative returns in the long run. The assessment of Norges Bank, based on a sample from each of these groups, is that the GPF holds a relatively high percentage of bonds and low percentage of equities, which is *“indicative of more risk aversion than is common on the part of comparable funds.”*

We have looked at a broader sample of funds than the sample studied by Norges Bank. It is our conclusion that this review is consistent with that undertaken by Norges Bank, and that the GPF differs significantly from other funds, especially in terms of its current bond allocation of 60 percent. As far as other funds with long investment horizons and no specific obligations to pay future pension benefits are concerned, it is most common for the bond portions to be in the 10 – 30 percent range. And even large pension funds *with* such obligations have bond portions of 40 percent or less.

Based on Norges Bank’s own analyses and model computations, as well as our own evaluations and reviews of relevant financial literature, the Council recommends that the equity allocation allotted to the benchmark portfolio of the GPF be increased to 60 percent. Such a portfolio allocation corresponds, more or less, to that of the average global portfolio. This indicates that the Norwegian State will not be assuming more risk through the Fund than the average investor in the global financial markets. The time period for the implementation of the change in strategy is a tactical issue which the Strategy Council has not deemed it appropriate to examine. The percentage of listed equities chosen should also be considered in the context of the issue of whether the benchmark portfolio of the Fund should be changed by allowing for investments in other assets than bonds and listed equities. However, for as long as such investments are not being contemplated, or such investments only represent a modest percentage of the overall value of the Fund, the Council is of the view that the equity allocation of the benchmark portfolio should be 60 percent.

As is evident from the present letter, the Council has examined both the ability of the State to absorb risk in a broader perspective as well as empirical and quantitative

model computations of the favourable trade-off between expected return and risk from increasing the equity portion to 60 percent. We are of the view that sufficient light has been shed on these factors to justify the abovementioned recommendation.

The Council is of the view that the issue of any link between developments on the part of the Fund in the longer run, and the appropriate risk level or percentage of equities to opt for, should be seen in the context of the gradual reduction in the oil price risk of the State as the petroleum reserves on the continental shelf are being exhausted and wealth is being reallocated to the Fund. When taken in isolation, this process will reduce the overall risk assumed by the State. It may therefore be appropriate to increase the isolated risk of the Fund by further increasing the percentage of equities in the longer run, as well as by contemplating investments in other real assets. The percentage of equities chosen at present should therefore under any circumstance be reconsidered in future in view of subsequent information respecting the State's wealth and its exposure to oil price risk.

It follows from the Council's assessments and its recommendation that the percentage of equities held by the Fund should be increased, that the Council is of the view that a long-term investment horizon is not sufficiently reflected in the allocation between equities and bonds featured by the present benchmark portfolio. A 60-percent bond portion is not appropriate when the investment horizon is long. Most other large funds with a long investment horizon have taken due notice of this, and operate with a significantly lower percentage of bonds than does the GPFG.

Erling Steigum (Chairman) (sign.)	Bodil Nyboe Andersen (sign.)	Monica Caneman (sign.)	Ida Helliesen (sign.)
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Morten Jensen (sign.)	Thore Johnsen (sign.)	Eva Liljebloom (sign.)
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