Norwegian Ministry
of Finance

Meld. St. 26 (2016–2017) Report to the Storting (white paper)

The Management of the Government Pension Fund in 2016

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The Management of the Government Pension Fund in 2016

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Recommendations of the Ministry of Finance of 31 March 2017,
approved by the Council of State on the same day.
(Government Solberg)

Part I
The management of the Government Pension Fund

1 Introduction and summary

The purpose of the Government Pension Fund is to support long-term considerations in the government's spending of petroleum revenues, as well as savings to finance pension expenditure under the National Insurance Scheme. Sound long-term management will help ensure that Norway's petroleum wealth can benefit both current and future generations.

The Government Pension Fund comprises the Government Pension Fund Global (GPFG) and the Government Pension Fund Norway (GPFN). The funds are managed by Norges Bank and Folketrygdfondet, respectively, under mandates laid down by the Ministry of Finance.

The GPFG is an integral part of the fiscal budget and the fiscal policy framework. The government's oil and gas revenues are transferred to the GPFG in their entirety, while spending via the fiscal budget over time shall follow the expected real rate of return on the Fund (the fiscal policy guidelines).

In this white paper to the Storting (the Norwegian parliament), the Ministry of Finance presents and assesses the performance of the management of the Government Pension Fund in 2016. Further development of the Fund's investment strategy is also discussed, including the choice of the equity share of the GPFG. The responsible management framework is also presented.

The investment strategy for the Fund

The investment objective for the Government Pension Fund is to achieve the highest possible return with a moderate level of risk. There is a broad political consensus that the Fund should not be used as a foreign policy or climate policy instrument. The investment strategy is based on certain beliefs about the functioning of financial markets, as well as on the purpose and characteristics of the Fund. The strategy has been developed over time based on thorough assessments. Important strategic choices have been endorsed by the Storting. This contributes to the sustainability of the chosen, long-term strategy, including in periods of financial market turbulence.

The investment strategies for the GPFG and GPFN are set out in the management mandates for the funds and expressed through, inter alia, the composition of the benchmark indices. The equity share is set to 62.5 percent for the GPFG and 60 percent for the GPFN. Fixed-income securities account for the remainder of the benchmark indices.

Norges Bank and Folketrygdfondet deviate from the benchmark indices defined by the Ministry of Finance, within the scope of their mandates. The purpose of such deviations is to exploit the distinctive characteristics of the funds to outperform the benchmark indices. Deviations also enable cost-effective implementation of the benchmark indices.

The investment strategies for the GPFG and the GPFN are discussed in sections 2.1 and 4.1.

Sound returns in 2016

2016 was a year of sound returns in global financial markets, despite turbulence during the year. Interest rates declined in the first half of the year and stock markets were characterised by weaker growth prospects in, inter alia, China. In the second half of the year, the global outlook improved and stock markets surged, despite turbulence associated with major political events. Interest rates increased somewhat towards the end of the year.

For 2016 as a whole, the GPFG achieved a return of 6.9 percent, measured in the currency basket of the Fund. The generated return was positive for fixed-income securities and real estate, but highest for equities.

The market value of the GPFG at the end of last year was Norwegian kroner (NOK) 7,507 billion, net of management costs. Measured in NOK, the market value increased by 36 billion over the year. Favourable returns on the investments measured in foreign currencies increased the value of the Fund, while appreciation of the Norwegian krone, when taken in isolation, reduced it. However, changes in Norwegian krone exchange rate do not affect the international purchasing power of the Fund.

Returns in the Nordic financial markets last year were more or less in line with those in the rest of the world. Measured in NOK, the return on the GPFN was 7.1 percent. Equities generated a significantly higher return than fixed-income securities. The market value of the GPFN at year-end 2016 was NOK 212 billion.

Norges Bank and Folketrygdfondet seek to generate the highest possible return, net of costs, within the mandates laid down by the Ministry of Finance. Last year, the GPFG outperformed the benchmark index by 0.15 percentage points. Since 1998, the annual average excess return has been 0.26 percentage points. This amounts to a total of about NOK 91 billion. Last year, the GPFN outperformed the benchmark index by 1.17 percentage points, compared to an annual average excess return of 0.56 percentage points since 1998. Measured as a proportion of assets under management, costs last year were 0.05 percent in the GPFG and 0.09 percent in the GPFN. This is within the limits stipulated by the Ministry of Finance, and low compared to other funds.

The two asset managers attribute excess returns, risks and costs to the various strategies employed in their management. For the GPFN, Folketrygdfondet's figures for the various strategies show either a positive or no excess return. For the GPFG, Norges Bank's figures also show some strategies with a negative excess return. The strategies need to be evaluated over a long time period. As far as the GPFG is concerned, the various strategies will be assessed as part of the upcoming review of Norges Bank's asset management, which will be discussed in the report to Parliament on the management of the Fund in the spring of 2018.

The performance of the GPFG and the GPFN is discussed in sections 2.2 and 4.2.

Expected return and future developments in the value of the Fund

International interest rates have been low and declining for many years. This reduces the expected return on the GPFG going forward. In recent years, there has been an emerging consensus amongst experts that a significant share of the interest rate decline reflects structural changes in the world economy – thus being of a long-term nature.

In this report, the Ministry of Finance updates its estimate for the expected real rate of return on the GPFG, which is a key variable in the fiscal policy framework. The Ministry of Finance now estimates the expected real rate of return over time at about 2¾ percent with the current equity share and at about 3 percent with an equity share of 70 percent. This estimate reflects an expected real rate of return on fixed-income securities of 0.5–1 percent and an expected excess return on equities of 3 percentage points. The Ministry's updated expectations for the return on equities and fixed-income securities are well aligned with the estimates given by a Government-appointed commission chaired by Knut Anton Mork[1] and by Norges Bank. The actual return on the Fund can be significantly higher or lower than the estimate, both in individual years and over longer periods.

Lower oil and gas revenues also mean that growth in the value of the Fund is expected to level off in coming years. Production on the Norwegian continental shelf appears to have peaked, and oil prices have fallen sharply in recent years, compared to the average over the last 10–15 years. This reduces the central government's net cash flow from petroleum activities. For many years, petroleum revenue inflows have boosted the GPFG capital year by year, also in periods of weak returns. Going forward, it is expected that developments in the value of the Fund will predominantly be determined by returns in international financial market.

When measured in Norwegian kroner, the value of the Fund is affected by developments in Norwegian krone exchange rates. The market value of the GPFG almost doubled over the three-year period 2013–2015 when measured in NOK, and depreciation of the Norwegian krone accounted for about half of the increase. This was partly reversed as the result of the appreciation of the Norwegian krone in 2016. However, the Norwegian krone exchange rate has no impact on the international purchasing power of the Fund.

The updated estimates for the expected return on the GPFG are discussed in section 3.1.3.

The equity share of the GPFG

The equity share of the strategic benchmark index is the single decision with the greatest impact on the Fund's overall long-term risk and return. The last assessment of the equity share was made in 2007. It was then decided to increase it from 40 percent to 60 percent. From 1 January this year, the equity share has been increased to 62.5 percent as a result of the new regulation of

[1] See NOU 2016: 20 green paper.

unlisted real estate. The fixed-income share is 37.5 percent.

The expected return on equities is higher than on fixed-income securities, thus implying a greater contribution to the objective of maximising the purchasing power of the Fund. At the same time, equities involve more risk. This increases the variations in the realised return, as well as the risk of long-term losses. Historical performances show that equities have generated significant excess returns over time, compared to fixed-income securities, but also negative excess returns in some periods.

The Government has initiated a thorough process to assess the equity share of the Fund. As a part of this process, the Ministry of Finance has received recommendations from both the Mork-Commission and Norges Bank. The Ministry has also received input via a public consultation on the Commission‘s report.

The Mork-Commission comprised academics, financial experts and two former minsters of finance. The majority of the Commission's members, comprising everyone except the Chairperson of the Commission, recommended an increase in the equity share to 70 percent. In explaining the reasoning behind this, the majority emphasised that the risk-bearing capacity has increased since the previous assessment of the equity share, ten years ago. The Chairperson of the Commission referred, inter alia, to the fiscal policy's need for stable and predictable transfers from the GPFG, and recommended to reduce the equity share to 50 percent. The advice from Norges Bank is that the equity share should be set at 75 percent. Norges Bank emphasises, inter alia, more diversified petroleum wealth, a lower correlation between the returns on equities and fixed-income securities and a certain increase in the expected excess return of equities over fixed-income securities, when compared to the previous assessment of the equity share.

The Ministry of Finance is of the view that there are sound reasons for expecting that equities will generate higher returns over time than fixed-income securities, also in the coming years. At the same time, consideration for the diversification of risk in the short and long run suggests that the Fund should continue to be broadly invested, and that it is in our interest to have a moderate fixed-income allocation. The Ministry has, in its assessment of the equity share of the GPFG, not attached decisive weight to a potential increase in expected excess return by investing in equities rather than fixed-income securities, or to potential changes in the correlation between equities and fixed-income securities.

The expected real rate of return on the GPFG has declined significantly in recent years, as also noted by the Mork-Commission and Norges Bank. A lower expected return estimate is not an argument in favour of increasing the equity share, and thus the level of risk in the Fund. Such a "search for yield" may result in taking on more risk than the Fund is able to bear, thus risking major losses. The Ministry notes that the level of risk in the GPFG needs to be sustainable over time.

The fund structure and the fiscal policy guidelines imply that the GPFG has a long time horizon, in principle indefinite. This makes it well placed to harvest the expected excess return from investing in equities rather than fixed-income securities. In the 2017 white paper on Long-Term Perspectives for the Norwegian Economy, the Government is proposing that the transfers from the GPFG, i.e. the spending of Fund revenues via the fiscal budget, shall over time correspond to 3 percent of the value of the Fund, as opposed to 4 percent in the past. This reduction underpins the long investment horizon of the Fund.

The owner must, at the same time, be capable of handling fluctuations in the value of the Fund. The implications of a stock market contraction, in the form of challenging fiscal policy tightening, depend on the magnitude and duration of the impact on the value of the Fund. The value of the Fund has increased steeply in recent years, thus implying that such impact may be significant relative to the size of the Norwegian economy and government finances. Analyses show, at the same time, that changing the equity share by 10 percentage points has limited implications for the fluctuations in the value of the Fund, which are primarily the result of the Fund having grown large. The challenge posed by fluctuations in the value of the Fund needs to be dealt with by flexible fiscal policy implementation, paying due heed to the key considerations underpinning our fiscal policy framework, and not by changing the equity share of the GPFG; see also the discussion in the 2017 white paper on Long-Term Perspectives for the Norwegian Economy. The reduction of transfers from the Fund to 3 percent facilitates preservation of the real value of the Fund over time. At the same time, fiscal policy will continue to be implemented in a flexible manner in order to deal with international financial market fluctuations.

Of key importance to the assessment of the equity share is the risk-bearing capacity, including the ability of political authorities to retain their

commitment to the investment strategy, also in periods of significant reductions in the value of the Fund. Overestimating the risk-bearing capacity may entail considerable costs. The majority of the Mork-Commission's members premise their advice on the risk-bearing capacity having increased since the previous assessment of the equity share. Such an assessment needs to take numerous considerations into account. The Commission refers to experience from the financial crisis, when there was a broad political consensus concerning the strategy of the Fund even during this period of turbulence. The Commission also notes, inter alia, that the overall petroleum wealth is better diversified. The Ministry has noted, at the same time, that the Commission points out that the fiscal budget has become more dependent on the revenues from the Fund. The Ministry assumes that the risk-bearing capacity can, all in all, be considered higher than in the previous assessment of the equity share.

The Government assesses, based on an overall assessment, that the equity share of the strategic benchmark index for the GPFG should be increased to 70 percent, from the current 62.5 percent. This increase implies, when taken in isolation, that the expected annual return will increase somewhat, compared to under the current equity share. At the same time, a higher equity share will somewhat increase expected fluctuations in the value of the Fund, in both the short and the long run. The Government assumes that the risk associated with an equity share of 70 percent will, all in all, be acceptable.

The Ministry emphasises that the proposed increase in the equity share is not based on any assessment that the timing is particularly favourable. The phase-in of a higher equity share will need to be conducted gradually over time, and plans for this will be prepared in consultation with Norges Bank. Broad political consensus is a prerequisite for increasing the equity share.

The equity share of the GPFG is discussed in section 3.1.

Unlisted infrastructure investments in the GPFG

The Ministry of Finance examined, in the report on the management of the Fund in 2015, whether unlisted infrastructure investments should be permitted in the GPFG. This process included the Ministry soliciting the advice of an expert group and of Norges Bank. A key issue was whether the Fund was better placed to make such investments than other investors.

Expected returns on unlisted infrastructure investments are uncertain, and depend on the advantages of the manager and the choice of specific projects. Whether to permit such investments is not a climate issue, but principally a matter of the structure and risk in Norges Bank's management. See below for a separate section discussing climate issues in the management of the Fund.

Unlisted investments are generally more complex and require more resources than listed investments. There is also a need for developing different and more specialised expertise on the part of the operational management. This increases administrative costs and the number of employees. It is also, in general, challenging to evaluate the performance of such investments, as well as to measure and manage risk. High transaction costs and lower liquidity make it more difficult to divest unlisted investments if complications were to arise.

As part of the follow-up of the Storting's deliberation of last year's report on the management of the Fund, the consultancy firm McKinsey has prepared a report on the particular challenges of investing in unlisted infrastructure. Norges Bank has in a letter described, inter alia, how such challenges may be handled in the management of the GPFG.

The McKinsey report notes that the asset class is broad in scope, from power generation and airports to social infrastructure such as hospitals and prisons. Market practice is not particularly standardised, and varies across sectors and countries. There are few comparable transactions that can support valuations. This is in contrast to unlisted real estate, which is a much larger asset class, with established standards and facilitation services, as well as an ever-increasing number of homogeneous transactions.

It is also noted in the report that infrastructure projects are often important to the local authorities and that there may be a high degree of political involvement. It is common practice for such investments to be governed by long-term contracts under which profitability is directly influenced by other countries' authorities, via tariffs and other operating conditions. Most of the projects are natural monopolies, or quasi-monopolies, such as power grids, bridges and airports. In such markets, local communities cannot opt for a different provider. Nor can the supplier opt for a different group of customers. This increases the political risk, the regulatory risk and the reputational risk of unlisted infrastructure investments.

McKinsey also notes that such investments are complex and may vary considerably from project to project. Consequently, these require specialised expertise in several parts of the investor organisation, also at the board level. Infrastructure investments also require more follow-up than other unlisted investments. It will in many cases be necessary to join the boards of the investment projects. Thus far, it has not been the strategy of Norges Bank to join the boards of companies in which the Fund is invested.

McKinsey and Norges Bank have indicated approaches that may reduce the risk of unlisted infrastructure investments. The Ministry has noted that the restrictions outlined by Norges Bank will imply that no investments are made in immature projects or in developing countries. If the Ministry were to otherwise direct the investments, by for example requiring these to support the green shift or development policy objectives, it would neither be compatible with the financial objective of the Fund, nor with Norges Bank's suggested strategy for limiting the risk of unlisted infrastructure investments. The Ministry also notes that there are many other government schemes for promoting investments in developing countries and in renewable energy, including Norfund and Fornybar AS.

The GPFG is a large sovereign fund with a long time horizon. These distinctive characteristics may place the Fund at an advantage over other investors. Its size and long time horizon may, when taken in isolation, facilitate unlisted investments. On the other hand, government ownership entails strict requirements with regard to transparency and political endorsement. This is reflected in the strategy of the Fund, which has been developed gradually, with a strong emphasis on listed investments and low asset management costs. The investments currently under assessment for potential inclusion in the investment universe are unlisted and particularly exposed to political and regulatory risk, as well as reputational risk. In unlisted infrastructure investments, the Fund will have a large ownership stake, thus making investments more visible and more vulnerable to criticism. There is reason to believe that the expected return on such investments will depend on how much risk of this type an investor assumes.

The Ministry of Finance is of the view that a transparent and politically endorsed sovereign fund like the GPFG is not well suited to carry the particular risks associated with unlisted infrastructure investments. It is the assessment of the Ministry that the new elements that have emerged support the conclusion in the report on the management of the Fund in 2015. It is not, against this background, proposed that unlisted infrastructure investments be permitted in the GPFG at this time.

The Ministry notes that a new regulation for unlisted real estate was adopted with effect from 1 January 2017. At the same time, a Government-appointed commission chaired by Svein Gjedrem is reviewing the Central Bank Act and the governance structure of Norges Bank, including alternative governance models for the GPFG. Experience from, and developments in, these fields may be of relevance to a potential future expansion of the investment universe to other types of unlisted investments.

Unlisted infrastructure investments in the GPFG are discussed in section 3.2.

Guidelines for government bonds in the GPFG

In its deliberation of the report on the management of the Fund in 2015, the Storting's Standing Committee on Finance and Economic Affairs highlighted various considerations, and requested that guidelines for the Fund's investments in government bonds be considered, as a tool for Norges Bank in its assessment of financial risk. The Ministry notes that the financial framework for asset management is generally defined in an integrated mandate from the Ministry of Finance, and not via guidelines.

A number of the provisions in the current mandate for the management of the GPFG address government bond investments. The Ministry has, inter alia, stipulated requirements for approval of all markets and financial instruments used in asset management, for credit ratings and for taking account of fiscal strength. Furthermore, it is a requirement that asset management is carried out with a view to ensuring that no less than 95 percent of the bonds carry low credit risk; so-called investment grade bonds. Permitting a share of up to 5 percent carrying a higher credit risk means that Norges Bank can hold bonds to maturity, even if these are downgraded. The Fund cannot be invested in bonds issued by states that are subject to particularly large-scale UN sanctions or other international initiatives of a particularly large scale that are aimed at a specific country and where Norway supports the initiatives. Moreover, the mandate provisions on the Fund as a responsible investor also apply to its investments in fixed-income securities.

Norges Bank has, in a letter to the Ministry of Finance, provided an account of its follow-up of these provisions in the mandate. This shows that systems and procedures for following up the issues of concern to the Standing Committee on Finance and Economic Affairs have been established. The Ministry agrees with the assessment of Norges Bank that financial risk considerations in relation to government bond investments must be deemed to be adequately addressed in the current mandate.

Some states issue bonds denominated in foreign currency. Norges Bank may invest in such bonds, but these are not included in the benchmark index for the Fund. As mentioned, it is a requirement under the mandate that Norges Bank shall «approve all the financial instruments that may be used in the management and all markets the Fund may be invested in». This provision does not require explicit approval of each issuing state, provided that there exists a credit rating of the bond and it is denominated in a currency approved by Norges Bank. Hence, Norges Bank does not perform a separate assessment of the issuing state for bonds denominated in foreign currency.

In this report, the Ministry of Finance proposes that the mandate be amended such as to require the Executive Board of Norges Bank to approve each issuing state for government bonds. This implies that each issuing state needs to be approved for government bonds denominated in foreign currency. The approval shall be based on an assessment of financial risk.

The Government aims to promote the greatest possible transparency in the management of the GPFG. In following-up on the comments of the Standing Committee on Finance and Economic Affairs, Norges Bank has provided an account of its follow-up of the provisions in the mandate adopted by the Ministry pertaining to government bond investments. The Ministry is proposing to amend the mandate for the GPFG to require Norges Bank to account for procedures and systems for the approval of issuers of government bonds, in its annual reporting on the management of the Fund.

The Ministry of Finance is of the view that the provisions in the mandate, together with the amendments now proposed, are well suited to addressing the considerations referred to by the Standing Committee on Finance and Economic Affairs in its comments.

Guidelines for government bonds in the GPFG are discussed in section 3.3.

Responsible management

The Government Pension Fund has an overarching financial objective. Within this scope, the Fund shall also be a responsible investor. Strong long-term financial returns depend on well-functioning markets and sustainable development. This applies, in particular, to a large, diversified, long-term investor whose returns primarily follow value added in the global economy.

The mandates for the GPFN and GPFG refer to internationally acknowledged standards and principles for responsible investments. Norges Bank and Folketrygdfondet exercise the ownership rights of the Fund. Important responsible management tools are, inter alia, the promotion of international standards and research, company dialogue, clarification of expectations, as well as the submission of proposals and the casting of voting in general meetings. The handling of risk is a key to this work. Norges Bank has announced the publication of an expectation document on transparency in international corporate taxation.

The Ministry of Finance has adopted ethically motivated guidelines for the observation and exclusion of companies from the GPFG. Certain criteria in the guidelines are based on products, such as tobacco, weapons and coal. Other criteria are based on conduct, such as serious human rights violations and severe environmental damage. The Council on Ethics recommends companies for exclusion or observation. The final decision rests with Norges Bank.

Responsible management is discussed in chapter 6.

Climate issues in the management of the Fund

There is a broad political consensus that the Government Pension Fund shall not be a foreign policy or climate policy tool. Climate issues are nonetheless of relevance to the management of the Fund.

Climate is an important financial risk factor for the Government Pension Fund in the long run. The risk resulting from climate change is systemic in that it affects economic growth and overall corporate earnings. The Fund is especially exposed to systemic risk because it is large, has a long time horizon and has investments spread across thousands of companies. The Intergovernmental Panel on Climate Change deems it likely that a global temperature increase in excess of 2°C will have a negative impact on global economic growth. Climate risk is also market-spe-

cific, in that the returns on exposed asset classes, sectors and companies are more affected than others.

Climate risk is an integral part of the management of the GPFG and the GPFN. The funds are large investors in the markets where they operate, and shall promote improved international standards and corporate reporting on climate issues. Management expertise, standard setting and research support are amongst the tools aimed at reducing the systemic risk resulting from climate change. The general tools also increase awareness and understanding of the market-specific risk associated with climate change. Tilting the composition of the investments in order to handle market-specific risk is, on the other hand, more challenging. Only investors with an informational advantage, in the form of better knowledge than the general market concerning the probability of various climate scenarios, may be able to adapt their investments to achieve better returns than the market.

In 2016, two new criteria were included in the ethically motivated guidelines for observation and exclusion from the GPFG. One criterion is conduct-based and related to acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions. This criterion is to a large extent an international innovation, and the Council on Ethics is now engaged in a thorough preparatory effort to interpret the criterion, in order to make it applicable across industries and companies. Thus far, no companies have been excluded under this criterion. The other criterion is product-based, and targets mining companies and energy producers that derive 30 percent or more of their revenues from thermal coal or base 30 percent or more of their operations on thermal coal. Norges Bank may itself propose observation or exclusion under this criterion and has in 2016 published exclusion of 59 companies, with 11 being placed under observation.

As part of the responsible management effort, the Ministry of Finance has adopted separate mandates for environment-related investments in the GPFG. About NOK 64 billion was invested under these mandates at the end of 2016. Last year, the returns under the environment-related mandates were higher than the return on the Fund as a whole. For the last few years as a whole, on the other hand, these investments have underperformed the Fund as a whole.

Experience with the coal and climate criteria in the GPFG is discussed in section 6.3. Climate risk is discussed in section 6.4.

Amendments to mandates

Transparency in the management of the Government Pension Fund facilitates broad endorsement and understanding of the management of the Fund. With effect from 16 December 2016, the Ministry of Finance amended the mandate for the GPFN, by adding more detailed reporting requirements and a requirement for a supplementary risk limit for major losses that may be expected to occur rarely. These requirements are based on corresponding amendments made to the mandate for the GPFG in February 2016. Improved transparency may strengthen the ability to retain the commitment to profitable long-term asset management strategies.

In last year's report on the management of the Fund, the Ministry of Finance proposed a new benchmark index for the GPFG, comprising only listed equities and fixed-income securities. The real estate portfolio would thereby be omitted from the benchmark index, and instead added to Norges Bank's scope for deviations from the benchmark index. This was endorsed by the Storting, and the mandate for the GPFG was amended with effect from 1 January 2017.

The amendments to the mandates for the GPFG and the GPFN are discussed in sections 3.4 and 5.1.

New and ongoing initiatives

A commission chaired by Svein Gjedrem is examining the Central Bank Act and the governance structure of Norges Bank. In follow-up of the Storting's deliberation of the report on the management of the Fund in 2015, the commission's mandate has been expanded to also include an assessment of alternative governance and incorporation models for the GPFG. At the same time as the mandate was expanded, the deadline for submitting its recommendations was extended until 30 June 2017.

The Ministry of Finance reviews Norges Bank's management of the GPFG at the beginning of each term of the Storting. The Ministry intends to present a new review in the report on the management of the Fund in the spring of 2018. This will encompass an assessment of performance, benefits and costs of various investment strategies, in both the short and the long run.

Norges Bank is considering Norwegian instead of foreign holding companies for the unlisted real estate investments. This matter raises complex issues that need to be examined

before Norges Bank is in a position to make a decision. The Ministry of Finance will revert to this matter.

The GPFG cannot currently be invested in unlisted equities on a general basis. The Ministry of Finance intends to examine, prior to next year's report on the management of the Fund, whether such investments should be permitted in the GPFG.

These matters are discussed in sections 3.5 – 3.8.

2 The Government Pension Fund Global: strategy and performance

2.1 The current investment strategy

2.1.1 Background

The state saves its net cash flow from petroleum activities in the Government Pension Fund Global (GPFG). Saving in the Fund is fully integrated in the fiscal budget; see Box 2.1. The annual withdrawal from the Fund; the non-oil deficit, is determined through the adoption of the fiscal budget. Over time, the deficit shall equal the expected real rate of return on the GPFG.

The Fund is a financial investor. The objective for the investments is to achieve the highest possible return, given a moderate level of risk. The return is measured net of costs and in foreign currencies. The strategy for the investments is expressed in the management mandate for the GPFG issued by the Ministry of Finance. Operational management is carried out by Norges Bank in accordance with the mandate.

The GPFG shall be a responsible investor, within the overarching financial objective. The mandate is based on the premise that strong financial returns over time will depend on well-functioning markets and sustainable development. There is a broad political consensus that the Fund should not be used as a foreign policy or environmental policy instrument.

Transparency is important and a prerequisite for widespread confidence in the management of Norway's national savings in the GPFG. Important decisions are endorsed by the Storting. Broad support for the key features of the management of the Fund facilitates consistent adherence to the long-term investment strategy, also during periods of financial market turbulence.

2.1.2 The academic foundation

The investment strategy for the GPFG is derived from the purpose of the Fund and its distinctive characteristics, the investment beliefs of the Ministry and the comparative advantages of the asset manager. The strategy has been developed over time based on research, practical experience and thorough assessments. The strategy is summarised in Figure 2.1.

The investment strategy for the GPFG is premised on financial markets largely being well-functioning. Competition between market participants is high. Accordingly, new publicly available information is rapidly reflected in financial asset prices. Hence, systematically outperforming the general market, i.e. the average investor, in well-functioning markets will be difficult. This suggests that investors without distinctive advantages should diversify their investments broadly and seek to minimise asset management costs. Some investors may have distinctive characteristics or advantages which allow them to achieve an excess return over time.

A key element of the investment strategy for the GPFG is that risk can be reduced through broad diversification of the investments. When the investments are diversified across different asset classes, countries, sectors and companies, the risk in the Fund is reduced. Such diversification reduces exposure to events that impact individual stocks or markets. Diversifying investments enables a major part of the risk that is specific to individual investments – referred to as unsystematic risk – to be eliminated.

The risk of fluctuations in the overall stock market is often referred to as market risk or systematic risk. According to financial theory, investors can expect to be compensated for accepting this type of risk. The expected excess return is termed a risk premium. A key risk premium is the equity premium, i.e. the expected excess return from investing in equities rather than fixed-income securities. Investors will similarly expect compensation for the risk of a borrower defaulting on its obligations (credit premium). The magnitude of these expected premiums is uncertain and has varied over time.

Box 2.1 The framework for accrual and spending of petroleum revenues

The inflow of capital to the GPFG is largely a conversion of oil and gas resources on the Norwegian continental shelf into foreign financial assets. This conversion separates the net petroleum revenues from the state's other income. There are, at the same time, considerable fluctuations in such revenue streams, and they will eventually cease.

A key objective of the GPFG and the fiscal policy guidelines is to facilitate permanently high value creation and stable development in the mainland economy. To this end, the state's net cash flow from petroleum activities is transferred to the Fund in full. An amount is withdrawn from the Fund annually pursuant to a resolution passed by the Storting to cover the non-oil budget deficit. This approach makes petroleum revenue spending in the fiscal budget a visible part of an integrated budget process. As long as central government does not accumulate debt by borrowing to fund expenditure, the capital in the GPFG will reflect true financial saving on the part of central government.

The fiscal policy guidelines is aimed at a spending of petroleum revenues that over time corresponds to developments in the expected real rate of return on the GPFG. Decoupling spending from accruals shelters the fiscal budget from petroleum revenue fluctuations. At the same time, this facilitates the preservation of wealth over time, and thus the safeguarding of welfare for future generations. While the capital of the Fund can only be spent once, the real return may fund a permanently higher level of government expenditure. The fiscal policy guidelines supports the long time horizon of the Fund.

Investors have differing time horizons and capacity to bear risk. An investor's choice of portfolio composition determines the expected risk and return level. An investor must accept risk in order to achieve a satisfactory expected return over time. Increased risk means larger fluctuations in the value of investments and a higher loss probability. The proportion invested in equities has the greatest impact on overall expected risk and return in the GPFG.

The state is a large investor through the GPFG. The size of the Fund allows for economies of scale, but also restricts its management. All else being the same, the asset management costs, measured as a proportion of fund assets, will be lower for a large fund than for a small fund. At the same time, some strategies are difficult to scale up. It will also be more challenging for a large fund to make major portfolio adjustments within a short space of time, without incurring high transaction costs. Consequently, some investment strategies are not appropriate for the GPFG.

Another important distinctive characteristic is the long time horizon of the Fund. Central government, as owner, aims to preserve the principal of the Fund over time. It is considered unlikely that the state will make large and unexpected withdrawals from the Fund. This means that the GPFG is well placed to absorb risk that requires a long time horizon, which is utilised to, inter alia, harvest the expected excess return from investing in equities.

The financial sector offers numerous examples of the delegation of authority, with a decision-maker (the agent) acting on behalf of the person issuing an assignment (principal). Situations may arise in which different stakeholders have conflicting interests or different information. These are often referred to as principal-agent problems. Good corporate governance can help ensure that management acts in accordance with investor interests.

The mandate from the Ministry of Finance emphasises that the GPFG shall be a responsible investor. For a large, long-term fund like the GPFG, with ownership shares in several thousand companies worldwide, externalities from one company in the portfolio may be accompanied by lower returns on other parts of the portfolio. Strong financial returns over time are considered dependent on well-functioning markets and a sustainable development.

2.1.3 Main features of the investment strategy

The strategy for the investments in the GPFG is expressed in the mandate from the Ministry of Finance. It stipulates, inter alia, the universe in which the Fund can be invested, the equity and fixed-income benchmarks, which define the

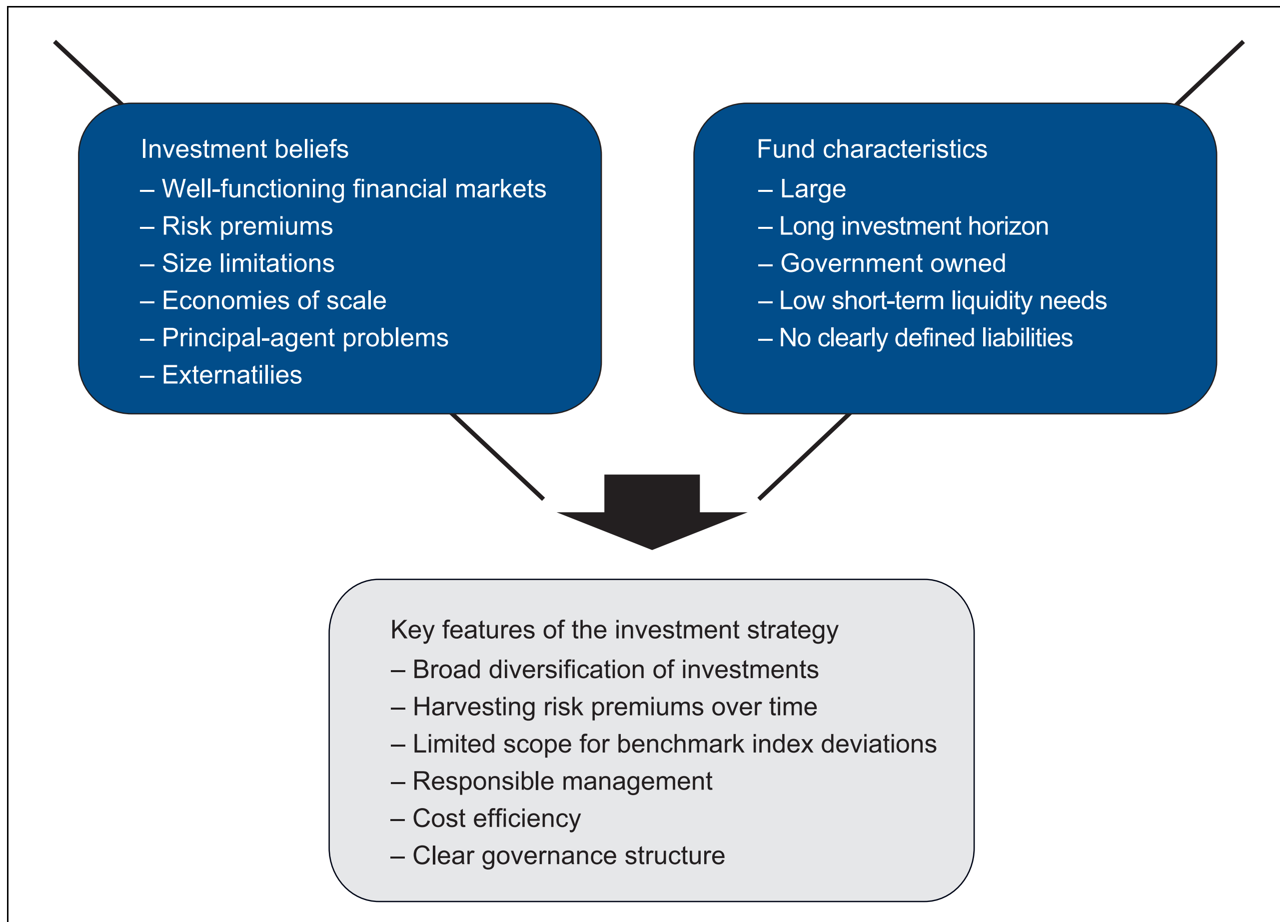

Figure 2.1 Assumptions concerning the functioning of the markets, the distinctive characteristics of the Fund and the investment strategy for the GPFG

Source: The Ministry of Finance.

desired distribution across markets, sectors and currencies, as well as other provisions governing Norges Bank's asset management.

The strategic benchmark index for the GPFG defines a fixed equity share of 62.5 percent. The equity share has been selected on the basis of, inter alia, the trade-off between expected risk and return. Weight has been attached to exploiting the special capacity of the Fund for absorbing long-term risk. The equity investments mean that the Fund is benefiting from global economic growth and value creation, and these are expected to make major contributions to the return over time. The remainder of the benchmark index is comprised of fixed-income securities.

The market prices of equities and fixed-income securities fluctuate considerably, and will often develop differently over time. Given these constant price changes, maintaining a fixed allocation between equities and fixed-income securities is considered inexpedient, not least because this would entail unnecessary transaction costs for the Fund. The mandate stipulates an actual benchmark index in which the equity and fixed-income shares may deviate from their long-term weights, subject to a specified limit. Figure 2.2 shows the composition of the strategic and actual benchmark indices as at yearend 2016.

If the equity share in the actual benchmark index is materially higher or lower than the strategic allocation, this may alter the risk and return characteristics of the benchmark. A rule has therefore been adopted on the rebalancing of the equity share back to 62.5 percent when it deviates by more than four percentage points. Rebalancing also gives the investment strategy a certain counter-cyclical element, in that over time the Fund purchases the asset class which in relative terms has depreciated substantially in value and sells the asset class which has appreciated strongly in relative terms.

The equity and fixed-income benchmarks are based on broad, global indices from leading index providers. These serve to anchor the manage-

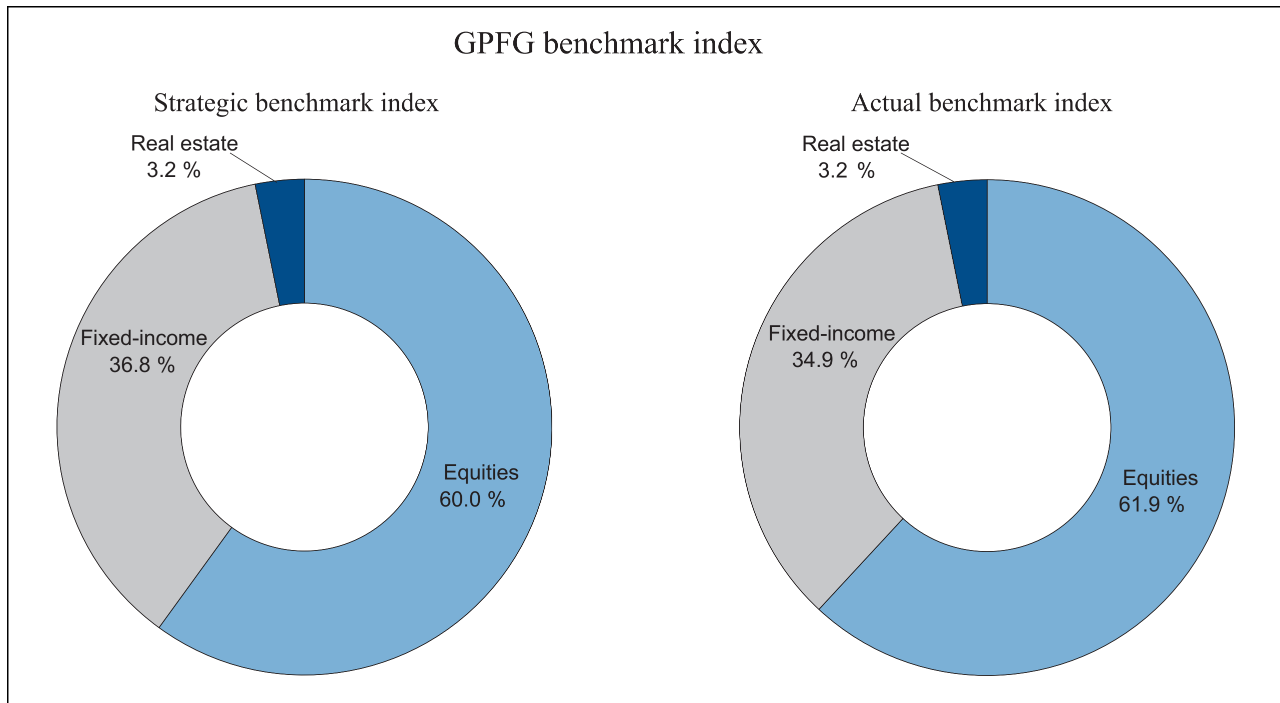

Figure 2.2 Composition of the strategic and actual benchmark indices for the GPFG at yearend 2016

Sources: Norges Bank and Ministry of Finance.

ment of the respective portfolios, and specify the allocation across sectors, individual companies and bond issues in a detailed and unambiguous manner. The index providers have their own criteria for determining which countries, companies and issuers to include in the indices.

The equity benchmark is based on an index provided by FTSE Russell and includes all countries, apart from Norway, classified by the index provider as developed markets, advanced emerging markets or secondary emerging markets. The allocation of investments across countries and geographical regions is based on the size of the listed stock markets in the countries included in the index.

The fixed-income benchmark is based on indices provided by Bloomberg Barclays, and comprises both government bonds and corporate bonds. Norwegian fixed-income securities are excluded from the benchmark. The fixed-income benchmark comprises 70 percent government bonds and 30 percent corporate bonds. While the distribution of the corporate bond investments is based on market weights, the distribution of government bonds is based on the relative size of the economies as measured by GDP. At the same time, adjustments have been made in some areas to take into account factors such as ensuring broad geographical diversification of the investments.

The mandate allows Norges Bank to deviate somewhat from the actual benchmark index. The purpose of such deviations is to achieve excess returns over time, based on the distinctive characteristics and advantages of the Fund. Deviations also facilitate cost-effective adaptation to the benchmark indices. Deviations from the benchmark index require market knowledge and proximity. Hence, the implementation has been delegated to Norges Bank. The scope for deviations is utilised, inter alia, in strategies to achieve broader diversification, to tilt the portfolio towards systematic risk factors and in the selection of securities. The deviations are also used to meet requirements in the mandate for environment-related investments and for fiscal strength in the government bond portfolio. The scope for deviations from the benchmark index is specified in terms of expected tracking error, and stipulated at 1.25 percentage points. Expected tracking error expresses how much the return on the GPFG is expected to deviate from the benchmark index in a normal year.

The benchmark indices entail broad diversification within each asset class, in that the indices comprise thousands of individual equities and bonds. Broad diversification serves to improve the risk-return ratio of the Fund. This means, when combined with an index-tracking approach, that the investments in the GPFG largely trace

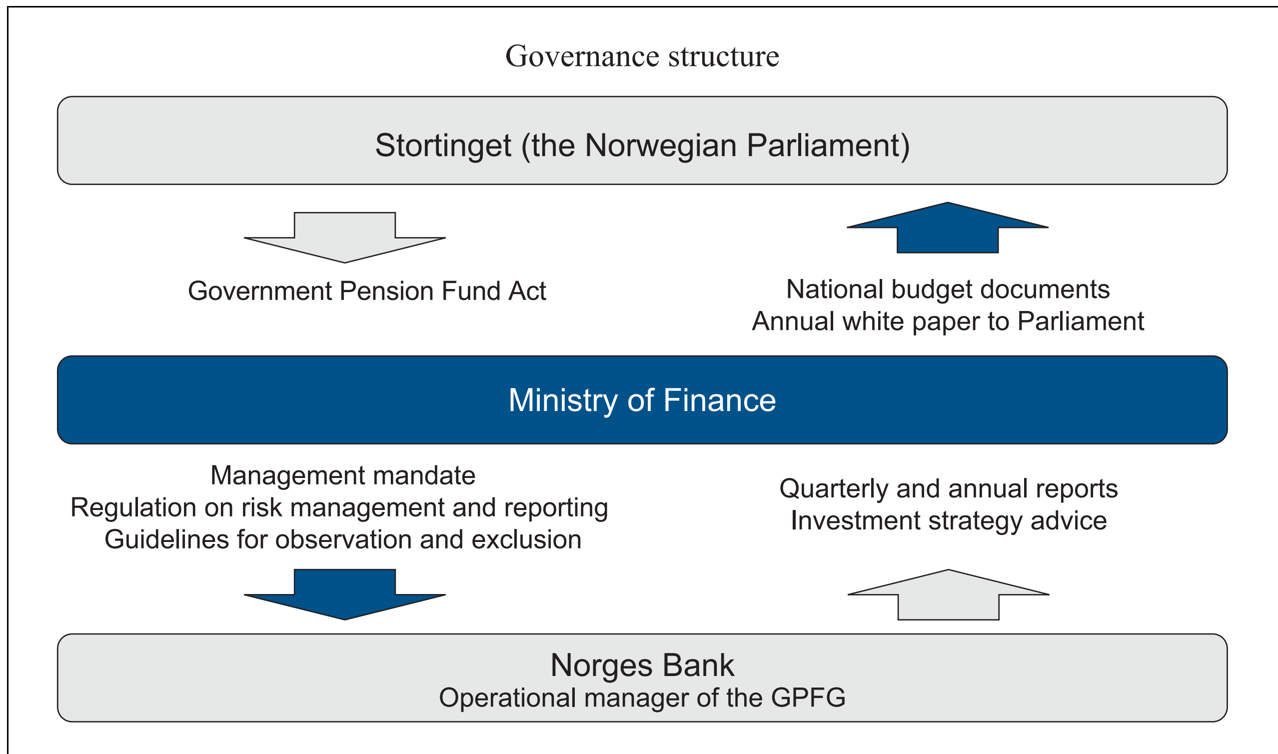

Figure 2.3 Governance structure of the GPFG

Source: Ministry of Finance.

returns in the global markets for listed equities and bonds. This index-tracking approach also enables the Fund to be managed at a low cost.

From 1 January 2017, the strategic benchmark index no longer has a designated real estate allocation. The new regulation means that the real estate investments are subject to the limit on expected tracking error, along with other deviations from the benchmark index. The scale and scope of the real estate investments will be determined by Norges Bank, within the limits laid down in the mandate from the Ministry. The new regulation is outlined in section 3.4.

The mandate also lays down additional equity and fixed-income investment guidelines. For example, Norges Bank may only invest outside Norway, only in tradable bonds and only in equities which are listed or where the board has expressed an intention to seek such listing on a regulated and recognised market place. The Fund may only own up to 10 percent of the voting shares in one company.[1] There are also provisions on risk and responsible management. Norges Bank is required to report on a wide range of matters, and management performance is measured against the actual benchmark index.

[1] An exemption has been made for real estate companies.

The mandate tasks Norges Bank with seeking the highest possible return after costs, measured in the currency basket of the Fund. The currency basket corresponds to the currency composition of the benchmark index. The management assignment is consistent with the objective of cost-efficiency. Comparisons with other large funds show that Norges Bank's asset management costs are low, as a percentage of capital under management. At the same time, the aim is to secure high net returns, not low costs as such.

2.1.4 Governance structure

The Storting has, under the Government Pension Fund Act, made the Ministry of Finance responsible for the management of the GPFG, while Norges Bank is responsible for the operational implementation of the mandate laid down by the Ministry of Finance. As mentioned, the mandate sets out the investment strategy and the limits on Norges Bank's management. A clear, robust governance structure is important for the implementation of the strategy and to reduce potential conflicts of interest, also known as principal-agent problems.

The governance structure must on the one hand ensure that the Fund owners, represented

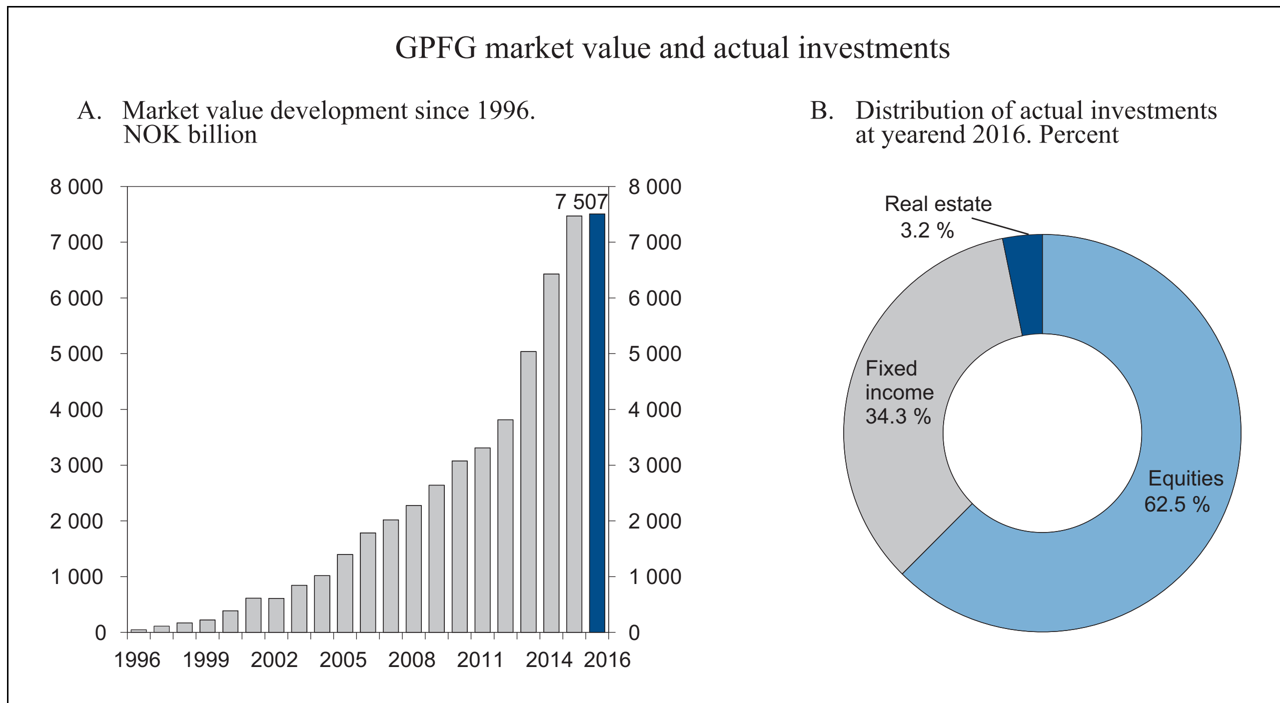

Figure 2.4 Development in the market value of the GPFG since 1996 and distribution of actual investments at yearend 2016

Sources: Norges Bank and Ministry of Finance.

by the Government and the Storting, support the strategy and risk profile of the Fund. On the other hand, sufficient authority must be delegated to allow ongoing operational management decisions to be made close to the markets in which the Fund is invested. This balance is sought by ensuring that the Government and the Storting endorse major strategic choices prior to implementation, including through the deliberation by the Storting of the annual white paper on the Government Pension Fund. Furthermore, the mandate issued to Norges Bank by the Ministry of Finance is predominantly concerned with stipulating general principles and regulations.

The management of the GPFG is based on the assignment of different roles to the Storting, the Ministry of Finance, the Executive Board of Norges Bank and the Norges Bank asset management units (NBIM and NBREM[2]). A clear division of roles between the various administrative governance levels, from the Storting down to the individual portfolio manager, also clarifies responsibilities. Tasks and authorisations are delegated downwards in the system, whereas performance and risk are reported upwards; see Figure 2.3. Regulations and delegations necessarily become more detailed further down in the hierarchy. Each part of the system has its own supervisory unit which receives reports from, and supervises, its subordinate unit. The exception to this principle is that the Executive Board of Norges Bank is subject to the supervision of the Supervisory Council, a governing body appointed by the Storting, which also appoints Norges Bank's auditor.

In 2015, the Government appointed a commission to examine the Central Bank Act and the governance structure of Norges Bank; see section 3.7.

2.2 Performance

In addition to its annual report on the GPFG, Norges Bank has for 2016 published supplementary information on risk and return, unlisted real estate investments and responsible management, respectively. These publications and further information are available on Norges Bank's website (www.nbim.no).

This section discusses the main points of the performance achieved in the management of the

[2] NBREM comprises the part of the Norges Bank Investment Management organisation focusing on unlisted real estate investments.

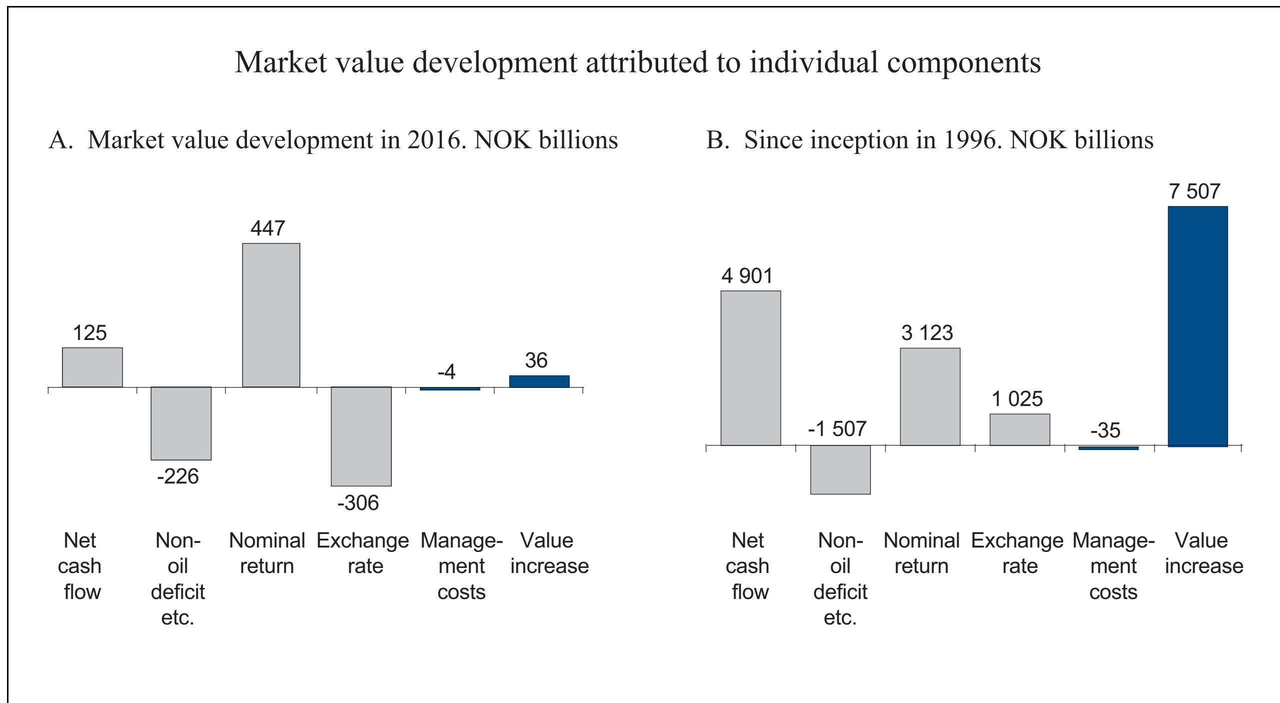

Figure 2.5 Development in the market value of the GPFG in 2016 and since its inception in 1996

Sources: Norges Bank and Ministry of Finance.

GPFG in 2016 and the Ministry of Finance's assessment of such performance.

2.2.1 Market developments

Financial markets saw a turbulent start to 2016, with global equity indices declining by more than 10 percent over the first two months of the year. The turbulence was caused by, inter alia, uncertainty about the growth outlook for the Chinese economy and depreciation of the Chinese currency, in combination with falling commodity prices and a negative policy rate in Japan.

This was followed by a period of rebounding risk appetite, supported by measures and signals of measures from the European and the US central bank, respectively. At the same time, commodity prices started to increase. The Chinese housing market saw positive development, and the fear of lower growth in China was diminished.

Renewed belief in global economic growth contributed to a steep stock market rebound in the second half of the year, despite market volatility in connection with the EU membership referendum in the United Kingdom, the presidential election in the United States and the referendum on the Italian constitution. Global stock market return over the year was about 10 percent, measured in local currency.[3] Returns were about the same in developed and emerging markets when measured in local currency.

As far as fixed-income securities are concerned, the first half of 2016 was characterised by declining interest rates internationally. After the results of the US presidential election was clear, the financial market came to expect higher economic growth and inflation. This resulted in a significant increase in the yield on ten-year government bonds. Yields on ten-year US treasury notes were more than one percentage point higher at yearend than when reaching their lowest level for the year in July.

2.2.2 Market value

At yearend 2016, the market value of the GPFG was NOK 7,507 billion; see Figure 2.4A.[4] The

[3] Measured by the MSCI ACWI IMI global equity index.

[4] In the reporting section of the annual report for the GPFG, Norges Bank puts the market value of the investments at NOK 7,510 billion, which is before the deduction of asset management costs for 2016. The value of the Fund net of costs was NOK 7,507 billion; see Table 6 of the annual report for the GPFG, as well as the «Statement of changes in owner's capital» in the financial statement section of the report.

Table 2.1 Return on the GPFG in 2016, in the last 3, 5 and 10 years, as well as over the period 1998–2016, measured in the currency basket of the Fund and before the deduction of asset management costs. Annual geometric average. Percent

	2016	Last 3 years	Last 5 years	Last 10 years	1998–2016[1]
GPFG including real estate					
Actual portfolio	6.92	5.72	9.22	5.25	5.70
Inflation	1.52	1.06	1.31	1.77	1.76
Asset management costs	0.05	0.06	0.06	0.08	0.09
Net real rate of return	5.27	4.56	7.74	3.33	3.79
Excess return (percentage points)[2]	0.15	-0.05	0.20	0.06	0.26
Equity portfolio					
Actual portfolio	8.72	6.80	12.67	4.78	5.86
Benchmark index	8.58	6.73	12.30	4.54	5.40
Excess return (percentage points)	0.15	0.06	0.37	0.24	0.46
Fixed-income portfolio					
Actual portfolio	4.32	3.81	3.62	4.37	4.84
Benchmark index	4.16	4.06	3.78	4.34	4.70
Excess return (percentage points)	0.16	-0.26	-0.16	0.03	0.14
Real estate portfolio					
Actual portfolio[3]	0.78	6.97	7.67	5.82	–

1 The equity portfolio includes figures from February 1998, inclusive.
2 Excess return on the equity and fixed-income portfolios of the Fund.
3 The first real estate investment was made in the first quarter of 2011. Return reported in the column "Last 10 years" is the annualised return since 1 April 2011.
Sources: Norges Bank and Ministry of Finance.

investments comprised about NOK 4,700 billion in equities, just under NOK 2,600 billion in fixed-income securities and just over NOK 240 billion in real estate. Figure 2.4B shows the distribution of the investments of the Fund across equities, fixed-income securities and real estate as at yearend. In 2016, the market value of the Fund increased by NOK 36 billion;[5] see Figure 2.5A. The growth was in its entirety caused by positive financial market returns. Appreciation of the Norwegian krone reduced, when taken in isolation, the value of the Fund as measured in Norwegian kroner. Since inception of the Fund, Norwegian krone depreciation has nonetheless boosted the value of the Fund by NOK 1,025 billion. Norwegian krone exchange rate changes do not influence the international purchasing power of the Fund. It is to be

5 Changes in owner's capital (the market value of the investments in the Fund, less asset management costs) from yearend 2015 to yearend 2016. In the reporting section of its annual report for the GPFG, Norges Bank quotes the change in the market value of the investments of the Fund at NOK 35 billion before the deduction of asset management costs.

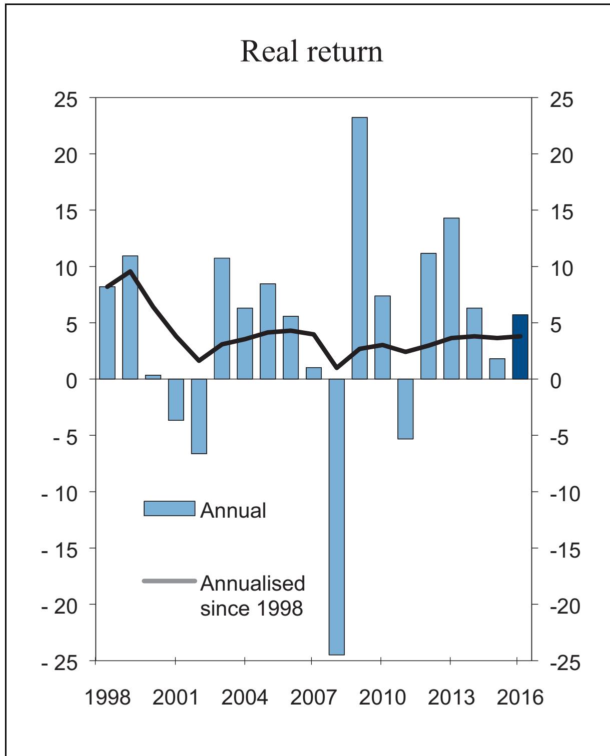

Figure 2.6 Real rate of return on the GPFG, net of asset management costs, measured in the currency basket of the Fund. Percent

Sources: Norges Bank and Ministry of Finance.

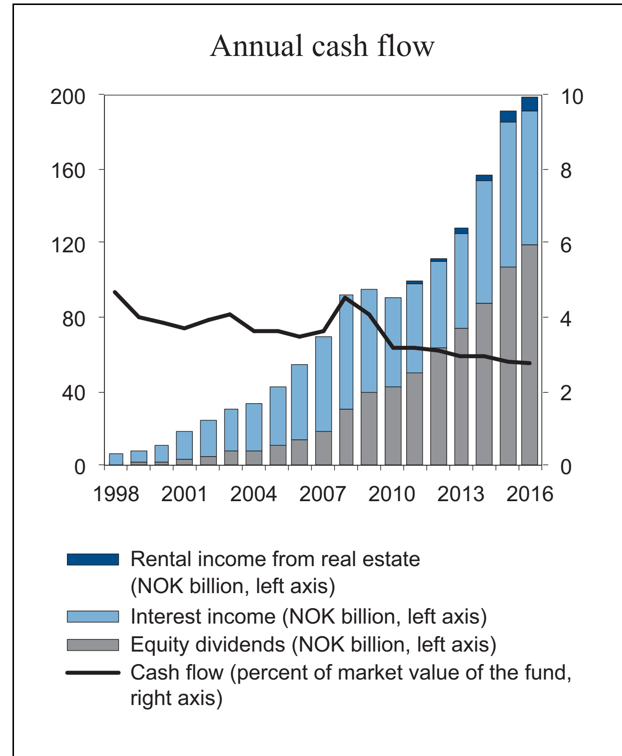

Figure 2.7 Development in the annual cash flow of the GPFG. Measured in NOK billion and as a proportion of average Fund value.

Source: Norges Bank.

expected that exchange rates will fluctuate over time.

2016 was the first year since 1996 in which the net cash flow from petroleum activities was less than the non-oil deficit in the fiscal budget; see Figure 2.5A. This implied that 2016 was the first year of net withdrawals from the Fund. Net withdrawals over the year were NOK 101 billion.

2.2.3 Aggregate return

Norges Bank shall, according to the mandate from the Ministry of Finance, seek the highest possible return in the currency basket of the Fund, which also reflects the international purchasing power of the capital. All return figures in this section are measured in the currency basket of the Fund.

In 2016, the return on the GPFG was 6.9 percent before the deduction of asset management costs; see Table 2.1. Since 1998, the average annual nominal return has been 5.7 percent. The annual return on the Fund as measured in other currencies than the currency basket is specified in Appendix 2 to this report.

The equity portfolio achieved a return of 8.7 percent in 2016. The investments in North America delivered the highest return, while European equities registered the lowest return. The equity portfolio has achieved an average annual return of 5.8 percent since 1998.

The fixed-income portfolio delivered a return of 4.3 percent in 2016. Corporate bonds and inflation-linked bonds achieved the highest return over the year, while securitised bonds delivered the lowest return. Since 1998, the fixed-income portfolio has generated an average annual return of 4.8 percent.

The return on the real estate portfolio was 0.8 percent in 2016. The listed real estate investments delivered a return of -2.3 percent, while the unlisted real estate investments generated a return of 1.7 pct. The net rental income from the unlisted real estate investments was 3.7 percent, while changes in the value of properties and debts represented 0.7 percent. At the same time, currency effects and transaction costs reduced the return on the unlisted real estate investments, by 2.5 and 0.2 percentage points, respectively. The Fund's first unlisted real estate investment was made in the

first quarter of 2011. The average annual return on the real estate portfolio from 1 April 2011 up to and including 2016 was 5.8 percent.

Real rate of return and net current income

The real rate of return, net of asset management costs, was 5.3 percent in 2016; see Figure 2.6. The average annual net real rate of return since January 1998 is 3.8 percent.

The GPFG received net current income of NOK 199 billion in 2016, corresponding to 2.8 percent of its average assets. This represented an increase of NOK 6 billion from 2015. The revenues comprised stock dividends of NOK 119 billion, interest payments of NOK 73 billion and NOK 8 billion in rent income from unlisted real estate; see Figure 2.7.

2.2.4 Excess return in asset management

Norges Bank is permitted to deviate from the benchmark index stipulated by the Ministry of Finance, subject to the limits laid down in the management mandate for the GPFG. The purpose of such deviations is to achieve excess returns, to improve the risk-return ratio of the Fund, as well as to comply with requirements set out in the mandate. The scope for deviations also facilitates cost-effective adaptation to the benchmark index. In 2016, the aggregate return on the Fund's equities and fixed-income securities was 0.15 percentage points higher than the return on the benchmark index; see Figure 2.8. The excess return amounted to about NOK 10 billion.[6] Since January 1998, Norges Bank has outperformed the benchmark index by an average of 0.26 percentage points a year. This amounted to about NOK 91 billion in total.

The Ministry of Finance considers gross excess return to be a reasonable estimate of net value added through Norges Bank's management of the GPFG. The ratio between these quantities was discussed in the report on the management of the Fund in 2015.

Equities and fixed-income securities

In 2016, Norges Bank's asset management delivered a return on the equity portfolio that was 0.15 percentage points higher than the return on the benchmark index adopted by the Ministry. The return on the fixed-income portfolio was 0.16 percentage points higher than the return on the benchmark index. The contributions made by various investment strategies to overall excess return are shown in section 2.2.8.

Real estate

The return on Norges Bank's real estate investments is measured against the global IPD real estate index, with the exception of Norway and adjusted for the actual effect of leveraging and actual asset management costs. The index is prepared by the index provider MSCI, which is also commissioned by the Ministry of Finance to perform the annual comparison. The IPD index is only available with a time lag, since it is based on reported figures from a large number of real estate investors.

The most recent report relates to 2015, and shows that the return on the GPFG's unlisted real estate investments that year was 1.3 percentage points lower than the return on the IPD index when all return figures are converted into Norwegian kroner. The return difference is primarily caused by properties delivering lower returns than the index in some cities. The rental income from the real estate investments in the GPFG's was somewhat lower than for the properties included in the IPD index, while the GPFG's real estate investments achieved a somewhat larger increase in property value. Exchange rate developments made a positive contribution. The MSCI report is available on the Ministry of Finance's website.

Environment-related investment mandates

In 2009, the Ministry of Finance decided to establish specific mandates for environment-related investments within the GPFG. The investments form part of the active management performed by Norges Bank within the scope of the mandate. According to the mandate from the Ministry of Finance, the market value shall normally be in the NOK 30 to 60 billion range. At yearend 2016, the investments totalled NOK 63.7 billion, comprised of NOK 57.7 billion in equities and NOK 6.1 billion in green bonds. The equity investments were spread across 226 companies. Norges Bank has given an account of these investments in its publication on responsible management, which was published in March 2017.

[6] Gross excess return in NOK billion is calculated by multiplying the excess return for each month with assets at the beginning of that month, and thereafter adding together all such monthly amounts.

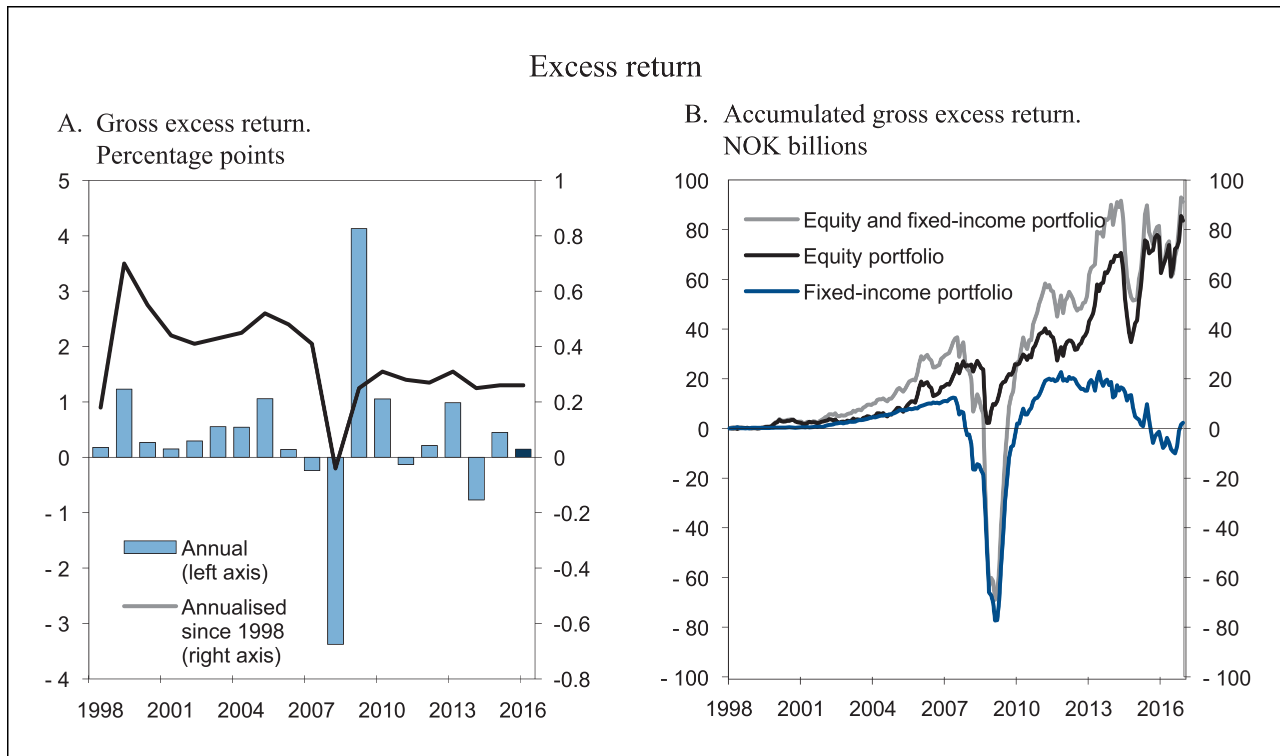

Figure 2.8 Gross excess return from Norges Bank's active management in 2016 and since 1998

Sources: Norges Bank and Ministry of Finance.

The environmental mandates mean that the proportion of the GPFG invested in environment-related companies and industries is larger than would be implied by the benchmark index for the Fund. This reduces Norges Bank's scope for deviation from the benchmark index.

The return on the environment-related equity investments was 12.4 percent in 2016, compared to 8.7 percent on the overall equity investments of the Fund and 6.9 percent on the Fund as a whole. The average annual return on the environment-related equity investments from 2010 to 2016, inclusive, was 4.2 percent, compared to 12.2 percent on the overall equity investments of the Fund and 9.6 percent on the Fund as a whole. When taken in isolation, the environment-related equity investments thus made a positive return contribution in 2016, but have made a negative contribution to aggregate returns over the period since 2010.

2.2.5 Risk-adjusted return

The limit on expected tracking error of 1.25 percentage point in the mandate from the Ministry of Finance, permits Norges Bank to deviate from the benchmark index in order to secure an excess return. A somewhat different composition of the investments in the GPFG than in the benchmark index may entail somewhat larger or smaller absolute risk for the GPFG than in the benchmark index. In financial literature, models and measures are used to assess whether an investor has been compensated for the risk assumed in active management. The Sharpe ratio and the information ratio are two commonly used risk-adjusted return measures.

Sharpe ratio

The Sharpe ratio measures the return achieved in excess of the risk-free rate relative to total portfolio risk, as measured by fluctuations in the aggregate return on the portfolio.

A high Sharpe ratio means that the investor has been well compensated for the assumed risk, but provides no insight into the absolute return level. If the manager's deviations from the benchmark index entail low aggregate risk in the portfolio, a lower return than that on the benchmark index can produce a high Sharpe ratio.

In 2016, the calculated Sharpe ratio was 1.1 for both the equity and fixed-income portfolios of the GPFG and the benchmark index. The differ-

Table 2.2 Absolute and relative risk measures for the GPFG in 2016, in the last 3, 5 and 10 years, as well as over the period 1998–2016. Annual figures based on monthly observations

	2016	Last 3 years	Last 5 years	Last 10 years	1998–2016[1]
GPFG excluding real estate					
Absolute volatility (percent)	6.32	6.67	6.55	9.08	7.51
Tracking error (percentage points)	0.41	0.39	0.37	0.90	0.71
Sharpe ratio difference	-0.01	-0.02	0.00	-0.02	0.01
Information ratio	0.37	-0.10	0.52	0.12	0.39
Equity portfolio					
Absolute volatility (percent)	10.62	10.50	10.36	15.25	14.91
Tracking error (percentage points)	0.57	0.51	0.45	0.72	0.81
Sharpe ratio difference	-0.01	-0.01	0.01	0.01	0.03
Information ratio	0.31	0.16	0.78	0.41	0.60
Fixed-income portfolio					
Absolute volatility (percent)	3.62	2.85	2.76	3.61	3.38
Tracking error (percentage points)	0.39	0.47	0.46	1.44	1.06
Sharpe ratio difference	0.12	0.02	0.05	-0.07	0.00
Information ratio	0.36	-0.54	-0.34	0.03	0.13

[1] The equity portfolio includes figures from February 1998, inclusive.
Sources: Norges Bank, Kenneth R. French – Data Library and Ministry of Finance.

ence between these two figures was close to zero (–0.01); see Table 2.2 and Figure 2.9A.
Over the period from 1998 to 2016, the Sharpe ratio was 0.5 for both the equity and fixed-income portfolios of the GPFG and the benchmark index. The difference between the Sharpe ratio of the portfolios and that of the benchmark index is small, for both 2016 and the period 1998–2016. This is primarily because the deviations implemented in active management are small. The portfolios have experienced somewhat larger return fluctuations than the benchmark index, but have also achieved a somewhat higher return, thus implying that the risk-return ratio has been virtually identical.

Information ratio

Whereas the Sharpe ratio measures the return achieved in excess of the risk-free rate relative to aggregate portfolio risk, the information ratio measures the excess return achieved in proportion to the relative risk assumed. The mandate restricts Norges Bank's deviations from the benchmark index by means of a limit on expected tracking error. The information ratio is therefore relevant in assessing Norges Bank's active management.

An information ratio above zero means that the asset manager has achieved a higher return than the return on the benchmark index. A high information ratio may be interpreted as expressing asset management proficiency, and an information ratio in excess of 0.4 over time is normally considered an indication of strong performance. In 2016, the information ratio was 0.4 for the equity and fixed-income portfolios, 0.3 for the equity portfolio and 0.4 for the fixed-income portfolio. The calculation is based on a limited number of observations, and is therefore uncertain.

Over the period 1998–2016, the information ratio was 0.4 for the equity and fixed-income port-

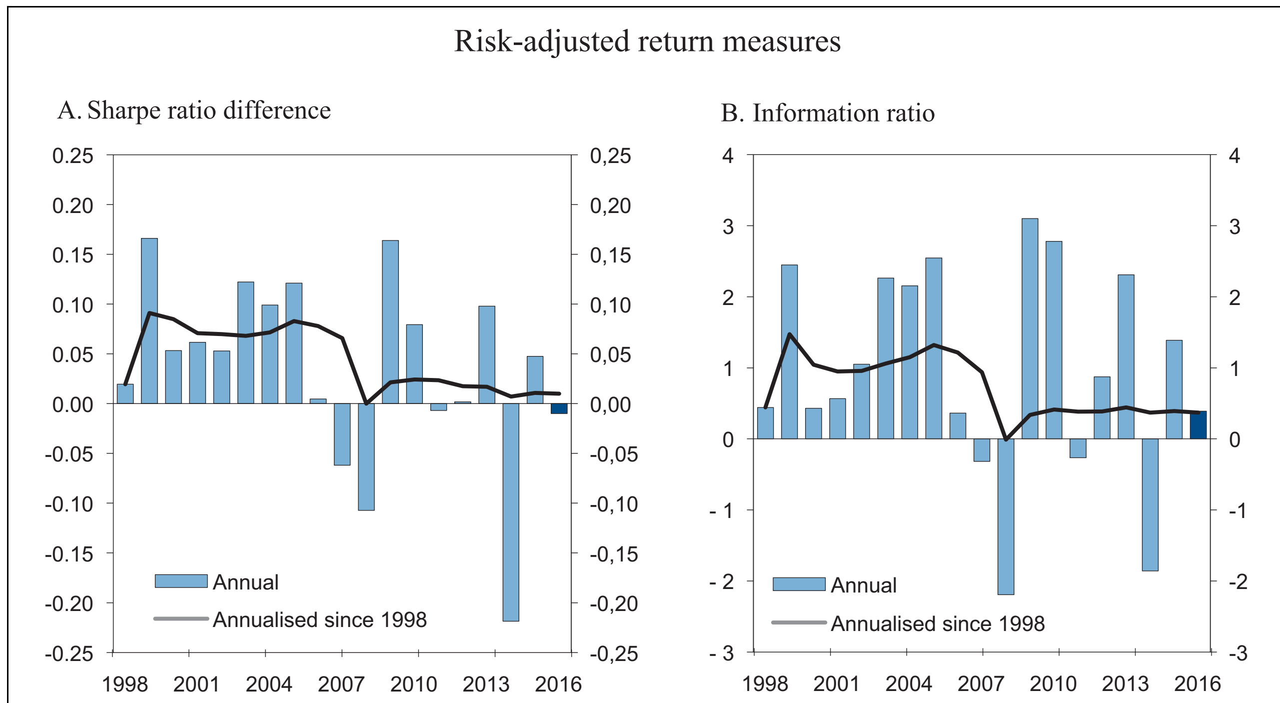

Figure 2.9 Sharpe ratio difference and information ratio for the equity and fixed-income portfolios of the GPFG

Sources: Norges Bank, Kenneth R. French – Data Library and Ministry of Finance.

folios, 0.7 for the equity portfolio and 0.1 for the fixed-income portfolio; see Figure 2.9B. Norges Bank's asset management contributed to the Fund being compensated for the relative risk assumed over this period, however, the Fund received a higher reward for the relative risk in the equity portfolio than in the fixed-income portfolio.

2.2.6 Risk and limits

Absolute risk

Norges Bank has in its annual report for the GPFG in 2016 calculated that the *expected fluctuations* in the equity and fixed-income investments of the Fund were 10.6 percent at yearend 2016, or about NOK 800 billion, measured by standard deviation. Assuming normally distributed return figures, the fluctuations are expected to exceed one standard deviation in one out of three years. Moreover, according to estimates from Norges Bank, the Fund may lose about 25 percent of its value over a period of one year if the market experiences a sharp downturn. This amounts to almost NOK 1,900 billion.

Analyses of *historical fluctuations* based on monthly figures show that the standard deviation of the equity and fixed-income investments of the Fund in 2016 was 6.3 percent, while the standard deviation of the return on the benchmark index was 6.1 percent. Hence, Norges Bank's active management has contributed to somewhat higher fluctuations in the return on the Fund than in the return on the benchmark index. Both financial market price volatility and the correlation between equity and bond price developments were low in 2016. This meant that historical fluctuations in 2016 were less than the fluctuations expected over time.

The standard deviation of the return on the equity and fixed-income benchmarks of the Fund has varied over time and increased during periods of elevated market uncertainty. Typically, the fluctuations have been somewhat higher than those of the benchmark index; see Figure 2.10A. However, analyses show that 99.4 percent of the fluctuations in the return on the Fund can be explained by fluctuations in the return on the benchmark index.

Relative risk

In 2016, Norges Bank utilised a relatively small portion of the scope for deviations from the index, and has estimated the *expected tracking error* at yearend at 0.3 percentage points. Based on devel-

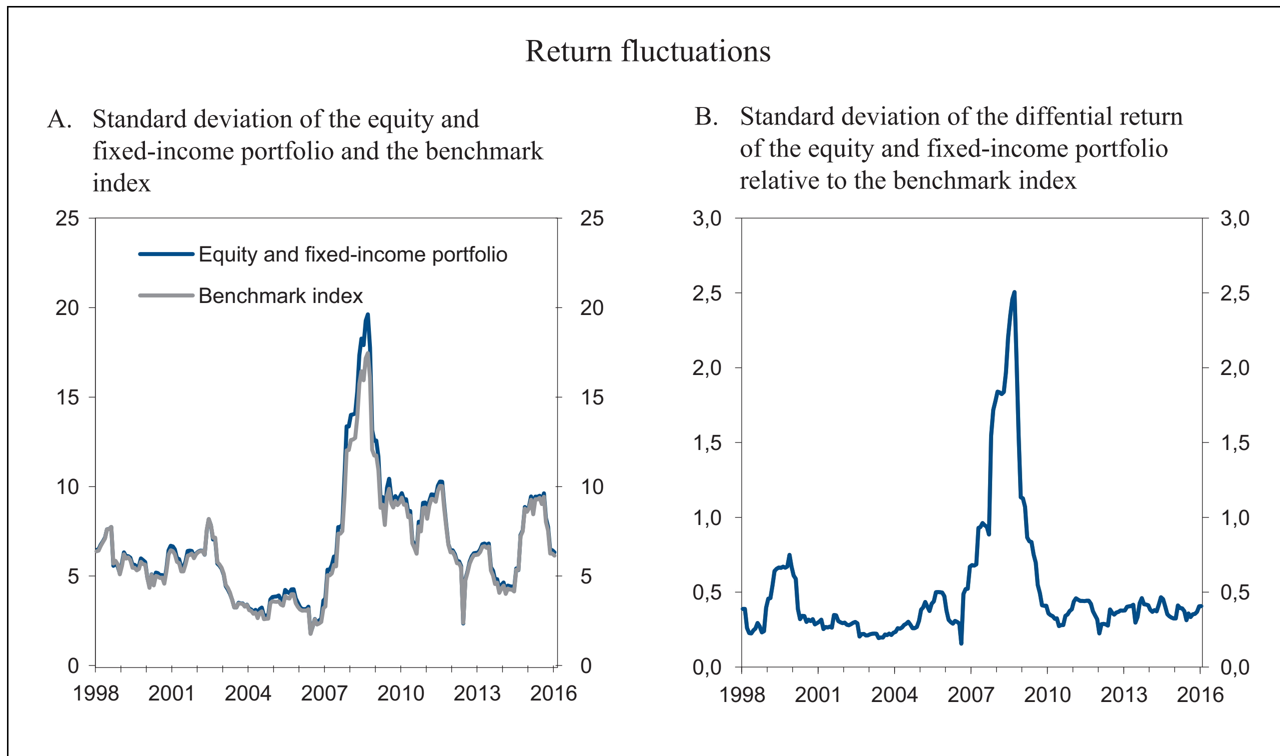

Figure 2.10 Rolling 12-month standard deviation of the return on the equity and fixed-income portfolios and the benchmark index, as well as the differential return. Percent

Sources: Norges Bank and Ministry of Finance.

opments in the relative return actually delivered in 2016, the *realised tracking error* for the equity and fixed-income investments of the Fund has been estimated at 0.4 percentage points. Figure 2.10B shows developments in realised tracking error over time. The contributions to realised tracking error by various investment strategies are discussed in section 2.2.8.

Tracking error measures variations under normal market conditions. Other measures are more relevant for extreme market conditions. According to Norges Bank, the expected negative excess return from active management in the worst 2.5 percent of cases at yearend 2016 is estimated at just under 0.9 percentage points, measured on an annual basis (expected shortfall). The estimate is based on market developments over the past 10 years.

Credit risk

The bonds included in the benchmark index of the GPFG have been accorded a credit rating by at least one of the leading rating agencies. The purpose of credit ratings is to indicate how likely it is that the borrower will be able to meet the interest costs and repay the loan. The proportion of bonds with a credit rating of AAA[7] or AA at yearend 2016 was 59 percent, which is the same proportion as at the beginning of the year.

Bonds with a low credit rating, so-called high-yield bonds, are not included in the benchmark index for the GPFG. Norges Bank is nonetheless permitted to invest in such bonds. This ensures that Norges Bank is not forced to sell bonds which are downgraded, but may hold these to maturity. According to the mandate from the Ministry of Finance, asset management shall be organised with a view to ensuring that such bonds represent no more than 5 percent of the market value of the fixed-income portfolio. At yearend 2016, high-yield bonds accounted for 2.2 percent of the Fund's fixed-income investments, up from 0.7 percent at the beginning of the year. The increase was largely caused by the credit ratings of Brazilian and Turkish government bonds being downgraded over the year.

[7] Standard & Poor's rating scale for credit quality is AAA, AA, A, BBB, BB, B, CCC, CC, C, D, with AAA as the top rating. Bonds with a credit rating from AAA to BBB, inclusive, are deemed to have high creditworthiness and are termed "investment grade" bonds. Bonds with a lower credit rating are deemed to have low creditworthiness and are termed "high yield" bonds.

Credit risk in the portfolio at yearend 2016 was at about the same level as at the beginning of the year, measured by average credit rating.

Individual investments

The role of the Fund is to be a financial investor. It seeks to diversify risk across many different securities. The Ministry of Finance has therefore stipulated that the Fund can hold a maximum of 10 percent of the voting shares of any one company in the equity portfolio. At yearend 2016, its largest ownership stake in one single company in the equity portfolio was 9.6 percent. The market value of the Fund's largest investment in a single company was NOK 51 billion.

Limits defined by Norges Bank

In addition to the limits stipulated in the mandate laid down by the Ministry of Finance for the management of the GPFG, there is a requirement for the Executive Board of Norges Bank to define supplementary risk limits for the management of the GPFG. The limits set by the Executive Board are available on Norges Bank's website.

Norges Bank has chosen to invest a smaller share of the Fund in some companies than would be implied by the benchmark index. In the equity portfolio, the overlap with the benchmark index was 83 percent at the end of 2016. This implies that the total underweighting in individual companies represents 17 percent of the value of the equity portfolio. The funds released through underweighting can be used to increase the ownership stakes in other companies in the index, or to invest in companies not included in the index. Norges Bank has invested in about 1,500 companies that are not part of the index. Among other things, investments have been made in companies whose market values or liquidity are too low to qualify for inclusion in the index, as well as in companies in emerging markets.

2.2.7 Costs

According to the mandate for the GPFG, the actual asset management costs of Norges Bank are covered up to an upper limit. For 2016, this limit was fixed at 8 basis points of the average market value of the Fund. For 2017, the limit has been reduced to 7.5 basis points. One basis point equates 0.01 percent. Norges Bank is also compensated for performance fees to external managers.

Asset management costs, excluding performance-based fees to external managers, amounted to NOK 3.5 billion in 2016. This corresponds to 4.9 basis points of the average market value of the Fund, up from 4.8 basis points the previous year.

Overall asset management costs declined to NOK 3.7 billion in 2016, from NOK 3.9 billion in 2015. The reduction was primarily caused by lower performance-based fees to external managers and lower cost of depository services. When taken in isolation, costs were somewhat increased by growth in the number of employees and Norwegian kroner depreciation. Measured as a proportion of assets under management, overall costs represented 5.2 basis points in 2016, down from 5.7 basis points in 2015. Operational and administrative costs are incurred by subsidiaries established in connection with the real estate investments. Pursuant to the accounting rules applicable to Norges Bank, these costs are deducted from the return on the real estate portfolio and are not included in the reimbursement of management costs. In 2016, these costs came to NOK 100 million, up from NOK 95 million in 2015.

Allocation of costs to investment strategies is discussed in section 2.2.8.

Unlisted real estate

The Ministry of Finance emphasises that the reporting of costs associated with unlisted investments must allow comparison of the return to that on listed investments. In the case of unlisted real estate investments, this entails the deduction of several cost components when calculating the return achieved by the real estate companies, as these would have been deducted when calculating the return on a real estate fund or the profit of a listed real estate company. A more detailed description of the costs is provided in Box 2.2.

International cost comparison

The Canadian company CEM Benchmarking Inc. has compared the Fund's costs in 2015 to the costs of more than 300 other funds. The comparison shows that the GPFG is among the funds with the lowest costs, when costs are measured relative to assets under management. One reason for this is that the GPFG has only a small proportion of its investments in high-cost asset classes, such as unlisted equities and real estate. Moreover, the majority of the Fund is managed internally, by

Box 2.2 Real estate management costs

Net real estate management costs amounted to approximately NOK 3.8 billion last year. The costs are split into different components. The vast majority of these costs are deducted when calculating the return on the real estate portfolio, as in a listed real estate company or real estate fund.

Property costs relate to the daily operation and maintenance of the buildings in the portfolio. This includes activities linked to letting, cleaning, electricity, insurance, environment, health and safety, as well as janitorial services, billing and ordinary tenant follow-up. In 2016, these costs totalled NOK 2,852 million, of which NOK 1,527 million were reimbursed by tenants.

Asset management costs primarily comprise fees paid to real estate managers responsible for managing one or several buildings and implementing action plans to achieve the highest possible return at the lowest possible risk. In 2016, such costs came to NOK 493 million.

Holding structure costs are costs incurred by wholly or partly owned real estate companies with no employees. These costs primarily consist of auditing and accounting fees, legal fees, insurance, administrative costs relating to the companies, as well as payments to partners in the United States and the United Kingdom to compensate for higher tax costs as the result of structural benefit to the GPFG. In 2016, the holding structure costs were NOK 144 million.

Investment management costs are costs incurred by Norges Bank in connection with the operation of the organisation which manages and invests in unlisted real estate. This item includes personnel costs, IT costs, consultancy and legal services, the cost of office premises and a proportion of Norges Bank's overhead costs. The costs accrue at two levels in the organisational structure. The highest level constitutes costs incurred by Norges Bank Real Estate Management (NBREM), which manages the real estate investments of the GPFG. In 2016, the costs of NBREM were NOK 440 million. The next level comprises operating companies with employees in Luxembourg, Tokyo, Singapore and London. The costs at this level are comparable to the costs incurred by NBREM. In 2016, management costs in operating companies totalled NOK 66 million.

Tax costs are a cost component for the investments of the Fund. In 2016, the Fund had a payable tax cost of NOK 151 million in connection with its real estate investments, as well as an increase in deferred tax cost of NOK 174 million.

Interest costs accrue on some real estate investments which are partly financed by external debt. This cost was NOK 622 million in 2016.

Transaction costs are one-off costs linked to the purchase or sale of real estate, and include stamp duty and other taxes and fees to local authorities. This item also includes the cost of analyses conducted prior to investment (due diligence). In 2016, stamp duty and other taxes and fees linked to transactions totalled NOK 340 million, while other transaction costs amounted to NOK 87 million.

Norges Bank, and the external management element is small. CEM has also found that Norges Bank's internal management is cost-effective compared to the management activities of other funds. The report is available on the Ministry's website.

Cost developments over time

Asset management costs measured in Norwegian kroner have increased over time; see Figure 2.11. Some costs depend on the size of the Fund and will therefore increase when the value of the Fund increases. Norges Bank has expanded its personnel in connection with, inter alia, the real estate investments. Together with a general increase in salaries, this has resulted in higher internal costs. Some of the costs of the Fund are incurred in other currencies than Norwegian kroner, thus implying that Norwegian krone exchange rate changes will also affect costs measured in Norwegian kroner. Nonetheless, the cost increase over time has been smaller than the increase in the value of the Fund, thus implying that costs have declined as a proportion of assets under management.

2.2.8 Excess return, risk and costs, specified across investment strategies

Norges Bank has over the strategy period from 2013 to 2016 outlined the following key equity and fixed-income management strategies:

- *Allocation strategies*. Examples of such strategies are expanding the investment universe to include more emerging markets or having a different average duration for the fixed-income investments in the Fund than in the benchmark index. Allocation strategies may also involve the Fund taking somewhat larger ownership stakes in so-called value companies[8] or small companies than would be implied by the benchmark index, thus achieving exposure to systematic risk factors such as value and size. A number of these strategies are included in the internal reference portfolio set by Norges Bank. The reference portfolio is based on the benchmark index defined by the Ministry of Finance, but is tailored to exploit the distinctive characteristics of the Fund and, over time, improve the risk-return ratio. The reference portfolio also encompasses deviations from the benchmark index that are caused by the environmental mandates or the requirement in the mandate to take account of differences in fiscal strength between countries in the selection of government bonds.
- *Security selection*. Such selection entails investing a larger or smaller proportion of the Fund in individual companies or individual bonds than implied by the benchmark index, based on fundamental analyses of the companies. Norges Bank employs both internal and external managers to perform such security selection. The external managers are primarily used for investments in emerging markets, and in small and medium-sized companies in markets in which Norges Bank does not deem it appropriate to develop internal capabilities.
- *Market exposure*. This strategy is intended to ensure the most cost-effective market and risk exposure. The strategy encompasses responsibility for managing the broad equity and fixed-income portfolios, implementation of ongoing securities trading, as well as handling of cash, foreign exchange and securities lending. The need for securities trading arises, inter alia, as the result of changes in the composition of the benchmark index, transfer or withdrawal of capital to or from the Fund, or other strategies of Norges Bank.

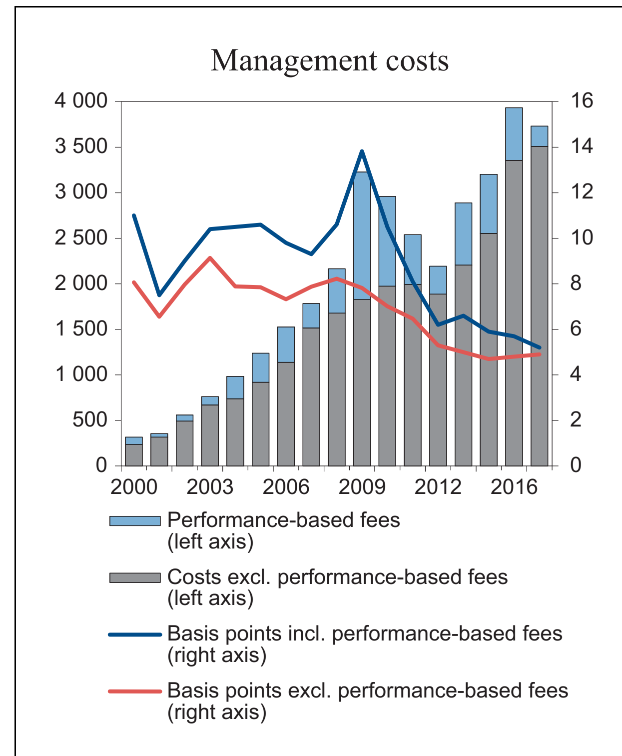

Figure 2.11 Development in GPFG asset management costs. Measured in NOK million (left axis) and in basis points (right axis). One basis point – 0.01 percent

Source: Norges Bank.

According to the Executive Board of Norges Bank some strategies are primarily aimed at improving the return on the Fund, while others seek to reduce costs or diversify risk. The appropriate evaluation horizon will vary between the strategies. The Executive Board notes that the strategies are seeking to exploit the distinctive characteristics of the Fund, such as size and a long time horizon. The strategies also supplement and influence each other, and there are synergies between them. The three key strategies have been carried over into Norges Bank's new strategy plan for the period from 2017 to 2019.[9]

In 2016, the return on the equity and fixed-income portfolios was 0.15 percentage points higher than the return on the benchmark index, before the deduction of asset management costs. Market exposure strategies made positive excess

[8] Value companies are companies with low prices relative to key figures such as earnings and book equity.

[9] The strategy plan for Norges Bank Investment Management is available on the Bank's website.

Table 2.3 Contributions to relative returns, asset management costs and expected relative risk from the investment strategies in 2016. Percentage points

	Equity investments	Fixed-income investments	Allocation across asset classes	Total	Contributions to asset management costs
A: Contributions to relative returns and costs					
Allocation	-0.04	-0.04	-0.02	-0.10	0.003
Internal reference portfolio	0.01	-0.05	0.00	-0.04	–
Allocation decisions	-0.05	0.01	-0.02	-0.07	–
Security selection	-0.02	-0.03	–	-0.06	0.021
Internally	-0.04	-0.03	–	-0.07	0.008
Externally	0.01	–	–	0.01	0.013
Market exposure	0.16	0.13	0.02	0.31	0.022
Positioning	0.11	0.12	0.02	0.25	–
Securities lending	0.05	0.01	–	0.06	–
Real estate	–	–	–	–	0.006
Total	0.10	0.05	0.00	0.15	0.052
B: Contributions to expected tracking error					
Allocation	0.16	0.13	0.01	0.18	–
Internal reference portfolio	0.14	0.08	0.01	0.15	–
Allocation decisions	0.06	0.08	0.01	0.10	–
Security selection	0.17	0.03	–	0.17	–
Internally	0.16	0.03	–	0.15	–
Externally	0.05	–	–	0.05	–
Market exposure	0.06	0.05	0.03	0.07	–
Total	0.24	0.16	0.04	0.28	–

Source: Norges Bank.

return contributions, while allocation and security selection contributed negatively. This conclusion is the same both before and after the deduction of asset management costs; see Table 2.3A.

Within the allocation strategies, the internal reference portfolio delivered a negative excess return contribution. Norges Bank reports that the largest negative contributions came from a larger proportion of Chinese equities, a smaller proportion of inflation-linked bonds and a shorter average duration of UK government bonds than in the benchmark index. A bias towards emerging market government bonds and a larger proportion of so-called value companies and small companies in the equity portfolio made positive contributions. The environmental mandates delivered positive excess return contributions in 2016.

Norges Bank has calculated how much the various key strategies contributed to expected tracking error at yearend 2016; see Table 2.3B. The contributions from allocation strategies and security selection were of about the same magnitude, while market exposure strategies made little impact on expected tracking error. Low correla-

tion between the various strategies means that the sum total of individual contributions exceeds the overall tracking error. Aggregate relative risk was at this point in time significantly lower than the limit of 1.25 percentage points.

Norges Bank has sought to apportion the asset management costs of the Fund across different investment strategies. Costs in 2016 were about the same within market exposure strategies and security selection. Market exposure costs include most securities custodianship costs. Costs associated with allocation and real estate management were significantly smaller.

Norges Bank also reports the relative return and cost contributions from the various key strategies over the strategy period from 2013 to 2016; see Table 2.4. The average annual return on the equity and fixed-income portfolios over this period was 0.20 percentage points higher than the return on the benchmark index, before the deduction of asset management costs. Allocation strategies contributed negatively to excess return, while security selection and market exposure made positive contributions.

Security selection made positive return contributions over the period from 2013 to 2016, both before and after the deduction of asset management costs. External management made an excess return contribution of 0.09 percentage points, before the deduction of asset management costs, despite only about 4 percent of the assets of the Fund being externally managed over that period. External management has also delivered a significant excess return contribution after the deduction of asset management costs. Internal security selection delivered a negative excess return contribution. It is, at the same time, important to note that part of the internal management costs are a prerequisite for developing in-depth knowledge of the companies in which the Fund is invested and for active ownership.

Amongst the three key strategies, market exposure generated the largest positive contribution to relative return over the period from 2013 to 2016.

The Executive Board of Norges Bank notes that the aggregate excess return on the GPFG in 2016 was positive, and that this has been achieved with a low risk limit utilisation. The overall performance of the various strategies over the period 2013–2016 was also positive, and is held by the Executive Board to be satisfactory. The Executive Board notes, at the same time, that performance must be evaluated over time.

2.2.9 The Ministry's assessment

The nominal return on the GPFG in 2016 was 6.9 percent, while the real rate of return after the deduction of costs and inflation was 5.3 percent. The return on equity investments was relatively high, while returns on fixed-income investments were also favourable, considering the low interest rate level. The interest rate level remained low at yearend, and one needs to be prepared for low bond yields in the foreseeable future. In recent years, declining interest rates have resulted in capital gains for the Fund, but the scope for further gains is limited now that interest rates are already at a low level.

The equity and fixed-income portfolios outperformed the benchmark index by 0.15 percentage points last year. Norges Bank has over the year utilised a relatively small portion of the limit on expected tracking error. Considering the utilisation of the risk limit, the level of excess return is more or less what may be expected over time. The Ministry is focused on performance developments over time. The Ministry finds it satisfactory that the Fund on average has outperformed the benchmark index by just over ¼ percentage points annually since 1998.

The Ministry has noted that market exposure strategies made a positive contribution to the excess return on the Fund, both in 2016 and over the period from 2013 to 2016, while security selection delivered a negative contribution in 2016 and a positive contribution over the period 2013 – 2016. External management has made a significant positive contribution over time, both before and after the deduction of asset management costs. Allocation strategies delivered a negative excess return contribution, both in 2016 and over the period from 2013 to 2016. The purpose of some allocation strategies is to diversify the portfolio beyond that implied by the benchmark index adopted by the Ministry of Finance or to provide exposure to so-called systematic risk factors. It will be appropriate to consider these strategies and the performance resulting from them in the periodical review of Norges Bank's asset management, which will be discussed in next year's report on the management of the Fund; see section 3.6. At the same time, these strategies should be evaluated over a longer time horizon.

Unlisted real estate investments require a different asset management approach than investments in listed equities and fixed-income securities, and this is reflected in Norges Bank having chosen to make real estate management a separate organi-

Table 2.4 Contributions to relative returns and costs from the investment strategies over the period from 2013 to 2016. Percentage points

	Equity investments	Fixed-income investments	Allocation across asset classes	Total	Contributions to asset management costs
Allocation	-0.03	-0.14	0.04	-0.13	0.004
Internal reference portfolio	-0.01	-0.14	0.00	-0.15	–
Allocation decisions	-0.02	0.00	0.04	0.02	–
Security selection	0.07	0.00	–	0.07	0.026
Internally	-0.02	0.00	–	-0.02	0.007
Externally	0.09	–	–	0.09	0.019
Market exposure	0.17	0.08	0.00	0.25	0.024
Positioning	0.12	0.08	0.00	0.20	–
Securities lending	0.05	0.00	–	0.06	–
Real estate	–	–	–	–	0.004
Total	0.21	-0.06	0.04	0.20	0.058

Source: Norges Bank.

sational unit. After several years of high returns, the return on the unlisted real estate investments was somewhat lower in 2016, but still positive. The Ministry is focused on performance over time, and the history of the real estate investments of the GPFG is too brief to permit any definite conclusions to be drawn as to how successful the management of these has been. The Ministry is nonetheless satisfied with the performance achieved thus far.

In recent years, Norges Bank has significantly expanded its reporting on the Fund. In addition to the annual report, Norges Bank publishes supplementary information on responsible management, unlisted real estate investments, as well as risk and return. In addition, Norges Bank publishes further information on its website. It is commendable that the expanded reporting supports further transparency in the management of the Fund.

The Ministry finds it satisfactory that the asset management costs are low compared to those of other funds, measured as a proportion of assets under management. This indicates that Norges Bank is successfully exploiting economies of scale in its management. The costs are nonetheless considerable in absolute terms, and it is therefore important to examine how asset management can be made even more efficient. It is, however, anticipated that costs may increase somewhat in line with increases in the proportion of real estate investments in the Fund, and that costs are also influenced by changes in Norwegian krone exchange rates. It is the assessment of the Ministry that the return delivered by asset management, net of costs, is the key parameter for realising the long-term objectives of the Fund.

2.3 Third party verification

2.3.1 Review of return data

In the management mandate, the Ministry of Finance requires Norges Bank to adhere to the International Financial Reporting Standards (IFRS) in its financial reporting, and has specified that performance measurement shall be based on the Global Investment Performance Standards (GIPS). A separate GIPS report is available on Norges Bank's website.

The Supervisory Council of Norges Bank monitors and supervises Norges Bank's compliance with the rules adopted for the operations of Norges Bank, including its management of the GPFG. The Supervisory Council appoints Norges

Bank's external auditor and approves its annual financial statement.

Since 2013, the percentage return on the investments of the Fund is included in the notes to the financial reporting for the GPFG. Hence, the external auditor of Norges Bank carries out necessary checks to verify the return calculations, before the Supervisory Council approves the financial statements.

In addition to the verification checks conducted by the external auditor, the Ministry of Finance carries out its own verification calculation for the return on the benchmark index for the GPFG. The verification calculation for 2016 shows no significant deviations from Norges Bank's reported return data for the benchmark index.

The index provider MSCI has been commissioned by the Ministry of Finance to perform a verification calculation for the return on the real estate portfolio of the GPFG, and has verified that the data reported by Norges Bank are correct. The report is available on the Ministry of Finance's website.

3 The Government Pension Fund Global: refinement of strategy and management

3.1 The equity share

3.1.1 Background

The objective for the investments in the GPFG is to achieve the maximum possible purchasing power measured in foreign currencies, with a moderate level of risk. The equity share of the strategic benchmark index is the single decision with the greatest impact on expected risk and return in the Fund.

The inclusion of equities in the GPFG was initiated in 1998, with their share of the strategic benchmark index then being put at 40 percent. In 2007, it was decided to increase the equity share to 60 percent. From 1 January this year, the equity share was increased to 62.5 percent. This is caused by a change in the regulation of unlisted real estate investments, with the benchmark index now comprising only the equity and fixed-income benchmarks. The fixed-income share is 37.5 percent.

The decision in 2007 to increase the equity share from 40 percent to 60 percent was based on a comprehensive assessment of expected risk and return. It was underpinned by, inter alia, advice from the Strategy Council for the GPFG and from Norges Bank, as well as by analyses performed by the Ministry of Finance. The assessments noted, inter alia, that the investments in the Fund offered better diversification of the petroleum wealth risk. Reference was also made to the long time horizon of the Fund, supported by the fiscal policy guidelines, as well as to broad political endorsement and flexibility in the guidelines for fiscal policy meaning that central government, as owner, is well placed to handle larger fluctuations in the value of the Fund and a somewhat higher probability of loss.

In the autumn of 2015, the Ministry of Finance initiated an assessment of the equity share of the GPFG, as announced in the National Budget 2016. The Ministry has, as part of such assessment, received advice from a Government-appointed commission chaired by Knut Anton Mork[1] and from Norges Bank. The Ministry has also received input through a public consultation on the report of the Commission.

The Mork Commission and Norges Bank have also examined whether a potential change in the equity share should have consequences for other key choices concerning the investment strategy. Such choices may, inter alia, be the composition of the fixed-income benchmark and the rebalancing rules. Norges Bank intends to revert on these key choices, and notes that such issues have little impact on their equity share advice. The Ministry of Finance will examine such key choices more closely after the Storting has taken a view on the equity share of the GPFG. Reference is also made to the discussion of the oil and gas equity investments of the GPFG in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy and on climate risk in section 6.4.

The Mork Commission has in its report expressed opinions on the organisation and implementation of fiscal policy, and has noted that the equity share of the Fund should be considered in the context of the follow-up of the advice from the Thøgersen Commission, which advised on the application of the guidelines for fiscal policy. Furthermore, the equity share effects the expected real rate of return on the Fund, which is a key variable under the current guidelines. The Government's assessment of the guidelines for fiscal policy, and the application of these, is discussed in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy.

The discussion of the equity share is organised as follows: Section 3.1.2 outlines the evaluations and advice received from the Mork Commission, Norges Bank and the consultative bodies. Section 3.1.3 discusses expected risk and return in financial markets and presents the Ministry of Finance's updated estimate for the expected real rate of return on the GPFG. Section 3.1.4 analyses developments in value and risk for the GPFG

[1] See NOU 2016: 20 green paper; The equity portion of the Government Pension Fund Global.

under various equity shares, including estimated fiscal policy impacts. It also illustrates potential consequences of a long-term stock market contraction. Section 3.1.5 discusses key considerations in the choice of equity share, including the ability of the GPFG to absorb risk and the relationship between expected risk and return. Section 3.1.6 presents the Government's recommendation to the Storting on the choice of equity share.

3.1.2 Received advice and consultative comments

Advice from the Mork Commission

The Mork Commission was appointed on 8 January 2016 and submitted its report to the Ministry of Finance on 18 October 2016. The report has been circulated for consultation.

The Mork Commission notes that the choice of equity share represents a trade-off between the preference for high expected return and the preference for low risk. A larger share of equities will increase the expected return and the contribution to funding the fiscal budget, but will at the same time entail more volatility in the value of the Fund and a higher probability of loss of parts of the real value of the Fund, also in the long run. The Commission believes that one must in making such trade-off also consider the overall risk associated with the national wealth and the role of the Fund in fiscal policy.

Furthermore, the Commission notes that the expected real rate of return on the GPFG has declined since the previous assessment of the equity share. This is because long-term, virtually risk-free real rates of interest have declined in recent years. It is emphasised, at the same time, that lower expected return is not a reason to increase risk. The Commission notes, moreover, that a change in the expected excess return from investing in equities rather than fixed-income securities; the so-called equity premium, may merit a different equity share. The Commission states that some research finds that the equity premium may have increased in step with the decline in real rates of interest, but that this is uncertain. The Commission has not assumed any significant change in the expected equity premium.

In its report, the Commission points out that few other nations are facing the same challenges as Norway, and notes that it is not aware of any studies of portfolio choices such as those facing Norway as a nation. In order to assess the ability of the GPFG to absorb risk, the Commission applies a framework attaching weight to relevant factors; see also chapter 7 of this report.

Within this framework, the choice of equity share is considered in the context of the overall risk associated with the national wealth. Special weight is attached to petroleum wealth risk. A significant part of the petroleum wealth has since 2007 been converted into broadly diversified financial wealth, which the Commission believes will, when taken in isolation, tend to increase the ability of the GPFG to absorb risk. The Commission also highlights the importance of retaining the commitment to the adopted investment strategy. The financial crisis year of 2008 contributed, according to the Commission, both to more experience and to broader political endorsement of the fund structure. The Commission is of the view that this is also indicative of a higher ability to absorb risk than in 2007.

The Commission observes, at the same time, that a key consideration is the capacity of fiscal policy to withstand shocks. It is noted that a high share of equities will increase the expected volatility of the value of the Fund, thus requiring additional fiscal policy flexibility. The Commission notes that major fluctuations in the value of the Fund may conflict with the desire to keep the tax level and the standard of public services reasonably stable over time.

Assessments of the ability of the GPFG to absorb risk depend on how the various factors are balanced against each. The Commission notes that there are different views on this, as reflected in its recommendations. The majority of the Commission's members (everyone, apart from Mr Mork) recommend that the equity share of the strategic benchmark index be increased to 70 percent. The majority notes that this will increase the expected return and the contribution to the fiscal budget, but also entails more volatility in the value of the Fund and a higher risk of a decline in value in the long run. The majority is of the view that the increase in risk is acceptable, provided that there is political will and an ability to adapt economic policy to the accompanying increase in risk, in both the short and the long run.

The majority emphasises that the equity share of the Fund has been increased gradually, and one has gained more experience with, and political understanding of, the management of the Fund. The majority is of the view that one has thus far shown a good ability to adhere to the chosen investment strategy, also during periods of financial market turbulence. It is further emphasised

that the petroleum wealth is more diversified than upon the previous examination of the equity share. It is also noted that the strategy for the Fund is predominantly based on open knowledge and exposure to systematic risk premiums, thus implying that operational risk is low. The majority states that this makes it easier to communicate and gain acceptance for the risk.

The majority of the Commission's members emphasise that fiscal policy must be conducted flexibly and be capable of cutting through fluctuations in the value of the Fund. It is noted that the Fund has become a new source of fiscal policy inconstancy as it has grown large, and that the fluctuations in its value have become significant relative to the Norwegian economy and public finances. Model computations performed by the Commission illustrate that practising fiscal policy will become more challenging in coming years, irrespective of which equity share between 40 and 80 percent is chosen, which is the interval analysed by the Commission.

The majority also notes that it is important to avoid overspending. If the distributions from the Fund exceed its real return over time, the financial wealth will be depleted, irrespective of the equity share. The majority is of the view that one potential adaptation may be to base distributions on a cautious estimate of the expected real return. This may provide a margin of safety that reduces the risk of depleting the Fund.

A minority of the Commission's members (Mr Mork) recommends that the equity share of the strategic benchmark index be reduced to 50 percent. Mr Mork emphasises that fiscal policy needs sufficiently secure access to a stable and predictable flow of withdrawals from the Fund in normal times, as well as funds to cover automatic stabilisers and potential active countercyclical policy in the event of major cyclical fluctuations. He observes that it would appear that this argument was practically absent from the debate behind the decision to increase the equity share from 40 percent to 60 percent in 2007, probably because the withdrawals from the Fund represented a much smaller fraction of the fiscal budget at that point in time.

Mr Mork recognises that the reduction in the oil and gas remaining in the ground is an argument in favour of a higher equity share, but holds this to be of lesser importance than the fiscal policy need for security around annual distributions. He notes that a lower equity share will result in a lower expected return, and that this needs to be reflected in fiscal policy. Moreover, the need for a margin of safety is less under a lower equity share, but is not eliminated.

The Mork Commission also examined the equity share of other funds; see Box 3.1.

Advice from Norges Bank

Norges Bank submitted its recommendations in a letter of 1 December 2016. The advice and assessments of Norges Bank are based on, inter alia, four discussion notes.[2]

Norges Bank recommends that the equity share of the strategic benchmark index be increased to 75 percent. Norges Bank emphasises that the expected excess return from investing in equities rather than fixed-income securities is slightly higher, that fixed-income securities are reducing return volatility more effectively, and that the risk in overall petroleum wealth is much lower now than at the time of the previous assessment of the equity share.

Norges Bank notes that there was a positive correlation between equity and fixed-income returns over the decades leading up to the turn of the millennium, while the correlation has been negative in subsequent years. The change in the correlation pattern between equities and fixed-income securities is explained, inter alia, by changes in monetary policy regimes, and by negative shocks over this period having predominantly been demand-driven. A negative correlation means that the value of fixed-income securities will decline when the value of equities increases, and vice versa. Consequently, the volatility of the overall return on the Fund will be reduced. Norges Bank believes that it would not be unreasonable to assume a negative correlation between the return on equities and fixed-income securities in coming years. A more cautious assumption would, according to Norges Bank, be to assume no correlation.

According to Norges Bank, the risk associated with a portfolio comprising 75 percent equities and 25 percent fixed-income securities is currently lower than for a corresponding portfolio in 2006. At the same time, the risk associated with a portfolio comprising 75 percent equities and 25 percent fixed-income securities at present is somewhat higher than the risk associated with a

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2 The discussion notes address the following topics: the equity risk premium (Note 1/2016), risk and return of different asset allocations (Note 2/2016), global growth and equity returns (Note 3/2016), asset allocation with government revenues and spending commitments (Note 4/2016). See www.nbim.no.

Box 3.1 The equity share of other funds internationally

The Mork Commission notes in its report that there are no clear parallels to the GPFG in other countries, and that it is therefore difficult to draw on the experience and asset allocation choices of other funds. At the same time, other investors internationally will need to make the same trade-offs as the GPFG in their choice of equity share, including the trade-off between expected risk and return. Based on simple comparisons between the asset allocation of the GPFG and those of other funds internationally, the Commission has sought to shed light on the risk taking in the GPFG relative to that in other funds that share, to varying extents, similar objectives and distinctive characteristics.

Table 3.1 is obtained from the report of the Mork Commission and compares the actual asset allocation of the GPFG at yearend 2015 to the asset allocations of selected large pension funds, sovereign wealth funds and large university endowments internationally. The table also presents the asset allocation in the global, available capital market.[1] The comparisons show that the GPFG has a significantly smaller share of its capital invested in fixed-income securities than the fixed-income share in the global, available capital market, also when adjusting for central bank holdings of government bonds. The Commission believes that this may suggest that risk taking in the GPFG is somewhat higher than that of the average investor. At the same time, the comparisons show that the GPFG has a larger fixed-income share than other large funds. The Commission believes that this may suggest that risk taking in the GPFG is somewhat less than in funds to which it may reasonably be compared, especially large US university endowments. It is also noted that the GPFG is distinguished by its capital being predominantly invested in listed assets. The Commission believes that a considerable element of unlisted assets in comparable funds suggests that such funds assume more operational risk than the GPFG.

[1] The Commission notes in its report that the share of bonds held by central banks has in many countries increased significantly over the years after the financial crisis. The holdings of central banks are not available to investors, and have therefore been excluded from the asset allocation estimate for the global available capital market in the table. About 40 percent of the market value of global government bonds has been excluded from the calculation. See chapter 5 of the report of the Commission for a detailed description of the data.

Table 3.1 Asset allocation in the GPFG and selected other funds.[1] Percent

	Equities[2]	Fixed-income securities[3]	Unlisted real estate	Other assets[4]	Total equities and other assets	Total assets under management (NOK billion)
GPFG	61.9	35.7	2.4	-	61.9	7,471
Large pension funds[5]	47.6	28.6	12.1	11.7	59.3	10,425
Sovereign wealth funds[6]	49.4	29.6	10.0	11.0	60.4	3,934
Large university endowments[7]	44.0	11.0	7.0	38.0	82.0	3,243
The global available capital market	37.8	56.1	5.6	0.5	38.3	984,225

[1] Actual asset allocation at yearend 2015, measured as a percentage of assets under management. Reference is also made to Table 5.2 of the NOU 2016: 20 green paper.

[2] Including listed real estate and unlisted equities.

[3] Including inflation-linked bonds and money market instruments.

[4] Comprises investments in specialised funds, unlisted infrastructure, commodities, natural resources, and other unlisted real assets.

[5] Weighted figures for six large pension funds: California Public Employees' Retirement System and California State Teachers' Retirement System from the US, Ontario Municipal Employees Retirement System and Ontario Teachers' Pension Plan from Canada, and Stichting Pensioenfonds and Pensioenfonds Zorg & Welzijn from the Netherlands.

[6] Weighted figures for six sovereign wealth funds: Future Fund from Australia, Canada Pension Plan Investment Board, New Zealand Super Fund and the AP funds (AP1-4 and AP6) from Sweden.

[7] Weighted figures for the 94 largest US university endowments.

Source: NOU 2016: 20 green paper.

Box 3.2 Consultative comments on the report of the Mork Commission

The Ministry received feedback from ten consultative bodies, of which the following seven submitted consultative comments: the Norwegian School of Economics (NHH), BI Norwegian Business School (BI), the University of Bergen (UiB), the University of Tromsø (UiT), Finance Norway, the Norwegian Society of Financial Analysts (NFF) and Folketrygdfondet (FTF). All consultative comments are available on the Ministry's website.

UiB and Finance Norway believe that the equity share of the GPFG should be increased to 70 and 75 percent, respectively. BI and UiT indicate that the equity share can probably be increased, although further analyses and information are needed before making such a decision. NFF and FTF have no specific recommendations concerning the equity share, while NHH is highlighting arguments in favour of a lower or unchanged equity share. The Mork Commission observes that the low interest rate level is not, when taken in isolation, a reason for increasing the risk in the Fund, and this view is endorsed by BI, Finance Norway and NFF. None of the consultative comments suggest that the low interest rate level is an argument in favour of increasing the equity share of the Fund.

Like Norges Bank, Finance Norway attaches weight to the excess return on equities, relative to fixed-income securities, probably having increased, and to the correlation between equities and fixed-income securities having declined, and holds these to be arguments in favour of increasing the equity share. NHH notes that although correlation between equities and fixed-income securities has declined in recent years when examining short-term return figures or overlapping 15-year periods, there is not equally strong evidence of reduced long-term correlation. Short-term negative correlation has, according to NHH, largely coincided with global crises, while the correlation has been positive in the long run. It is further noted that the optimal equity share based on finance theory models is reduced when correlation declines, because fixed-income securities will in such case offer improved diversification of equity risk.

In its report, the Mork Commission argues that the conversion of petroleum in the ground into financial wealth abroad has diversified and reduced the risk associated with the overall petroleum wealth, and that this may allow somewhat more equity risk to be taken. Both Finance Norway and UiT highlight this as an argument in favour of increasing the equity share. At the same time, NHH notes that the political capacity to absorb risk should to a greater extent be evaluated on the basis of the visible risk of equity investments, rather than the invisible and more theoretical value risk associated with the petroleum reserves. NHH also notes that the recommendation to increase the equity share due to changes in the petroleum wealth is implicitly assuming that national wealth other than petroleum wealth carries the same or lower risk than upon the assessment in 2006.

BI argues that further analyses are required before taking an equity share decision, including analyses of the properties of various parts of the national wealth, central government revenues and expenditure, stock and bond market developments, as well as the correlation between these.

Both NHH and Finance Norway note that the Norwegian kroner value of the Fund did not decline during the financial crisis in 2008, because of large inflows and changes in Norwegian krone exchange rates. Finance Norway therefore assumes that political risk tolerance is at about the same level as upon the previous assessment of the equity share. NHH observes that the media and politicians must consider the significance of large reductions in value in terms of the Norwegian kroner loss, and not only in terms of percentages.

Finance Norway states that petroleum revenue spending needs to be tailored to a reasonable estimate for the expected real rate of return. BI argues that the equity share decision cannot be taken separately from changes to the fiscal policy guidelines.

portfolio comprising 60 percent equities and 40 percent fixed-income securities in 2006. Norges Bank notes that the fluctuations in the value of the Fund will continue to be considerable in future years as well, and that a high equity share requires the ability to remain committed to the investment strategy.

Concerning the ability to absorb risk, Norges Bank notes, inter alia, that the GPFG now represents a much larger share of overall petroleum wealth. This suggests, according to Norges Bank, a greater capacity for absorbing risk in the GPFG, if it is assumed that the central government tolerance for risk associated with overall petroleum wealth is unchanged.

Norges Bank notes that the spending of petroleum revenues shall over time be in line with the expected real return on the Fund, and that such return will be influenced by the choice of equity share. At the same time, the equity share will have an impact on risk, which is reflected in fluctuations in the value of the Fund. Norges Bank believes that such fluctuations pose a fiscal policy challenge, but notes that this is primarily a consequence of the Fund having grown large, and that a change in the equity share will have little impact on short-term fluctuations in public spending. Norges Bank notes that a higher equity share means a higher expected return, although the actual return may deviate considerably from expectations. According to Norges Bank, the owner's plans for spending of the Fund capital need to take this into account.

Moreover, Norges Bank notes that the choice of equity share may have implications for other parts of the investment strategy for the Fund, although this has had little impact on the equity share advice of Norges Bank. Norges Bank intends to revert on this after the equity share decision has been made. Adaptation to a new equity share must, according to Norges Bank, be implemented over time. Norges Bank intends to revert to the Ministry with proposals on how to do this.

Consultative comments

The report of the Mork Commission has been circulated for consultation. A number of the consultative comments endorse the recommendation of the majority of the Mork Commission's members that the equity share should be increased, but different views are expressed as to what is the appropriate equity share, as well as which arguments carry the most weight. See Box 3.2 for further discussion of the consultative comments.

3.1.3 Expected risk and return

The fiscal policy guidelines implies that withdrawals from the GPFG shall over time correspond to the expected real rate of return on the Fund. This enables the petroleum wealth to also benefit future generations. The estimated expected real rate of return on the GPFG is important in this respect.

The long-term real rate of return on the GPFG has previously been estimated at about 4 percent, and was last examined in the report on the management of the Fund in 2009. That estimate was based on the expectation that the long-term real rate of return on the fixed-income benchmark for the Fund would be 2.7 percent.[3] For equities, it was assumed that the expected real rate of return would be 5 percent. The equity premium, which is the expected excess return from investing in equities rather than less risky assets, was estimated at 3 percentage points relative to short-term government bonds, and 2.5 percentage points relative to long-term government bonds.

Future returns are uncertain, and one must be prepared for potentially large deviations between expected returns and actual returns. The Ministry of Finance has previously estimated expected annual fluctuations in returns on equities and fixed-income securities, measured by standard deviation, at 16 percent and 6 percent, respectively. Standard deviation provides an indication of the magnitude of return fluctuations around the expected return estimate. The extent to which equity and fixed-income returns fluctuate in tandem is also of importance to the overall risk in the Fund. The assessment in 2009 put the correlation at 0.4.

The Ministry of Finance's estimate for the long-term real rate of return on the GPFG is based on so-called unconditional expectations of the returns on equities and fixed-income securities. By *unconditional* is meant that expectations are based on long, historical return series and long-term assessments. Expectations based on market prices and interest rates or distinctive characteristics of the present situation are referred to as *conditional* expectations.

3 The estimate for the fixed-income benchmark for the Fund was based on an expected real rate of return on short-term government bills from issuing states with high creditworthiness of 2 percent. In addition, a term premium of 0.5 percentage points and a credit risk premium of 0.2 percentage points was assumed. The term risk premium assumed an average duration of five years for the bond issues in the benchmark index. The credit risk premium assumed about 30 percent corporate bonds in the benchmark index and a credit premium of 0.5 percentage points for these, which resulted in an overall credit premium contribution of about 0.2 percentage points.

The expected risk and return assessments of the Mork Commission and Norges Bank

Both the Mork Commission and Norges Bank note that the expected real rate of return on the GPFG is now lower than had previously been assumed. This is because long-term, virtually risk-free real rates of interest have declined.

The Mork Commission notes that future interest rate developments will depend on whether the current low interest rate level is caused by temporary or more permanent circumstances. The Commission discusses various explanations, including the significance of the financial crisis, but takes the view that it is reasonable to interpret current market yields on fixed-income securities with a long time to maturity as expressing an expectation of permanently low interest rates. The Commission does not exclude the possibility that interest rates may increase somewhat in the longer run, but is not convinced that the factors which have caused the current low interest rates are, as a matter of course, self-reversing. The Commission therefore does not exclude the possibility that interest rates close to the current level may over time be considered the new norm.

For fixed-income securities held to maturity, the market yield at the time of purchase will be a good indicator for estimating the return on the investment. The Mork Commission believes, in line with this, that the best estimate of future, virtually risk-free return is the market yield observable for inflation-linked bonds. Based on observed market yields for inflation-linked bonds with a long duration in the G7 countries (except Italy), the Commission adopts a (conditional) estimate for the annual real rate of return on fixed-income investments in the GPFG of 0-1 percent over the next 30 years. The Commission has not quantified any term and credit premiums, but has in its estimate for the expected real rate of fixed-income return assumed a positive but modest term premium and a small credit premium.

Norges Bank also believes that expectations of low interest rates are not only caused by cyclical circumstances, but by structural changes in the world economy as well. In its letter of 1 December 2016, Norges Bank refers to an article by researchers at the Bank of England. The article notes that interest rates have declined by 4.5 percentage points over the last 30 years, and that close to 4 percentage points of this decline can be attributed to structural causes, such as lower expected trend growth and changes in saving and investment preferences.[4] The article assumes that only a minor share of the observed interest rate decline will be reversed towards 2030, and a global real rate of interest of about 1 percent is estimated for the medium and long run. Norges Bank believes that such an estimate conforms well with both the prices of inflation-linked bonds with a long duration and estimates from the IMF and the OECD.

As a basis for its advice on the equity share, Norges Bank has assumed an annual expected real rate of fixed-income return of 0.25 percent on average over a 10-year horizon and 0.75 percent on average over a 30-year horizon. These estimates are, according to Norges Bank, in line with the pricing of inflation-linked bonds in the main markets, but are somewhat higher than this since the GPFG is also invested in other markets. Norges Bank has assumed that the expected term premium on fixed-income securities with a long duration is virtually nil.

The expected equity premium cannot be inferred from market prices in the same manner as bond market yields. The Mork Commission assumes that the equity premium has not changed significantly since 2007, and has opted for using an unconditional expected equity premium interval of 2-4 percentage points. As a basis for analyses of risk and return and for the estimated expected real rate of return on the GPFG, the Commission has started out from the median value of 3 percentage points.

Norges Bank has attempted to estimate the future equity premium by applying several different methods. Norges Bank provides, based on an overall assessment of both historical return figures and various models for assessing expected future returns, an expected equity premium estimate of 3 percentage points as an annual average for both the next 10 and the next 30 years.

The Mork Commission adopts estimates for expected annual fluctuations and correlation that corresponds to those adopted by the Ministry of Finance in 2009. Norges Bank has not quantified estimates for expected annual fluctuations in its advice to the Ministry, but notes that the correlation between equity and fixed-income returns has been negative for several years. Norges Bank states, in its letter of 1 December 2016, that a cautious estimate would be to assume no correlation.

Based on the estimates for the expected real rates of return on equities and fixed-income securities, the Mork Commission and Norges Bank

[4] Rachel and Smith (2015), "Secular drivers of global interest rates", Bank of England, Staff Working Paper No. 571.

estimate the expected real rate of return on the GPFG, with an equity share of 60 percent, at 2.3 percent and 2.6 percent, respectively, with a 30-year horizon.

The Ministry's assessment of expected risk and return

The Ministry of Finance is of the view that the assessments of the Mork Commission and Norges Bank as to the expected future risk and return associated with equities and fixed-income securities provide a good basis for examining the expected real rate of return on the GPFG. The Ministry notes that the estimate adopted for the expected future real rate of fixed-income return in the GPFG should be a long-term estimate, and not subject to continual adjustment to reflect varying market prices over an economic cycle. This suggests, in the view of the Ministry, that return estimates based on market prices should be supplemented by assessments based on theoretical and empirical evidence, as well as estimates for future equilibrium interest rates in bond markets.

The interest rate level in global bond markets has been in decline for a long time, and is now historically low. It seems reasonable to assume that major parts of the interest rate decline may reflect permanent, structural changes in the world economy, as pointed out by both the Mork Commission and Norges Bank. The current estimate for the expected real rate of return on the fixed-income benchmark for the GPFG, of 2.7 percent, should therefore be reduced.

Given the current outlook, there is reason to expect relatively low interest rates for many years to come. A reversal, if any, of structural developments will take time. The Ministry of Finance adopts a long-term expected real rate of return estimate of 0.5–1.0 percent as an annual average for the fixed-income benchmark for the GPFG. The interval is based on the estimates of both the Mork Commission and Norges Bank, and assessments of future equilibrium interest rate from, inter alia, researchers at the Bank of England, the IMF and the OECD, as also referred to in the advice, have been taken into account. The estimated long-term, future equilibrium interest rate is somewhat higher than the level implied by market prices for the next ten years, as also assumed by Norges Bank.

The Ministry of Finance is of the view that an interval for the expected long-term real rate of return will better convey the uncertainty associated with future returns than a point estimate, as previously used. As noted by Norges Bank, the fixed-income benchmark for the GPFG includes fixed-income securities issued by other parties than the largest and most creditworthy states. This suggests, in the view of the Ministry, that it is reasonable to apply a somewhat higher lower limit than nil to the interval for the expected real rate of return on the fixed-income benchmark for the Fund.

The Ministry of Finance assumes the existence of a certain term and credit premium in the 0.5–1.0 percent range, but has like the Mork Commission refrained from quantifying such premiums more precisely. Norges Bank assumes that the expected term premium for fixed-income securities is virtually nil, but has not quantified any credit premium.

The Ministry of Finance assumes, like the Commission and Norges Bank, an expected average annual equity premium of 3 percentage points, on top of the estimated real rate of return on the fixed-income benchmark of 0.5–1.0 percent. The Ministry notes, at the same time, that both the Commission and Norges Bank highlight, in their advice, that such future equity premium estimates are subject to considerable uncertainty. While the Mork Commission assumes that the expected equity premium has not changed significantly compared to in 2007, Norges Bank notes that the expected excess return on equities relative to fixed-income securities appears to be somewhat higher because the expected term premium is now lower.

The expected equity premium estimate of 3 percentage points may, when taken in isolation, seem an increase on the current estimate of 2.5 percentage points. However, the Ministry of Finance notes that one should be cautious about attaching decisive weight to this difference in choosing the equity share of the GPFG. Such an estimate is, as highlighted by the Mork Commission and Norges Bank, subject to considerable uncertainty. Furthermore, the expected real rate of return on the fixed-income benchmark for the GPFG is expressed as an interval, and credit and maturity premiums are not quantified. Hence, the estimates are not directly comparable.

Table 3.2 provides an overview of the estimates for the expected real rate of fixed-income return and the expected future equity premium from the Ministry of Finance, the Mork Commission and Norges Bank, respectively.

The Ministry of Finance is of the view that there is no reason to change the current estimate for expected annual fluctuations in the return on equities and fixed-income securities of 16 percent and 6 percent, respectively. Over the period since 1998, average annual fluctuations in the return on

Table 3.2 Long-term estimates for the expected real rate of fixed-income return in the GPFG and the expected equity premium. Annual average in the currency basket of the Fund. Percent and percentage points

	Ministry of Finance	Mork Commission[1]	Norges Bank[1]
Fixed-income securities	0.5 – 1	0 – 1	0.75
Equity premium	3	2 – 4	3

[1] Estimate for the next 30 years.
Sources: NOU 2016: 20 green paper, Norges Bank and the Ministry of Finance.

the equity benchmark for the GPFG have been about 15 percent, while average annual fluctuations in the return on the fixed-income benchmark have been about 3 percent. The Ministry notes that a long-term estimate needs to take the scope for further market turbulence in the future into account. Furthermore, the average duration of the bonds included in the benchmark index has increased in recent years, and this indicates, when taken in isolation, that increased annual fluctuations should be expected. The reason for this is that the value of fixed-income securities with a longer duration will normally change more in response to interest rate changes than will the value of fixed-income securities with a shorter duration.

The Ministry of Finance has taken note of Norges Bank's observation that the correlation between equity and fixed-income returns has been nil or negative for several years. Norges Bank believes that the decrease in correlation may have structural causes, especially the anchoring of inflation expectations through monetary policy inflation targets. Since 1998, the correlation between the return on the equity and fixed-income benchmarks of the GPFG has been about -0.2.

The Ministry of Finance agrees with the assessment that the current estimate for the correlation between equity and fixed-income returns of 0.4 should be reduced. The Ministry has, at the same time, taken note of a consultative comment calling for weight to be attached to long-term correlation properties. The Ministry has, based on an overall assessment, reduced the correlation estimate from 0.4 to 0.1. The new estimate better reflects the possibility that the correlation may in future fluctuate between negative and positive values.

The updated estimates for the expected real rate of return and risk for equities and fixed-income securities mean that the expected long-term real rate of return on the GPFG can be estimated at about 2¾ percent with the current equity share of 62.5 percent; see Table 3.3. With an equity share of 70 percent, the expected long-term real rate of return can be estimated at about 3 percent. The chosen level of precision reflects the general uncertainty associated with such estimates.

Table 3.3 Expected long-term real rate of return on the GPFG and expected standard deviation.[1] Percent

	62.5 percent equity share	70 percent equity share
Expected real rate of return	2¾	3
Expected standard-deviation	10.5	11.5

[1] Long-term annual average, expressed in the currency basket of the Fund. The estimates are based on the expected long-term real rate of return on equities and fixed-income securities in Table 3.2. Expected annual return fluctuations of 16 percent for equities and 6 percent for fixed-income securities, and a return correlation of 0.1, have been assumed.
Source: Ministry of Finance.

Box 3.3 presents analyses of historical risk and return for global equities and government bonds over the period 1900–2015. The analysis shows that annual fluctuations in value have historically been significantly larger for equities than for government bonds. At the same time, equities have generated a significantly higher real rate of return than government bonds, measured over the period as a whole.

Box 3.4 sheds light on the implications of updated expected risk and return estimates for portfolios with different equity and fixed-income shares. The analysis shows that the risk and return properties of such portfolios are different under the updated and previous estimates.

Box 3.3 Historical risk and return

It is reasonable to look to history when examining the risk and return expectations of investors. At the same time, one needs to bear in mind that historical data are not necessarily representative of the future, and that any estimate of future financial market risk and return based on historical data will thus be subject to considerable uncertainty.[1]

The return properties of equities and fixed-income securities depend on what time perspective has been adopted. Figures 3.1A and 3.1B show histograms of annual real rates of return on global equities and 10-year government bonds for the period 1900–2015. The return on equities has historically fluctuated considerably from year to year. Government bonds have generally delivered both lower returns and lower fluctuations in annual returns compared to equities.

The blue fields show returns over the years that the GPFG has been invested in the two asset classes. Equity returns have been subject to major fluctuations (1999–2015), while government bond returns have been relatively high and less variable (1997–2015). Declining interest rates and inflation expectations are key reasons for the high bond returns over this period.

When examining longer time periods than one year, the difference in risk between equities and fixed-income securities has been less. Figure 3.1C shows the average real rate of return on global equities and 10-year government bonds over rolling periods of 10 years. The interest rate level and inflation developments have been key drivers for the long-term real rate of return on nominal government bonds. Historically, there have been long periods of low real rates of return on global 10-year government bonds. Norges Bank states, in its letter of 1 December 2016, that periods of higher than expected inflation have resulted in the real rate of return on nominal fixed-income securities having been negative several years in a row.

In the long run, broadly diversified investments in global stock markets have been compensated by a considerably higher real rate of return than government bond investments; see Figure 3.1D. The purchasing power of 1 dollar invested in a global equity portfolio at the beginning of 1900 had by yearend 2015 increased to more than 300 dollars. For global 10-year government bonds, a corresponding investment would have generated about 8 dollars.

Financial literature has found it difficult to explain the high historical excess return on equities on the basis of ordinary theoretical models and under reasonable assumptions.[2] Both the Mork Commission and Norges Bank discuss the literature on potential causes of the excess return on equities. The Mork Commission refers to three partly overlapping explanations that may suggest continued high excess returns in stock markets: time-variable risk aversion, disaster risk and so-called long-term risk.[3] The models underpinning these assessments imply that a high equity premium is indicative of high real risk, both when economic resources are at their maximum value and in the long run, if global growth is low or disasters happen. The Commission also notes that historical data do not capture all aspects of the future return uncertainty of relevance to investors.

Norges Bank notes that there is no consensus in the literature as to which factors drive the magnitude of, and variations in, the equity premium over time. Norges Bank states in a discussion note (01/2016) that economic risk appears to have been of importance to the excess return, although institutional factors and investor behaviour may also have influenced developments over time. Norges Bank also states that the historical excess return on equities has exceed what can be attributed to stock dividends and dividend growth over time. If adjusting for such repricing of dividends, the excess return is reduced by almost one third.

[1] One of the problems with historical return series is so-called survivorship bias, which involves only looking at the markets and time periods for which data are readily available, and for which values have not been written down to zero. The data from Dimson, March and Staunton have sought to take this into account.

[2] Referred to in the literature as the equity premium puzzle.

[3] An unexpected change in economic growth will both have an immediate short-term effect and at the same time potentially affect long-term growth expectations. Stock markets are highly susceptible to such long-term risk; see the report of the Mork Commission, page 85, and Bansal and Yaron (2004).

Box 3.3 (cont.)

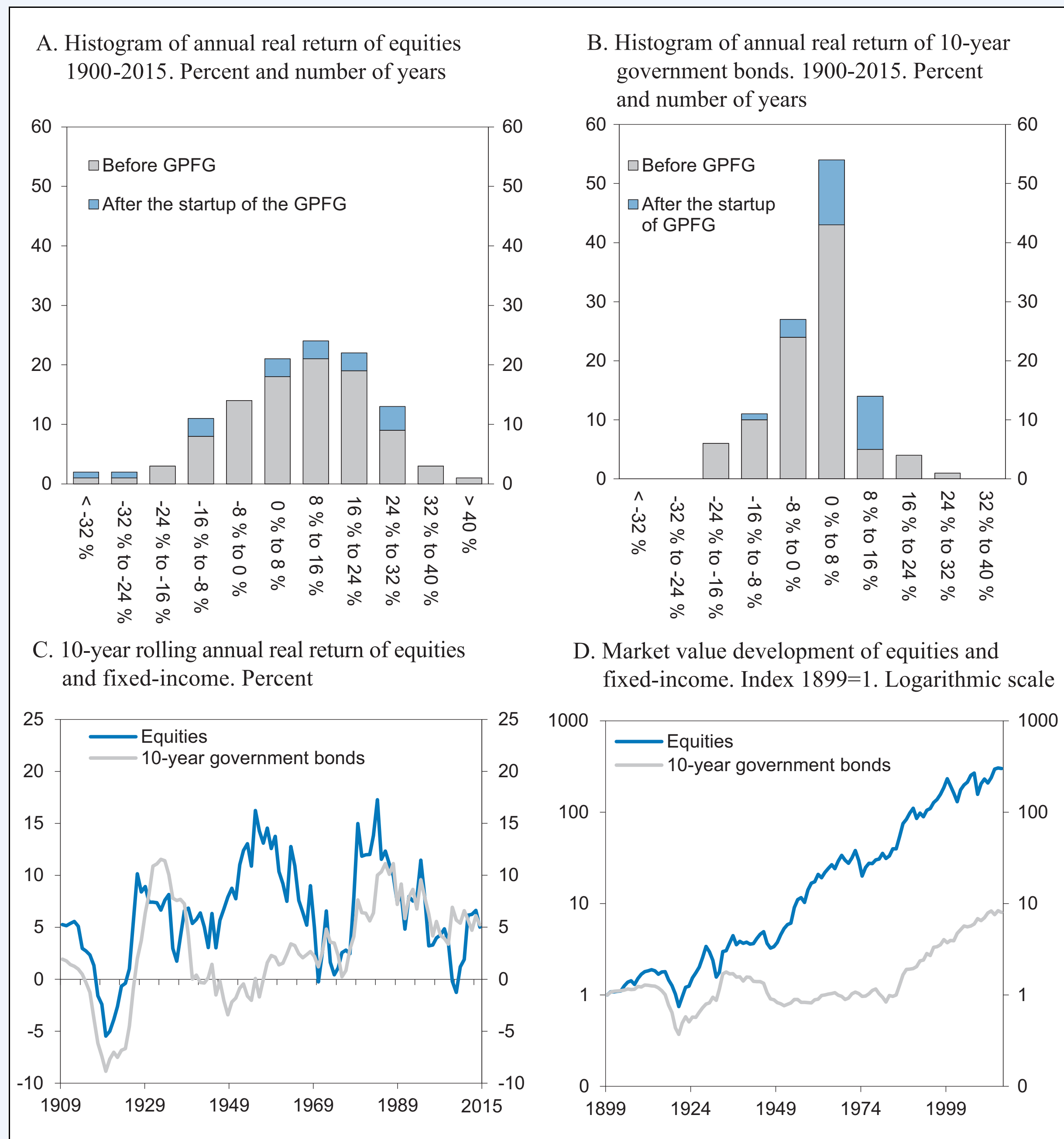

Figure 3.1 Historical returns on global equity and fixed-income indices

Sources: NOU 2016: 20 green paper, Morningstar/Dimson, Marsh, Staunton and Ministry of Finance.

Box 3.4 Analyses of market risk

The updated risk and return assumptions in section 3.1.3 have market risk implications for portfolios with various shares of equities and fixed-income securities. This box seeks to shed light on the market risk, i.e. the uncertainty associated with the real rate of return, by way of Monte Carlo simulations. The analyses disregard, as a technical assumption, inflows and outflows, as well as fluctuations in Norwegian krone exchange rates.[1] Ongoing returns are reinvested, and rebalancing of the equity share adheres to the rule for the rebalancing of the GPFG.

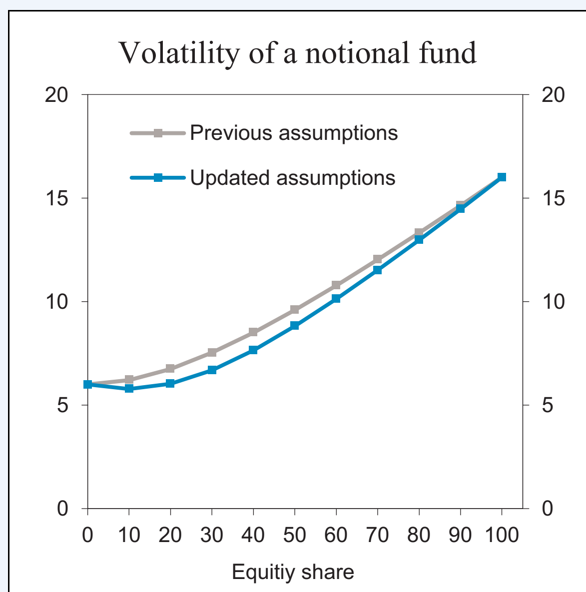

Figure 3.2 The volatility (annual standard deviation of the real rate of return) of a notional fund with no inflows or outflows, with reinvestment of returns. Portfolios of equities and fixed-income securities, with equity shares between zero and 100 percent in steps of 10 percentage points. Based on previous and updated market assumptions. Percent

Source: Ministry of Finance.

A common risk measure is the standard deviation of annual return fluctuations (volatility), which can be an appropriate measure of short-term risk. Figure 3.2 shows that the expected volatility of portfolios comprising various shares of equities and fixed-income securities is slightly lower under the Ministry's updated market assumptions. The reduction is caused by the estimate for the correlation between the real rates of return on equities and fixed-income securities having been reduced from 0.4 to 0.1. This reduction implies that fixed-income securities are now expected to provide better diversification of risk in relation to equities. The volatility of a portfolio comprising 62.5 percent equities was under the previous assumptions estimated at 11.1 percent, while corresponding volatility is compatible with an equity share of about 67 percent under the new assumptions.

For a long-term investor, the risk of a protracted decline in real value as the result of a negative average real rate of return may be a more relevant risk measure than annual volatility; see Figures 3.3A and 3.3B for investment periods of 15 and 30 years, respectively. Under the Ministry's updated market assumptions, the calculations show that the probability of a decline in real value is now higher for all equity shares than it was under the previous assumptions. This is caused by the reduction in the expected real rate of return on both equities and fixed-income securities, which implies that the expected reinvested amount each year will be lower, while the volatility remains unchanged.

Under the updated assumptions, an investment strategy involving 100 percent in fixed-income securities appears to be more risky in the long run than a strategy involving 100 percent in equities, as measured by the probability of a decline in real value. The previous assumptions gave rise to the opposite conclusion. The reason for this is that the reduction in the ratio between the expected real rate of return and volatility is larger for fixed-income securities than for equities under the updated market assumptions.

Figures 3.3C and 3.3D show the probability that the average annual real rate of return will be lower than -1, -2 and -3 percent, respectively, over an investment period of 30 years. The figures shed light on the long-term risk of a larger loss, often termed downside risk or tail risk.

Under the previous market assumptions, a strategy involving 100 percent equities presented considerably more downside risk than a strategy involving 100 percent fixed-income securities. Under the updated assumptions, a pure equity portfolio presents about the same risk of a real rate of return lower than -1 percent as a pure fixed-income portfolio, but still a higher risk of a real rate of return lower than -2 and -3 percent.

Figure 3.3B shows that the equity share presenting the lowest risk of a decline in real value after 30 years is about 40 percent under the updated market assumptions. Equity shares that are lower than this present a higher risk of decline in real value and a lower expected real rate of return.

[1] Mean reversion in the stock market has not been assumed. This serves, when taken in isolation, to increase the estimated long-term equity risk.

Box 3.4 (cont.)

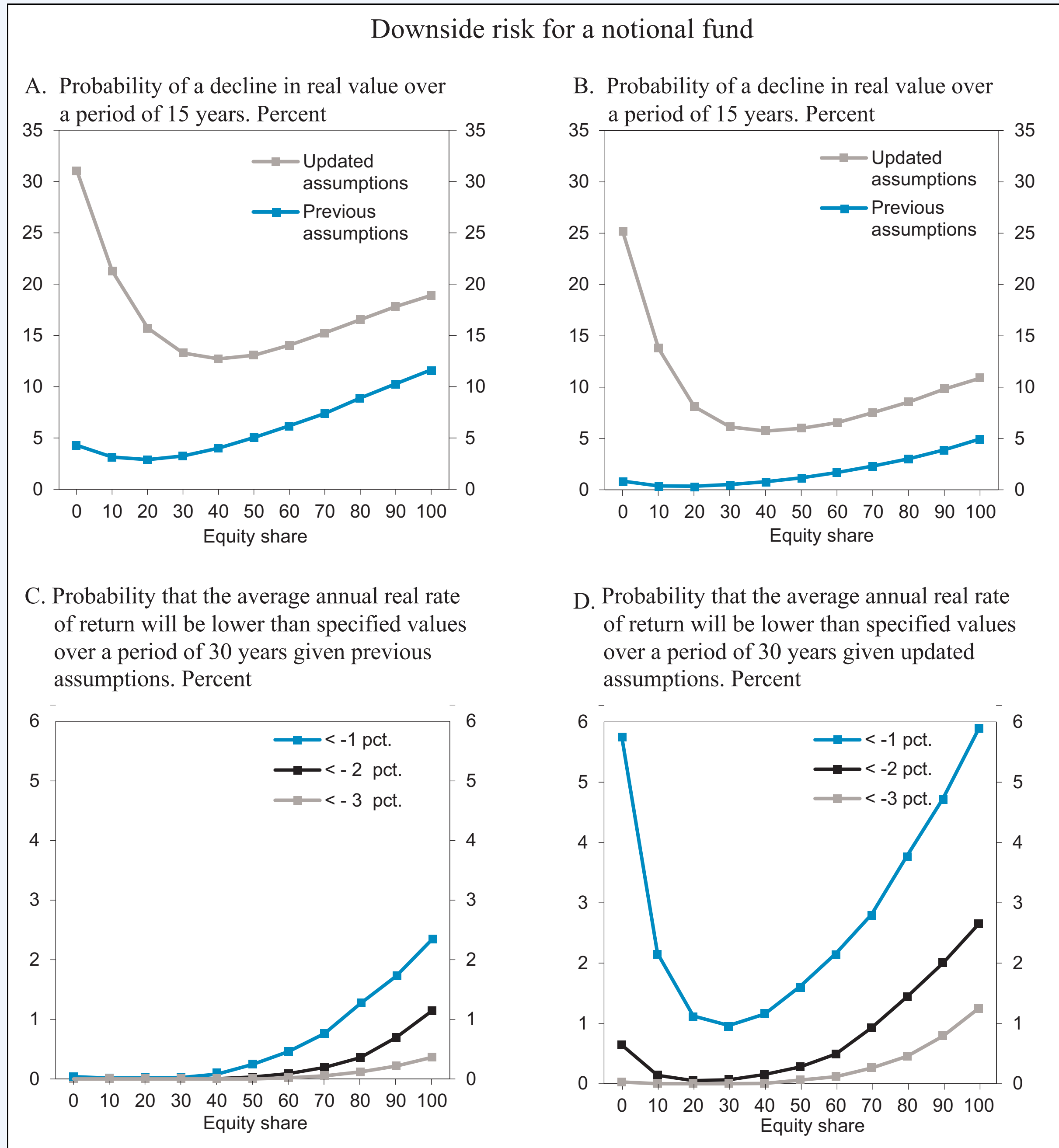

Figure 3.3 Probability of a decline in real value and downside risk for a notional fund with no inflows or outflows, with reinvestment of returns. Investment periods of 15 years (A) and 30 years (B, C and D), for portfolios of equities and fixed-income securities, with equity shares between nil and 100 percent in steps of 10 percentage points. Based on previous and updated market assumptions

Source: Ministry of Finance.

A higher equity share also means a higher expected risk of a decline in real value, but investors are compensated with a higher expected real rate of return.

The above analysis cannot determine which equity share is best for the GPFG. Other considerations need to be taken into account, such as the ability of the owner to absorb risk and the fiscal policy role of the Fund. The analysis sheds light on the market risk associated with various equity and fixed-income portfolios. It also shows how risk can be reduced, in both the short and the long run, by investing in both equities and fixed-income securities, thus making the investment portfolio sufficiently diversified.

3.1.4 Analyses of developments in value and risk in the GPFG

Future developments in the value of the GPFG are uncertain and predominantly determined by the future return on the Fund capital, net cash flows from petroleum activities (gross inflows) and future petroleum revenue spending via the fiscal budget (withdrawals). In addition, developments in value as measured in Norwegian kroner are influenced by exchange rate fluctuations between Norwegian kroner and the currency basket of the Fund. In recent years, gross inflows of petroleum revenues to the GPFG have declined, at the same time as withdrawals to cover the non-oil deficit have increased. Developments in the value of the Fund will in future years be determined, to a much greater extent than before, by global financial market returns.

Model simulations may shed light on the significance of the equity share of the GPFG by presenting the statistical sample space for the future real value of the Fund. Both the Mork Commission and Norges Bank are making use of model simulations to shed light on future developments in real value.

Main findings from the analyses of the Mork Commission and Norges Bank

The Mork Commission starts out from a simplified model of the fund mechanism, in which developments in the real value of the Fund are determined by returns, gross inflows, withdrawals and Norwegian krone exchange rate changes. Moreover, the Commission makes the technical assumption that the fiscal policy guidelines is implemented flexibly by way of the withdrawals from the GPFG over time corresponding to the expected real rate of return on the Fund, but with a gradual adjustment of the annual withdrawals in the event of major changes in the value of the Fund.

The report of the Commission compares the sample spaces for developments in the real value of the GPFG over the next 30 years on the basis of equity shares of 40 percent, 60 percent and 80 percent, respectively. The simulations suggest that changes in the equity share of the Fund have little impact on future developments in real value, as far as the most likely outcomes are concerned. This is because of the fiscal policy guidelines and the modelling of such guidelines, which seeks to match withdrawals from the Fund over time with the expected real rate of return. The Commission notes, at the same time, that a higher equity share will, within an interval of 40–80 percent, increase the probability of very high or very low fund values. This is because a higher equity share increases the real value of the Fund by more under the most advantageous outcomes in the model simulations, while the real value declines, correspondingly, by more under the least advantageous outcomes.

The Mork Commission considered the fiscal policy implications of the equity share. Since the value of the Fund at the end of a year constitutes the basis for withdrawals during the subsequent year, a somewhat higher probability of very low fund values will, when taken in isolation, increase the probability that there will at times be a need for fiscal policy tightening. The simulations show that the number of years with a need for significant fiscal policy tightening can be expected to increase somewhat with a higher equity share. At the same time, the Commission emphasises that fiscal policy implementation will be more challenging in coming years, irrespective of the equity share. This is because the Fund has grown large, thus implying that the fluctuations resulting from the expected real return trajectory, measured in Norwegian kroner, have become large relative to the Norwegian economy and government finances.

Norges Bank also makes use of a simplified model to present the fund mechanism in order to shed light on the significance of the choice of equity share for future developments in real value and risk in the Fund.[5] Norges Bank refers both to model simulations based on fixed withdrawals from the GPFG corresponding to 4 percent of the value of the Fund, and to simulations in which withdrawals from the Fund increase in line with GDP, but are gradually adjusted in response to changes in fund value and economic cycles. The analyses of Norges Bank suggest that the probability of major reductions in the value of the Fund increases with a higher equity share, and that such probability is, when taken in isolation, higher if the withdrawals from the Fund are used to even out fluctuations in the economy. Norges Bank notes, moreover, that the outcomes depend on what assumptions are made with regard to the relationship between withdrawals, gross inflows and returns.

[5] Norges Bank discusses and presents findings from model simulations in discussion note 4/2016; "Asset allocation with government revenues and spending commitments".

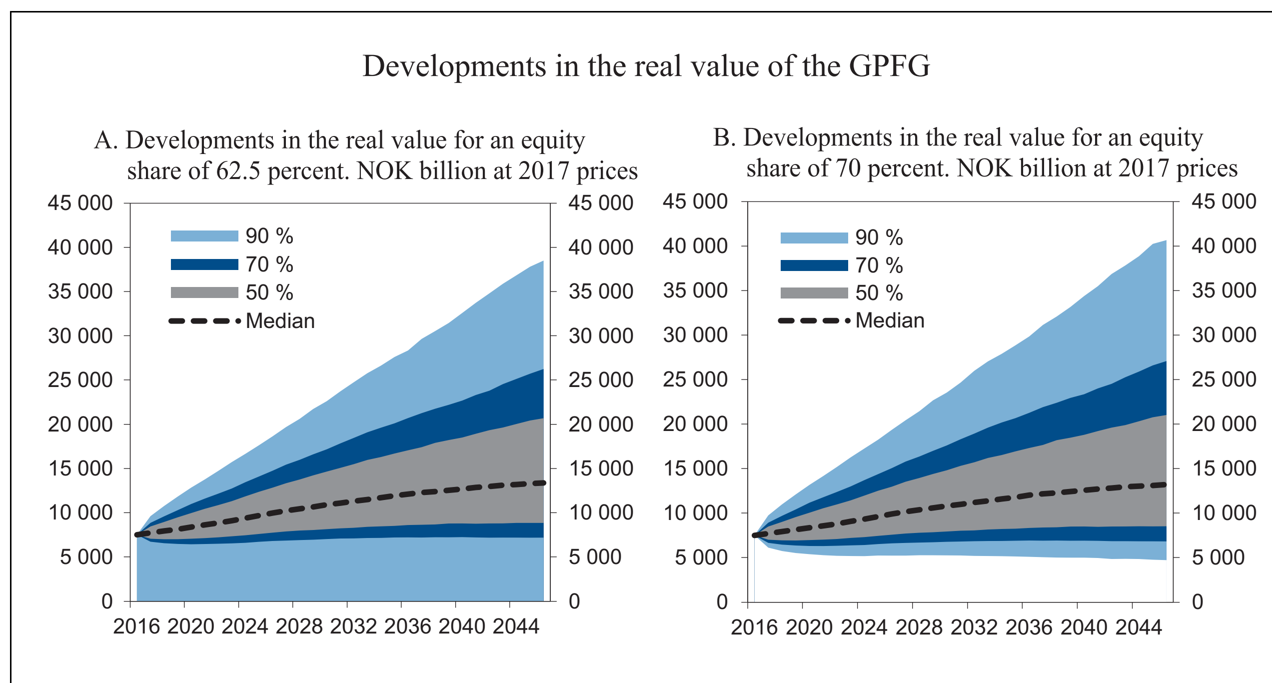

Figure 3.4 Simulated sample spaces for developments in the real value of the GPFG 30 years into the future, for 62.5 percent and 70 percent equities

[1] It has been assumed that annual withdrawals from the Fund correspond to expected real returns, but without gradual adjustment of annual withdrawals upon major changes in Fund value. The estimates for net central government cash flow from petroleum activities over the next 30 years have been obtained from the 2017 white paper on Long-Term Perspectives on the Norwegian Economy.

Sources: NOU 2016: 20 green paper and the Ministry of Finance.

The Ministry's model simulations of future developments in value and risk

The Ministry of Finance has carried out model simulations corresponding to those of the Mork Commission in order to illustrate the sample space for future developments in the real value of the GPFG over the next 30 years for equity shares of 62.5 percent and 70 percent, respectively; see Figure 3.4. The simulations are based on the Ministry's estimates for the expected real rate of return and risk, as set out in section 3.1.3.[6]

The black dotted line in the figure identifies the median value of the sample space for developments in real value over the next 30 years. Uncertainty fans of 50 percent, 70 percent and 90 percent, respectively, have been inserted around the median.[7] The median and the 50-percent uncertainty fan, which encompasses half of the simulated development paths, are not very significantly impacted by an increase in the equity share to 70 percent. Like the findings from the analyses of the Mork Commission, the results in Figure 3.4 indicate that an increase in the equity share to 70 percent will have little impact on the future real value of the Fund, within the most likely outcomes. This is primarily because of the fiscal policy guidelines, which aims to match withdrawals from the Fund over time to expected real returns. The growth in the median paths in the figure reflects estimated future gross petroleum revenue inflows, as estimated in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy.

[6] Expected real rates of return on the GPFG of 2¾ percent and 3 percent as an annual average have been assumed, with equity shares of 62.5 percent and 70 percent, respectively; see section 3.1.3. Furthermore, a technical assumption of log-normally distributed equity and bond prices has been made, but without so-called mean reversion of share prices.

See also Box 8.1 in the report of the Mork Commission on other technical assumptions.

[7] The width of the fans represents intervals for the future real value of the GPFG at any given future date, which can be expected with a probability of 50 percent, 70 percent and 90 percent, respectively. Figure 3.4A shows, for example, that with an equity share of 62.5 percent there is, according to the simulations, a 50-percent probability that the real value of the GPFG in 10 years (at yearend 2026) will fall within an interval of NOK 7,700–12,800 billion at 2017 prices, while there is 70 percent and 90 percent probability that the real value will fall within intervals of NOK 6,800–14,700 billion at 2017 prices and NOK 5,500–18,600 billion at 2017 prices, respectively.

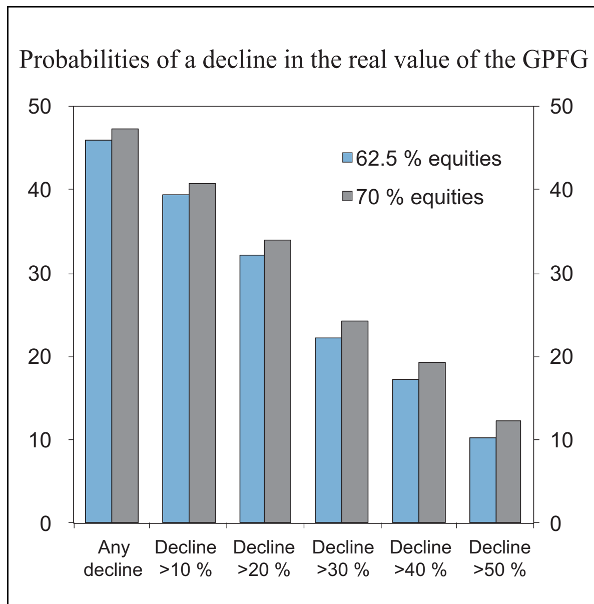

Figure 3.5 Estimated probabilities of a decline in the real value of the GPFG over the next 30 years, with 62.5 percent and 70 percent equities, specified by the magnitude of such decline. Percent

Sources: NOU 2016: 20 green paper and the Ministry of Finance.

An increase in the equity share to 70 percent will increase the probability of very high or very low fund values. The risk of a decline in the value of the Fund in the long run can be illustrated by the probability that the real value of the GPFG at the end of a given period is lower than the current value of the Fund and estimated gross petroleum revenue inflows until and including such period. Figure 3.5 presents such estimated probabilities of a decline in real value over the next 30 years based on model simulations, with equity shares of 62.5 percent and 70 percent, respectively.

Figure 3.5 shows that there is a not insignificant risk of a decline in the real value of the GPFG, also under the current equity share, and that such risk can be expected to increase somewhat with an equity share of 70 percent. The probability of a decline in the real value of the GPFG over the next 30 years under the current equity share is estimated at about 46 percent, while the probability that the value of the GPFG is halved is estimated at about 10 percent. With an equity share of 70 percent, the probability that the real value of the GPFG is halved is estimated to increase by 2 percentage points, to just over 12 percent. The increase in the probability of smaller declines is slightly lower.

The guidelines for fiscal policy imply that considerable weight is attached to the smoothing of fluctuations in the economy to ensure good capacity utilisation. Consequently, withdrawals from the Fund may vary with cyclical fluctuations in the Norwegian mainland economy. The Mork Commission and Norges Bank seek, by various means, to illustrate the significance of this.

The Mork Commission makes, in its analyses, the technical assumption of a gradual adjustment in withdrawals from the Fund upon major changes in the value of the Fund. The Commission also examined the impact of counter-cyclical policy on future developments in the real value of the GPFG, with such policy being modelled in the form of withdrawals that are temporarily higher than expected real returns, either upon downturns in the international stock market or independently of such downturns. The Commission observes that such gradual adjustment of withdrawals has little impact on the probability of a decline in the real value of the GPFG in the simulations, provided that withdrawals over time correspond to expected real returns on the Fund. However, temporarily large withdrawals that are not offset by underspending in other years, increase the probability of a decline in the real value of the GPFG. The significance of temporarily large withdrawals is, in the Commission's analyses, not much affected by any concurrence with global stock market downturns.

Norges Bank has in its analyses sought to illustrate the significance of withdrawals from the Fund being tailored to economic cycles. This has been modelled by making the technical assumption that withdrawals from the GPFG will grow in line with the Norwegian economy, and that changes in the value of the Fund and in economic cycles are smoothed around trend growth. Under such an assumption, the probability of a decline in the real value of the Fund over the simulation period is increased. This is also because withdrawals are partially uncoupled from developments in the value of the Fund.

The effect of a prolonged stock market contraction

Equities are expected to generate an excess return over time, relative to fixed-income securities. It is therefore important to be able to retain the commitment to the adopted investment strategy, also during periods of financial market turbulence. Generally speaking, the level of risk should be no higher than to make the discomfort of a major decline in value acceptable, thus not trigger-

ing a reduction in the equity share in the wake of a price reduction. Developments in Fund value and withdrawals under different stock market contraction assumptions are illustrated below.

The return on the equity investments in the GPFG in 2008 was just above -40 percent measured in foreign currencies. In the first quarter of 2009, equity values declined by an additional 10 percent. However, large gross petroleum revenue inflows and Norwegian krone depreciation resulted in the value of the Fund at the end of the first quarter of 2009 nonetheless being higher than at the beginning of 2008. In addition, a significant rebound in share prices later in 2009 and in 2010 resulted in the reversal of major parts of the considerable reduction in the value of the Fund.

The Mork Commission estimates, in its analyses, how developments in the real value of the GPFG and the Fund's contribution to the fiscal budget may turn out under different equity shares in coming years, in the event of a price reduction corresponding to that experienced during the financial crisis. However, the Commission did not assume corresponding Norwegian krone depreciation and share price reversal as during the financial crisis. The analysis assumes gross petroleum revenue inflows at the level estimated in the Revised National Budget 2016. The Commission emphasises that such a scenario involves a major share price decline, thus being highly disadvantageous. The Commission held such an outcome to be improbable, but not inconceivable.

The Ministry of Finance has performed two analyses – or «stress tests» – in which the stock market is assumed to slump by 25 percent and 50 percent, respectively, in the first year. From the second year onwards, it is assumed that the return is in line with the Ministry's estimate in section 3.1.3. The return on the fixed-income investments is, as a technical assumption, held to be identical to the Ministry's expected return over the entire period. The stress test applying a 50-percent price reduction has similarities with the analysis of the Mork Commission of a prolonged and aggravated financial crisis.

If the equity investments generate an annual return corresponding to the Ministry's estimate following a 50-percent price reduction, it would take about 20 years for the stock market to reach a new peak in terms of real value. Over the period 1899–2016, global share price declines of between 25 percent and 50 percent have occurred several times.[8] However, it has never taken 20 years for global equities to reach a new peak.

The technical assumptions in this stress test imply that the stock market develops more feebly than it did in connection with World Wars I and II, the stock market crash of the late 1920s, the oil price slump in the 1970s, the bursting of the IT bubble in the early 2000s and the financial crisis in 2008.

The scenarios assume that withdrawals over time correspond to the expected real rate of return of 2¾ percent with 62.5 percent equities and 3 percent with 70 percent equities. Furthermore, it is assumed that minor changes in withdrawals caused by a decline in the value of the Fund are implemented immediately, while major changes are phased in over six years.[9] Corresponding assumptions with regard to gradual adjustment of withdrawals were applied in the analyses of the Mork Commission.

Figures 3.6A and 3.6B show developments in the real value of the Fund under the outlined scenarios for equity shares of 62.5 percent and 70 percent, respectively.[10] The need for scaling back annual withdrawals from the Fund depends on the magnitude of the reduction in value. In the event of a share price decline of 50 percent, the technical assumptions imply that annual withdrawals need to be reduced by NOK 71 billion at 2017 prices, with an equity share of 62.5 percent. With an equity share of 70 percent, the corresponding reduction would be NOK 85 billion at 2017 prices. A share price decline of 25 percent would correspondingly, as a technical assumption, imply a reduction in withdrawals of NOK 33 billion and NOK 41 billion at 2017 prices, with 62.5 percent and 70 percent equities, respectively.

A reduction in withdrawals of NOK 71 billion and NOK 85 billion at 2017 prices represents about 2.5 percent and 3 percent, respectively, of Mainland Norway trend GDP, and must be considered a tightening that it would, in practice, be challenging to implement in the course of one year. Such a tightening would be challenging even

[8] The Ministry's computations are based on the data set Dimson-Marsh-Staunton Global Returns Data, measured in dollars.

[9] This section assumes inflows as outlined in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy and rebalancing of the equity share to 62.5 percent and 70 percent, respectively, if market developments result in deviations of more than four percentage points. The value of the GPFG at the beginning of the period has been put at NOK 7,510 billion, which was its value at yearend 2016. Withdrawals are, as a technical assumption, put at the expected real return in the base year. See also Box 8.2 in the report of the Mork Commission.

[10] The uncertainty fans and the median in the figures are the same as in Figure 3.4, with an equity share of 62.5 percent.

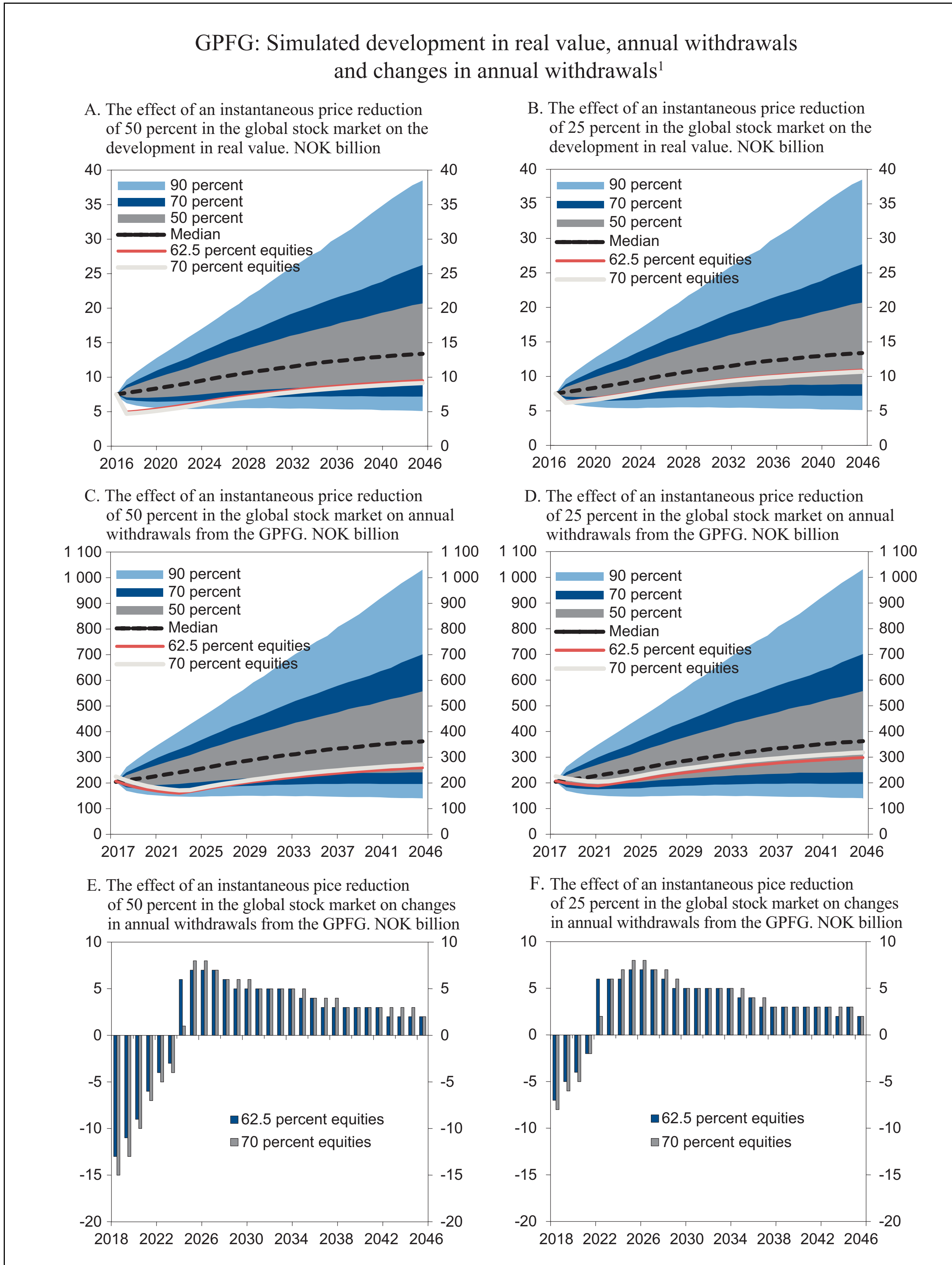

Figure 3.6 The effect of an instantaneous price reduction of 50 percent and 25 percent in the global stock market, compared to the main scenario in Figure 3.4. Simulated developments in real value, annual withdrawals and changes in annual withdrawals from the GPFG, 30 years into the future

[1] Assumes gradual adjustment of withdrawals.

Source: Ministry of Finance.

if spread over several years. At the same time, there are a number of historical examples of cuts of a similar magnitude being implemented. Budget deficit reductions of this magnitude were implemented over the course of three to five years in both the 1980s and the 1990s. Several other countries have implemented severe budget measures to reduce their budget deficits over the years following the financial crisis as well, by either increasing government revenues or reducing government expenditure.

Figures 3.6C and 3.6D show developments over time in annual withdrawals under the stress test with a 50-percent and 25-percent share price decline, respectively. Corresponding application of the fiscal policy guidelines as in the analyses of the Mork Commission has been assumed. The overall reduction in withdrawals is, with such fiscal policy application, slightly lower than indicated above, since withdrawals reach their lowest level after the value of the Fund has started to increase again. Despite the decline in both Fund value and withdrawals being larger with 70 percent equities than with 62.5 percent equities, the simulated withdrawals are always largest with an equity share of 70 percent. This is because a larger equity share results in a higher expected return, thus implying that a larger percentage of the Fund is withdrawn every year.

Figure 3.6E shows annual changes in withdrawals with a 50-percent equity price reduction, and with the same technical assumptions concerning fiscal policy application as were adopted by the Mork Commission. Other assumptions would results in somewhat different outcomes. Withdrawals decline for the first five years after the price reduction, before they start increasing again, with both 62.5 percent and 70 percent equities. The reduction in withdrawals is largest in the first year, at NOK 13 billion with an equity share of 62.5 percent and NOK 15 billion with an equity share of 70 percent. This corresponds to about 0.5 percent of Mainland Norway trend GDP. Figure 3.6F shows the annual change in withdrawals upon a 25-percent share price decline. The NOK 7–8 billion reduction in the first year corresponds to about 0.3 percent of Mainland Norway trend GDP.

A reduction in withdrawals of the magnitude indicated above implies that withdrawals from the Fund with a 50-percent price reduction and 62.5-percent equity share will increase from 2¾ percent to just under 4 percent of the value of the Fund. Withdrawals will thereafter gradually decline to 2¾ percent over the course of five years. With 70 percent equities, withdrawals will increase from 3 percent to almost 4½ percent of the value of the Fund in the first year after the price reduction, and thereafter decline to 3 percent after six years. With a 25-percent share price decline, the effects are more or less halved and the reversal period is reduced by two years.

3.1.5 Key considerations in the choice of equity share

The equity share of the strategic benchmark index for the GPFG is the most important decision as far as the expected real rate of return and risk in the Fund are concerned. The choice of equity share involves a trade-off between expected risk and return. Such trade-off needs to reflect a number of considerations, such as, inter alia, the purpose of the investments, planned uses of the Fund capital, as well as the fiscal policy role of the Fund. Moreover, the other assets of the nation need to be taken into account, since the overall risk associated with national wealth is the key variable. The trade-off also needs to pay heed to the risk tolerance of political authorities, in the form of their ability to handle periods of major fluctuations in the value of the Fund in the short run, as well as losses in the long run. A broad, long-term consensus concerning the level of risk is a prerequisite for the investment strategy to be sustainable under variable market conditions.

Expected risk and return

Historically, investors have achieved significant excess returns in the long run by investing in equities rather than in fixed-income securities. Equities involve, at the same time, larger fluctuations in value than fixed-income securities, and a greater risk of loss over time. Fixed-income securities have historically seen long periods of low real rates of return. However, historical returns are no guarantee of future returns. The Ministry of Finance is of the view that there are sound reasons for expecting that equities will continue to generate higher returns than fixed-income securities over time in future as well, but notes the observation of the Mork Commission that historical data will normally fail to capture all aspects of the uncertainty associated with future returns. The Commission believes that the excess return on equities is also a compensation for real economic risk in both the short and the long run, and states that a key insight from financial market studies is that a high expected return often entails

a high probability of loss during periods when investors are not well placed to handle these. Norges Bank notes that protracted low economic growth may influence the long-term earnings of businesses, and thereby potentially the return on equities, although one can also expect low interest rates in such a scenario.

The expected excess return on equities relative to fixed-income securities is determined by the compensation required by investors for carrying risk. A higher expected excess return estimate implies that one is compensated more for carrying risk, and is, when taken in isolation, an argument for a higher equity share. While Norges Bank notes that the expected excess return on equities relative to fixed-income securities is somewhat higher than in 2006, since the expected maturity premium is currently lower, the Commission assumes that there is no significant change in the expected equity premium. The Ministry of Finance has, in its assessment of the equity share of the GPFG, not attached decisive weight to a potential increase in the expected equity premium.

Lower correlation between equity and fixed-income returns results, when taken in isolation, in a lower expected risk of fluctuations in the value of the GPFG. This is because fluctuations in fixed-income returns are less in tune with fluctuations in equity returns, thus implying that fixed-income securities make more of a contribution towards stabilising the value of the Fund during periods of declining share prices. Norges Bank argues that the reduction in the correlation between equity and fixed-income returns may be an argument in favour of a higher equity share. The reasoning is that the Fund will now, when taken in isolation, need a smaller fixed-income share to keep the expected fluctuations in Fund return at about the same level. On the other hand, lower correlation is an argument in favour of a smaller equity share. According to financial theory, fixed-income securities will, when taken in isolation, seem more attractive to an investor when these make a greater contribution to reducing return fluctuations. Which effect of lower correlation is the dominant depends, inter alia, on model structure and risk preference assumptions. The Ministry of Finance assumes that correlation will be lower in coming years, and light is shed on some effects of this reduction in Box 3.4. The Ministry has, in its assessment of the equity share of the GPFG, not attached decisive weight to a lower correlation between equity and fixed-income returns.

The Fund's purpose and fiscal policy role

The objective for the investments in the GPFG is to achieve the maximum possible purchasing power measured in foreign currencies, with a

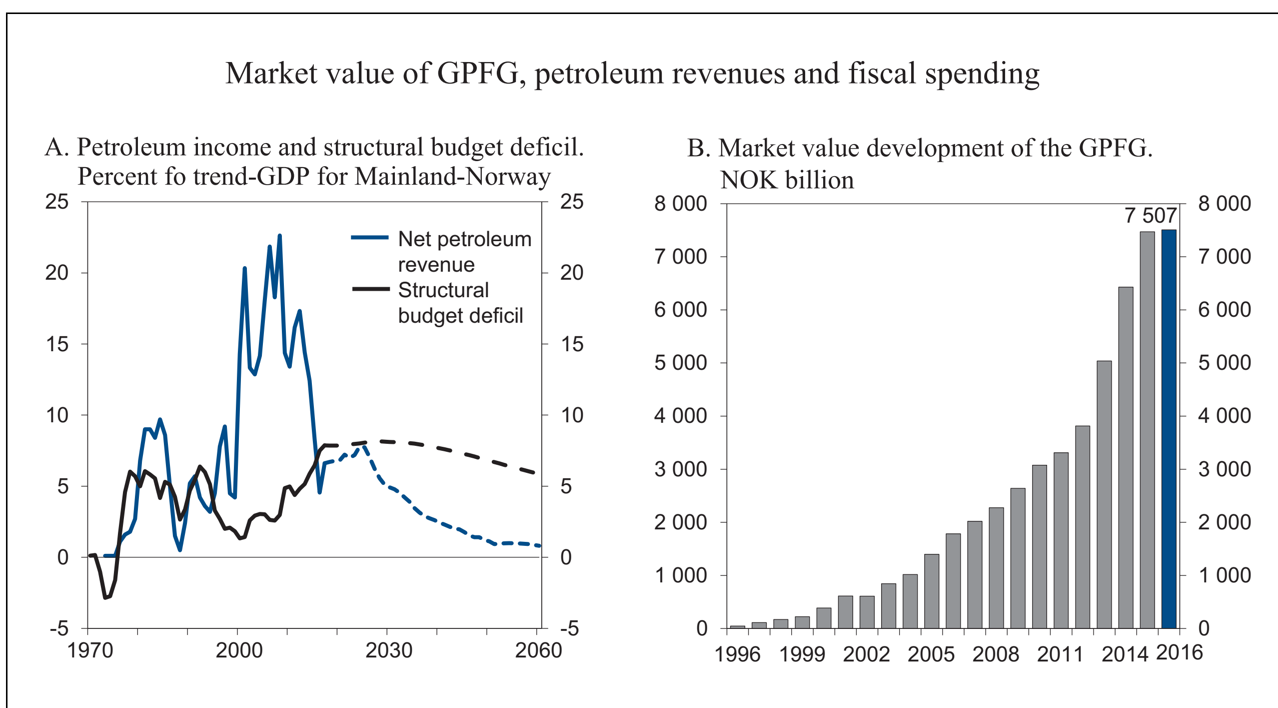

Figure 3.7 Developments in petroleum revenues, budget deficits and the market value of the Fund

Source: Ministry of Finance.

moderate level of risk. The objective reflects that the revenues from the sale of oil and gas are foreign currency revenues for Norway, which can only be used to fund imports now or later. The state's net oil and gas revenues in foreign currency are invested in equities, fixed-income securities and real estate in foreign currency via the transfers to the GPFG. The volume of foreign goods and services that can be funded by the Fund capital depends on the value of the Fund measured in foreign currencies, and not its value in Norwegian kroner.

The Fund has a long time horizon, in principle indefinite. As owner, the central government aims to preserve the principal of the Fund by over time adjusting withdrawals to the expected real returns on the Fund. The ongoing inflow of petroleum revenues to the Fund is expected to remain significant for many years to come. The Fund has no earmarked liabilities that reduce its tolerance for short-term fluctuations in market value. The probability of large and unexpected withdrawals, measured as a proportion of the Fund capital, is held to be relatively low. This reduces the risk of realizing large losses in response to short-term stock market contractions.

The long horizon of the Fund implies that the investment strategy can be more focused on expected risk and return in the long run, than on short-term changes in the value of the Fund. This makes it well placed for harvesting the expected excess return from investing in equities rather than less volatile fixed-income securities. At the same time, other and more short-term considerations also need to be taken into account.

The market value of the GPFG has increased considerably since the previous assessment of the equity share. Since yearend 2006, the Fund has grown from about NOK 1,800 billion to about NOK 7,500 billion at yearend 2016. This corresponds to an increase from one to almost three years' GDP in the Norwegian mainland economy. High production and high oil and gas prices have increased the central government's net cash flows from petroleum activities, which have been transferred to the Fund on an ongoing basis; see Figure 3.7. In addition, international financial markets have delivered favourable returns over the period as a whole.

Growth in the Fund capital is expected to be much slower in coming years. It is likely that production on the Norwegian continental shelf has peaked, and the oil price has declined significantly in recent years. It is nonetheless estimated that central government will earn significant petroleum revenues for many years to come, although at a lower level than for the last 10–15 years. International financial markets are also expected to generate lower returns in coming years. Parts of the return in recent years reflect capital gains on fixed-income securities, as the result of the international interest rate level having been in decline for many years.

Petroleum revenue spending has also increased markedly in line with the growth in the Fund, in line with the fiscal policy guidelines. The Norwegian government has thereby become more dependent on the contribution from the GPFG to finance its expenditure. In terms of the real economy, Norway as a nation has become more dependent on these foreign currency revenues to fund imports. The Mork Commission notes that this increased dependence, in combination with the declining petroleum revenues, reduces, when taken in isolation, the ability to absorb risk in GPFG.

As the Fund has grown large, it has also turned into a new source of instability for fiscal policy. While the fiscal policy framework has thus far sheltered the fiscal budget and the Norwegian economy from major fluctuations in central government petroleum revenues, the challenge has increasingly become to handle major fluctuations in international financial markets and in Norwegian krone exchange rates. It becomes more challenging to handle fluctuations in the value of the Fund, measured in Norwegian kroner, when Fund growth levels off.

The Mork Commission is of the view that the fund's role in fiscal policy should be taken into account when choosing the equity share of the GPFG. Given the size of the Fund, and its large equity share, the Commission believes that fluctuations will pose a significant challenge in terms of flexibility in fiscal policy. It also notes that a severe, prolonged stock market contraction over time will require considerable fiscal policy tightening to keep withdrawals within the limits under the fiscal policy guidelines, and to avoid draining the wealth over time. The Commission emphasises, at the same time, that this is primarily a result of the size of the Fund, and that the fluctuations in value have become large relative to the Norwegian economy and government finances.

However, a 10-percentage point change in the equity share is of limited significance for the fluctuations in the Fund, according to the calculations of the Commission. The Ministry has noted that the majority of the Commission's members point out that fiscal policy should be practised with flex-

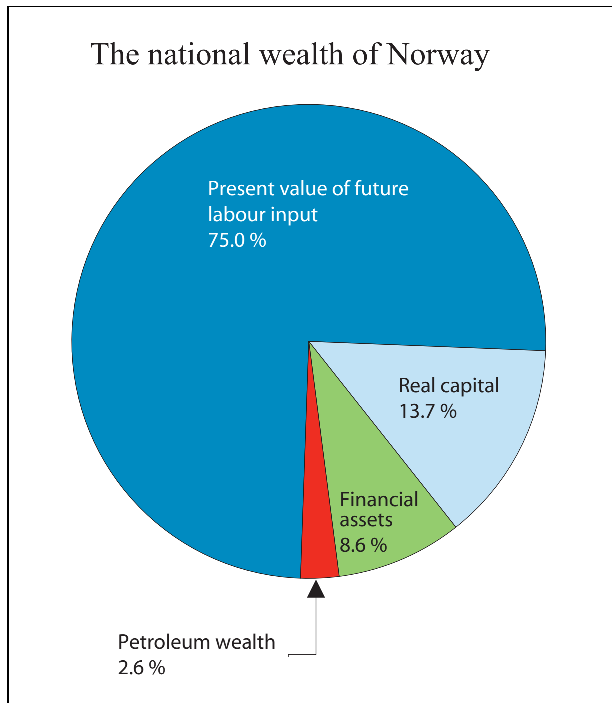

Figure 3.8 Net national wealth in 2016

Source: Ministry of Finance.

ibility to deal with such fluctuations, irrespective of which equity share is chosen. The Ministry has also noted that a minority of the Commission's members believes that the equity share needs to be reduced in order to curtail the fluctuations in the value of the Fund, thus ensuring stable transfers from the Fund for fiscal policy purposes.

Norges Bank has analysed the fluctuations in the value of the Fund at the time of the previous assessment of the equity share, compared to the current fluctuations, measured as a proportion of central government expenditure. Norges Bank estimates that even with an equity share close to zero, the impact of fluctuations in the value of the Fund for fiscal policy would be more pronounced now than at the time of the previous assessment of the equity share. This is because the Fund has grown large relative to central government expenditure.

It is the assessment of the Ministry that a reduction in the equity share is a costly and not particularly well-targeted tool for handling the fiscal policy challenges resulting from fluctuations in the value of the Fund. The Ministry believes, at the same time, that one should in the application of the fiscal policy guidelines take into account that the risk of major fluctuations in the value of the Fund will increase somewhat when the equity share is increased. In the 2017 white paper on Long-Term Perspectives on the Norwegian Economy, the Government announces that it will revert to this issue in the budget documents.

The GPFG and the national wealth

According to financial theory, an investor should allocate its financial wealth such as to obtain the best possible ratio between expected risk and return for its total wealth. The Mork Commission states that the relevant perspective for the GPFG is the wealth of Norway as a nation, not that of government.[11]

The national wealth represents the sources of the nation's revenues, now and in future. The wealth comprises human capital, fixed assets, net international receivables in the GPFG and future economic rent from underground oil and gas reserves. The net present value of future labour input; the human capital, is by far the most important part of the wealth, representing about 75 percent. The GPFG will soon account for 9 percent, and the value of underground oil and gas reserves for about 2½ percent; see Figure 3.8. The estimates are for 2016 and have been prepared by the Ministry of Finance for the 2017 white paper on Long-Term Perspectives on the Norwegian Economy.

The ratio between the value of the financial wealth and underground oil and gas reserves has changed significantly since the assessment of the equity share in 2007. The value of the remaining petroleum resources was at that time estimated at 7 percent of the national wealth, while the financial wealth only accounted for 2 percent. The ratio is now the opposite. These changes reflect high petroleum production, steep growth in the value of the GPFG and, to some extent, the outlook for a lower oil price than in the years preceding the price slump in 2014.

The Mork Commission states that one should, in assessing the equity share, consider other parts of the national wealth. The Commission emphasises that a significant part of the value of the underground petroleum wealth has over the last few decades been converted into broadly diversified financial wealth in the GPFG, which may, according to the Commission, indicate, when taken in isolation, an increase in the ability of the Fund to absorb risk. Norges Bank and a number of the consultative bodies also highlight this as an

[11] The relationship between the GPFG and national wealth is discussed in chapter 7.

argument in favour of increasing the equity share of the Fund.

The Ministry is of the view that there are sound reasons for believing that the risk associated with a well-diversified, global financial portfolio is lower than the risk associated with a corresponding amount invested in oil and gas on the Norwegian continental shelf. Through its investments in the GPFG, Norway has a claim to a small share of future global economic output. The value of the remaining petroleum wealth, on the other hand, depends on the prices of two closely related commodities; oil and gas, and on costs in one specific sector. Consequently, it is reasonable to assume that risk in the petroleum wealth has been reduced since the previous assessment of the equity share.

The Ministry has noted that the Norwegian School of Economics (NHH) expresses the view, in its consultative comments, that the political ability to absorb risk should to a greater extent be examined from the perspective of visible, not only theoretical, risk. Its comments also note the possibility that the risk associated with human capital and fixed assets may have increased since the previous assessment of the equity share. More uncertainty around productivity developments and the transition from an oil-based economy are highlighted as potential causes. The various parts of human capital are uncertain and roughly estimated figures. Interactive effects between the various parts of national wealth are also difficult to quantify. Although this is uncertain, we do not find strong indications that the risk associated with human capital and fixed assets is significantly higher now than at the time of the previous assessment of the equity share, or that the overall level of risk has increased as the result of interactive effects.

Political endorsement

The equity share and the risk in the Fund have increased over time. Like other key choices, the equity share decisions are endorsed by the Storting. Broad endorsement of, and support for, the key features underpinning the management of the Fund facilitates consistent adherence to the long-term investment strategy, especially during periods of financial market turbulence.

Equities carry more risk than fixed-income securities, and may give rise to major reductions in value in the short run. This may undermine support for the investment strategy and the framework underpinning the Fund, thus posing a risk that the strategy will be changed during periods of financial market turbulence. The Ministry notes that if the strategy is reoriented during periods of market turbulence, one will not necessarily reap a long-term risk premium, as also observed by the Mork Commission. This may reduce the return on the Fund over time.

It is difficult to quantify or measure the extent to which political endorsement of the investment strategy may serve to shore up support for the adopted strategy during periods of major reductions in value. An indication may be provided by the experiences obtained so far with periods with declines in the value of the Fund. The experience in the wake of the fall in asset values during the financial crisis in 2008 was that one was able to retain the commitment to the adopted investment strategy. The Storting supported the adopted investment strategy and the gradual increase in the equity share from 40 percent to 60 percent, which was in progress at that time, despite considerable turbulence and uncertainty with regard to future developments in financial markets. In its recommendation concerning the report on the management of the Fund in 2010, the majority of the members of the Standing Committee on Finance and Economic Affairs stated that there is a broad support for the overarching long-term strategy and objective for the Fund. It was also noted that experience from the financial crisis shows that it is important to retain the commitment to the long-term investment strategy for the Fund, especially during times of volatility.

However, the Ministry of Finance notes that the perception of the reductions in asset values during the financial crisis may have been softened by fairly favourable circumstances. The petroleum revenue inflow was large and the Norwegian krone depreciated, thus implying that the impact on the value of the Fund was curtailed. When measured in Norwegian kroner, the value of the Fund increased in 2008. Furthermore, share prices rebounded after a relatively short period of time. The Ministry is of the view that one should be cautious about assuming that these favourable circumstances will reoccur at the same time upon the next major stock market slump as well. Petroleum revenues and inflows to the Fund have declined significantly. Nor can it be assumed that the Norwegian krone will depreciate and counter the effects as measured in foreign currencies, or that equity markets will rebound swiftly.

The Mork Commission discusses experience with the framework from the financial crisis, and also identifies circumstances suggesting that the

Box 3.5 The increase in the equity share from 40 percent to 60 percent in 2007–2009

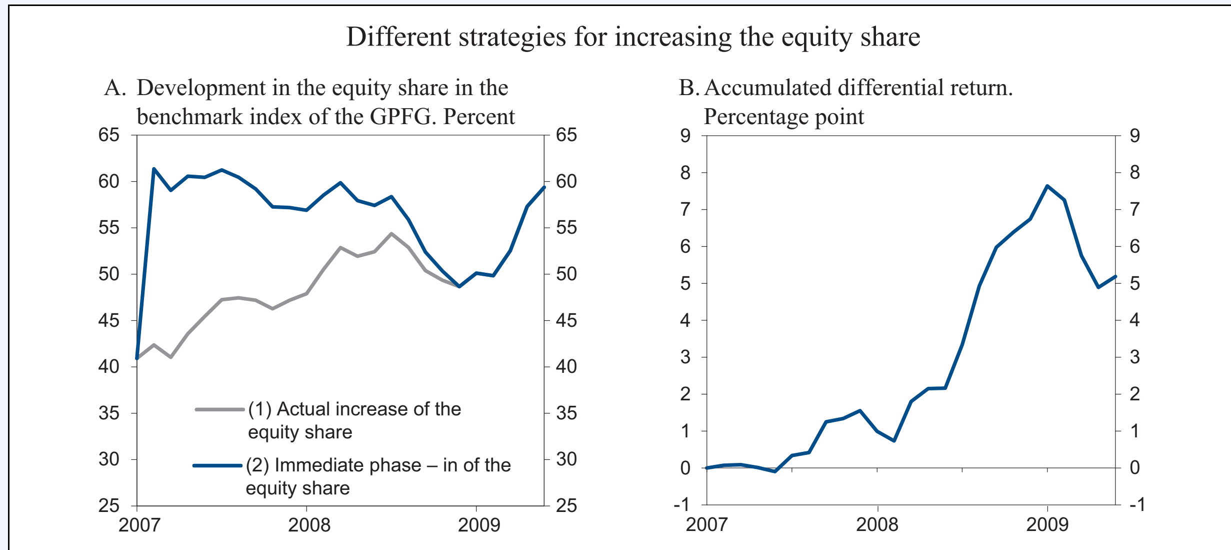

Figure 3.9 Equity share and differential return under two different strategies for increasing the equity share. July 2007 – June 2009

Source: Ministry of Finance.

A number of considerations need to be taken into account when phasing in a new equity share. A higher expected return on equities relative to fixed-income securities suggests, when taken in isolation, the swift phase-in of a new, higher equity share. At the same time, there is a risk that it will in retrospect turn out that the timing was not optimal, e.g. because the phase-in took place during a period when stock market prices turned out, in retrospect, to be high. Changing the equity share also entails transaction costs. Moreover, trading large volumes within a short period of time may have an unfavourable impact on securities prices. Such considerations suggest that the phase-in should be implemented over a long period of time.

The financial implications of the gradual phase-in of the increase in the equity share from 40 to 60 percent over the period June 2007 – June 2009, compared to an immediate phase-in, are described in the following. The Ministry emphasises that the consequences of different phase-in principles are determined by market developments, and that a new phase-in may have materially different consequences.

In June 2007, it was decided to increase the equity share from 40 percent to 60 percent. In accordance with the discussion in the report on the management of the Fund in 2006, it was decided to phase the new equity share in over time. The guidelines for the phase-in of a higher equity share suggested a steady upwards adjustment in the strategic benchmark index of one percentage point at the end of every month from the end of June 2007 onwards.[1] As far as the actual benchmark index was concerned, all inflows were to be channelled into the purchase of equities, while at the same time transferring NOK 10 billion monthly from fixed-income securities to equities. The provisions on full rebalancing were subsequently amended such as to only apply to the downside, i.e. upon stock market contraction.

The Ministry has performed an analysis of returns on the GPFG that compares two alternative phase-in strategies: the actual increase to a 60-percent equity share (Alternative 1) and an immediate phase-in, with the entire 20-percentage point increase taking place in July 2007 (Alternative 2).

In Figure 3.9A, the equity share is calculated as a share of the equity and fixed-income portfolios, and not of the overall portfolio of the GPFG, which also includes real estate. As a simplification, the same deviations from the strategic equity share are assumed under the alternatives of actual and immediate increase.

Figure 3.9B shows the accumulated differential return between the actual phase-in strategy and the strategy of immediate phase-in. The calculation show that the actual phase-in plan delivered higher returns than the alternative of immediate phase-in. The accumulated difference in returns was about 5 percentage points at the end of June 2009. The considerable difference in returns was caused by special market developments over the phase-in period, with the stock market slumping over the period from November 2007 to February 2009, and then rebounding sharply. Transaction costs during actual phase-in were also low, with one of the reasons for this being that ongoing inflows to the Fund were used to implement the changes.

[1] In addition, there were special rules concerning extraordinary upward adjustment if the stock market registered large gains over a month.

relevance of such experience may be limited. The Ministry has noted that the majority of the Commission's members believe that the political risk of a sharp reorientation of the strategy for the Fund has been reduced since the previous assessment of the equity share.

3.1.6 The Ministry's assessment of the equity share

The objective for the investments in the GPFG is to achieve the maximum possible purchasing power measured in foreign currencies, with a moderate level of risk. The equity share of the strategic benchmark index is the one decision with the greatest impact on expected risk and return in the Fund.

The Ministry believes there are sound reasons for expecting that equities will also generate higher returns over time than fixed-income securities in coming years, as has been the case historically. At the same time, consideration for the diversification of risk in the short and the long run suggests that the Fund should continue to be broadly invested, and that a moderate fixed-income share would be beneficial. Compared to fixed-income securities, equities will entail more variation in the actually achieved returns. The analyses above show that a steep and prolonged stock market contraction may result in a need for a challenging fiscal policy tightening.

The expected real rate of return on the GPFG has declined significantly in recent years. The expected real rate of return is now estimated at about 2¾ with the current equity share and about 3 percent with a 70-percent equity share. A lower expected return estimate is not an argument in favour of increasing the equity share, and thus the level of risk in the Fund. The Ministry notes that the level of risk in the GPFG has to be sustainable over time.

The fund structure and the fiscal policy guidelines imply that the GPFG has a long time horizon. A long time horizon makes it well placed for investing in equities. In the 2017 white paper on Long-Term Perspectives on the Norwegian Economy, the Government proposes that withdrawals from the GPFG, i.e. the spending of Fund revenues via the fiscal budget, shall over time correspond to 3 percent of the value of the Fund, down from the previous 4 percent. This reduction supports the long time horizon of the Fund.

Of key importance to the assessment of the equity share is the ability to absorb risk, including the ability of political authorities to stick to the investment strategy, also during periods of major reductions in the value of the Fund. Overestimating the ability to absorb risk may entail considerable costs. The Ministry has noted that the majority of the Mork Commission's members premise their advice on the ability to absorb risk has increased since the previous assessment of the equity share. Such an assessment needs to take numerous considerations into account. The Commission refers, inter alia, to experience from the financial crisis, when there was a broad political consensus concerning the strategy for the Fund even during periods of turbulence, as well as to the overall petroleum wealth being better diversified. The Ministry has noted, at the same time, that the Commission points out that the fiscal budget has become more dependent on the revenues from the Fund. The Ministry assumes that the ability to absorb risk can, all in all, be considered higher now.

The Government believes, based on an overall assessment, that the equity share of the strategic benchmark index for the GPFG should be increased to 70 percent, from the current 62.5 percent. This increase implies, when taken in isolation, that the expected annual return will increase somewhat, compared to under the current equity share. At the same time, a higher equity share will somewhat increase expected fluctuations in the value of the Fund, in both the short and the long run. The Government believes that the risk associated with an equity share of 70 percent will, all in all, be acceptable.

The Ministry emphasises that the proposed increase in the equity share is not based on any assessment that the timing of an increase in the equity share is particularly fortuitous. The transition to a higher equity share will need to be conducted gradually over time, and plans will be prepared in consultation with Norges Bank. There will always be a risk that it turns out in retrospect that the timing was not optimal. Such risk may be reduced by implementing the change over a long period of time. After it was decided to increase the equity share from 40 percent to 60 percent in 2007, the phase-in took place over two years; see Box 3.5 for further details.

3.2 Unlisted infrastructure investments

3.2.1 Introduction

The Ministry of Finance examined, in the report on the management of the Fund in 2015, whether

to permit the GPFG to invest in unlisted infrastructure. This process included the Ministry soliciting the advice of an expert group (van Nieuwerburgh, Stanton and de Bever) and of Norges Bank. A key issue was whether the Fund was better placed to make such investments than other investors. It was noted that infrastructure investments are exposed to considerable regulatory and political risk. It was emphasised, in their report, that *unlisted* infrastructure investments generally involve large ownership stakes, which makes any investments more visible and more prone to criticism. It was also noted that potential regulatory conflicts with government authorities in other countries, concerning important public goods, may put the reputation of the Fund at risk.

It was the assessment of the Ministry that a transparent and politically endorsed sovereign fund such as the GPFG is less suited than other investors for carrying the special risk associated with unlisted infrastructure investments. It was also emphasised that the market for unlisted infrastructure is small for the GPFG, and that it would be useful to gain more experience from unlisted real estate before potentially permitting new types of investment. Based on an overall assessment, the Ministry of Finance did not propose that the GPFG should be permitted to invest in unlisted infrastructure at the present time.

Upon the Storting's deliberation of that report, a majority of the members of the Standing Committee on Finance and Economic Affairs requested the Government to further examine unlisted infrastructure, and to revert on the issue in this report. The Government was requested, as part of its assessment, to shed light on how the risk and the particular challenges posed by such investments, including reputational risk, can be curtailed and how to ensure the maximum possible transparency with regard to such investments. The Government was also asked to look into how this has been handled by other funds.

The Ministry of Finance has, against the background of the these comments, requested input from both Norges Bank and an external consultant.

3.2.2 Norges Bank's assessments

Norges Bank was requested, in a letter of 29 June 2016, to further examine the special risk associated with unlisted infrastructure investments and how this can be handled in the management of the GPFG. Norges Bank was also asked to describe a potential setup for reporting on such investments. Furthermore, Norges Bank was asked to examine how infrastructure investments could be regulated in the mandate from the Ministry of Finance, how such investments could be adapted to the new model for regulating unlisted real estate investments, and whether permitting unlisted infrastructure may affect expectations as to the overall excess return on the GPFG.

In a letter of 20 December 2016, Norges Bank addresses these aspects of unlisted infrastructure investments. Norges Bank refers, at the same time, to its letter of 2 December 2015, which set out the advice from Norges Bank in connection with the assessment in the report on the management of the Fund in 2015. The latter letter provides a more comprehensive assessment of unlisted infrastructure investments, based on analyses carried out by Norges Bank in the autumn of 2015.

Investment restrictions

Norges Bank proposes to curtail the risk associated with infrastructure project investments along the dimensions *country*, *type of installation*, *type of project* and *collaboration/ownership*. Norges Bank believes that the risk can be reduced by limiting the investments to countries that both have well-functioning legal systems and authorities that have experience with private owners of infrastructure. One potential limitation might be to choose the most developed countries in Europe, North America and Oceania. A gradual approach to this type of investment might involve limiting the investments to the fields of energy, communications and transport. These fields are deemed by Norges Bank to be growing and characterised by acceptance for private ownership. The risk associated with infrastructure projects is deemed to be higher in early development phases, and may be reduced by choosing projects with a high degree of certainty about future earnings. Norges Bank does not consider it appropriate to implement the first investment projects, if any, on its own. Relevant collaboration partners might be multilateral/regional development banks or national infrastructure banks. This may serve to establish a local affiliation. In addition, limitations may be introduced as to the ownership stake of the Fund.

Framework

Norges Bank is of the view that any unlisted infrastructure investments should be subject to the same type of regulation as the unlisted real estate investments of the Fund.[12] This implies that the

Table 3.4 Comparison of the characteristics of unlisted investments in infrastructure and real estate[1]

		Unlisted infrastructure	Unlisted real estate
Market	Size	USD 0.6 trillion	USD 7 trillion
	Degree of maturity[2]	Low	High
	Asset heterogeneity	High	Low
Complexity	Importance to the local community	High	Low
	Exposure to political, regulatory and reputational risk	High	Low
Transparency	External disclosure requirements	High	Low
	Quality of market data	Low	Medium
	Information to majority owners	Investor-driven	Investor-driven

1 This assessment is relative and provides guidance on the average segment of each asset class.
2 For example in the form of standardisation of transaction practice and framework, in addition to the number of service providers and their degree of specialised expertise.
Source: McKinsey.

benchmark index will not include a separate allocation for unlisted infrastructure, with such investments instead being encompassed by the scope for deviations from the benchmark index. Norges Bank recommends a cap on what share of the Fund can be invested in unlisted infrastructure.

Operational implementation

Norges Bank has indicated in its letter how it will approach the investment decisions if unlisted infrastructure investments are permitted, and has stated that it will develop expertise gradually, as it did when unlisted real estate investments were first permitted. Norges Bank believes that it will be able to build on the existing expertise and decision-making structure in its operational implementation.

Transparency

Norges Bank refers to the current reporting requirements in the mandate for the GPFG and to Norges Bank's reporting. Norges Bank states that it will disclose the same detailed information on the unlisted infrastructure investments of the Fund as on the other investments of the Fund, including the broadest possible presentation of which factors drive returns and which types of risk the investments expose the Fund to.

12 See the discussion in section 3.4.

3.2.3 Report from external consultant

The Ministry of Finance has engaged the consultancy firm McKinsey to write a report on special challenges posed by unlisted infrastructure investments, including political, regulatory and reputational risk. The firm was requested by the Ministry to provide specific and relevant examples of such challenges, as well as to review how sovereign wealth funds and large, global investors deal with these challenges.

McKinsey states in its report[13] that the market for unlisted infrastructure investments is smaller, more complex and not as well-developed as the market for unlisted real estate investments; see Table 3.4.

Both infrastructure investments and real estate investments are considered real asset investments, but there are nonetheless distinct differences between the two asset classes. Infrastructure tends to be owned by government authorities. The private infrastructure market is smaller than the private real estate market, while at the same time not being equally developed. Transaction practice and frameworks are less standardised in the infrastructure market. Infrastructure facilities, such as for example water supply, are of key importance to local communities, are highly visible and tend to be perceived as public goods. This implies that these are often subject to strict government regulations.

13 The report is available on the Ministry's website.

Table 3.5 Examples of different types of risk associated with unlisted infrastructure investments

Risk category	Risk sub-category	Examples of issues
Political risk	Safety and instability	Social unrest Terrorism War
	Legal	Expropriation Deletion or revision of existing agreements Change in political direction of infrastructure asset management
	Leadership and regimes	Election (e.g. democratic or quasi-democratic) Coup
	Politics and policies	Tax legislation Labour laws Environmental standards Foreign direct investments and trade openness
Regulatory risk	Regulator-certainty	Renegotiations of existing agreements Modification of public-private partnership framework Sudden and unexpected cuts to subsidy schemes Change in regulatory price point, e.g. stipulated prices, interest rates, asset base Limitations in price point changes Limitations to trade (e.g. of critical spare parts), e.g. trade tariffs, local content requirements, import/export quotas, bottlenecking inspections Inconsistent definitions and enforcement
	Regulatory efficiency	Unclear requirements Delays in decision-making and timelines
Reputational risk	Environmental, social and governance	Environmental damage, e.g. air and noise pollution, chemical spills Re-settlements Lack of local content or diversity Corruption Executive remuneration and perks
	Health, safety and (work) environment	Injuries Long-term disabilities and chronic disorders Fatalities
	Stakeholder disagreements	Energy supply vs. amenity disruptions Local industries and minority interests vs. foreign technology
	Litigation	Indictment (e.g. based on ESG or HSE matters) Involuntary co-plaintiff (i.e. end-investor could be implicit co-plaintiff)
	Other negative publicity	Allegations or adverse press campaigns, e.g. about profiteering, corruption, embezzling Subject in political debate, i.e. false accusations of adverse events, e.g. blackouts, community issues Picketing by special interest groups, e.g. labor unions, community leaders, environmental activists Association with second-party, e.g. partner accused of corruption Association with third-party, e.g. partner with close ties to administration accused of corruption

Source: McKinsey.

McKinsey notes that the infrastructure market is more varied and ranges from power grids and bridges to airports and hospitals. Infrastructure assets are less traded than real estate assets, which are traded in active secondary markets encompassing a broad range of equity and fixed-income instruments. There are, nonetheless, less complex infrastructure segments, for example thermal power generation, fuelled by coal, oil or natural gas. While the property market is for the main part exposed to competition, infrastructure facilities are often natural monopolies or quasi-monopolies, such as power grids, airports and roads. Local communities cannot necessarily switch to another supplier of the services provided by such facilities.

McKinsey states that although unlisted infrastructure is exposed to risk factors corresponding to those of other asset classes, it is relatively more exposed to regulatory, political and reputational risk. This is because infrastructure projects are often important to local authorities, while affected stakeholders may have strong preferences. The risk profile of unlisted infrastructure investments varies from project to project, and it is therefore important to perform a thorough risk assessment for each and every project. Table 3.5 provides an overview of relevant themes within each risk category.

Political, regulatory and reputational risks associated with unlisted infrastructure investments encompass a broad range of potential issues. McKinsey observes that such risks are driven by a lack of stability on the part of political authorities, in combination with their ability to affect the investments, for example via legislative or regulatory amendments. The investments may be affected by changes in infrastructure management policy, or by direct legislative amendments within fields like tax, labour or environmental law. Examples of regulatory risk may be the risk of renegotiation of existing agreements, changes to the public-private partnership framework or changes to subsidy schemes. In its report, McKinsey has discussed certain (anonymised) examples of incidents that have harmed the reputation of investors in unlisted infrastructure.

Since infrastructure facilities are societally important assets that attract considerable attention, the range of reputational risk is broad and the probability is high. Most infrastructure investments are both of a long-term nature and have a high degree of visibility in local communities, thus implying an elevated risk of becoming associated with any questionable actions of other parties, or even third parties. Reputational risk can, for example, arise upon environmental damage or injury to people in the local community, service delivery disruptions or conflicts between stakeholders. For investors investing on behalf of taxpayers, suing for damages may entail special negative reputational effects, especially if the investor is a large fund confronting a not particularly affluent local community in such litigation.

The report observes that investors may manage regulatory, political and reputational risks at five different levels: country or regional government, regulatory authorities, local community, operating entity and partner (such as an investment partner, operating partner and subcontractor). The report outlines a number of risk management measures at each level; see Table 3.6.

At the national or regional level it is, according to the report, important to develop an understanding of the stability of the political and commercial system, the priorities of regulatory bodies and civil servants, and the general perception of private foreign investments.

At the regulatory level, investors may examine the regulatory process, how sophisticated the relevant public-private partnership framework is, as well as experience with how regulatory bodies have applied current and past frameworks and contracts. The key risk-reducing measure is, according to McKinsey, to focus on investments in areas with consistent and predictable regulation.

Active involvement in the local community is, according to the report, an advantage since it typically influences both the design of infrastructure facilities and the perception of being thus influenced. Such involvement may help investors to understand local priorities, concerns and reservations in relation to an infrastructure facility, or to identify opportunities for improving the performance of such facility.

At the project level, the same considerations apply as for other real assets with regard to environmental, social and corporate governance issues (ESG) and measures relating to health, safety and environment (HSE). However, because the influence of communities and regulatory bodies is greater for infrastructure assets, it is more important to assess and address the concerns of local communities and government bodies. McKinsey believes that it may be a good strategy for a foreign investor to primarily choose local partners with a focus on involving local communities and collaborating with regulatory bodies, or to only collaborate with partners that have extensive experience with ESG and HSE issues.

Table 3.6 Examples of risk management at various levels

Level	Examples of risk-reducing measures
National/regional	Thorough assessments of the acceptance of private ownership of public infrastructure over time and across varying political regimes.
Regulatory body	Thorough assessment of the stability and sophistication of the framework governing public-private partnerships.
Local environment	Active engagement with local authorities and other stakeholders by, for example, promising local jobs if one is awarded the investment project.
Project	Strict requirements with regard to responsible management of the project (focus on environmental, social and corporate governance considerations; so-called ESG factors), as well as health, safety and environment (HSE), together with comprehensive public reporting.
Partner	Conduct extensive and thorough analysis of partner choices, and in some cases chose a reputable national partner to compensate for being a foreign investor.

Source: McKinsey.

McKinsey states that investors in unlisted infrastructure may be classified into three main groups. The three types of investors have different approaches to risk management. The first group are so-called *hybrid investors*, which make use of fund structures because these investors are small or relatively inexperienced. These investors will, by and large, leave risk management in individual projects to selected partners such as, for example fund managers, and will themselves only manage risk at the portfolio level. The other two groups of investors make direct investments in unlisted infrastructure themselves. A distinction is made between *direct investors* and *specialists*.

Direct investors have a good knowledge of infrastructure investments and attach considerable weight to the contract and incentive structure. Specialists have expert knowledge and are less reliant on co-investors than are direct investors. It is common practice for both direct investors and specialists to appoint their own employees as directors of project companies controlled by them.

McKinsey states that it is necessary for all three investor groups to have infrastructure investment expertise on their own boards of directors, as the board is often directly involved in such investments. Direct involvement may, according to McKinsey, be necessary because of the size of the investments and the need for active ownership, as well as requirements for a separate risk management and reporting framework.

3.2.4 The Ministry's assessment

The Ministry notes that the report from McKinsey observes that large, long-term investors have expanded their unlisted infrastructure investments in recent years based on, inter alia, a desire for risk diversification, stable returns and a need for long-term management of financial assets and liabilities. At the same time, the market for unlisted infrastructure is currently small, when measured as a proportion of the available investment market.

In connection with the report on the management of the Fund in 2015, both Norges Bank and an expert group emphasised that permitting unlisted infrastructure investments would expand the investment universe of the GPFG and facilitate exploitation of the distinctive characteristics and advantages of the Fund. In its assessment of last year's report on the management of the Fund, the Ministry noted, however, that a number of important considerations indicated that such investments should not be permitted.

A key consideration in the assessment of unlisted infrastructure in the report on the management of the Fund in 2015 was regulatory and political risk. The Ministry noted that it is common practice for such investments to be governed by long-term contracts under which profitability is directly influenced by other countries' authorities, via tariffs and other operating conditions. With unlisted investments, the Fund will hold large ownership stakes, thus rendering investments

more visible and more vulnerable to criticism. Conflicts with government authorities in other countries concerning the regulation of transport, energy supply and other important public goods will generally be challenging, and pose a risk to the reputation of the Fund. At the same time, high transaction costs and lower liquidity may make it more difficult to divest unlisted investments if complications were to arise.

In addition, the management of unlisted investments is more complex and requires more resources than listed investments, and there is a need for developing different and more specialised expertise. It is also, in general, challenging to evaluate the performance of such investments, as well as to measure and manage risk. This makes it challenging to assess whether such investments offer improved diversification of risk or higher expected returns for the average investor. A relevant question is therefore whether the asset manager can be expected to improve the risk-return ratio through any advantages over other investors.

The Ministry is of the view that the McKinsey report substantiates, in the main, the Ministry's assessment in last year's report on the management of the Fund. The report notes that the market for unlisted infrastructure is small, and is held to be characterised by a lower degree of maturity and less homogeneous investments than the market for unlisted real estate. The asset class is broad in scope, from power generation and ports to social infrastructure such as hospitals and prisons. Market practice is not particularly standardised and varies across sectors and countries. There are few comparable transactions that can support valuations. This is in contrast to unlisted real estate, which is a much larger asset class with established standards, facilitation services, as well as an ever-increasing number of homogeneous transactions.

McKinsey also notes that infrastructure projects are often important to the local authorities and that there may be a high degree of political involvement. Most of the projects are natural monopolies, or quasi-monopolies, such as power grids, bridges and airports. In such markets, local communities cannot opt for a different provider. Nor can the supplier opt for a different group of customers. This increases the political risk, the regulatory risk and the reputational risk of unlisted infrastructure investments. McKinsey also notes that such investments are complex and may vary considerably from project to project. Consequently, these require specialised expertise in several parts of the investor organisation, also at the board level.

Infrastructure investments also require more follow-up than other unlisted investments. It will in many cases be necessary to join the boards of the investment projects. Thus far, it has not been the strategy of Norges Bank to join the boards of companies in which the Fund is invested.

Norges Bank is proposing to develop expertise and approach the investment opportunities gradually, if unlisted infrastructure investments were to be permitted. That was also the strategy for the initial unlisted real estate investments. Unlisted infrastructure investments require closer follow-up than listed investments, and thus more employees. The Ministry notes that a larger and more complex organisation will impose additional requirement in terms of leadership and governance structure.

Furthermore, Norges Bank believes that the risk can be curtailed by investing in mature projects and traditional sectors like energy, communications and transport in developed countries in Europe and North America. Requirements may also be stipulated with regard to collaboration with partners and limitation of the ownership stake held by the Fund. The Ministry notes that there are nonetheless major differences from project to project, also within the same sector and market. The risk-reducing effect from selecting individual areas or sectors is therefore less than for unlisted real estate investments.

The Ministry has noted that restrictions proposed by Norges Bank will imply that no investments are made in immature projects or in developing countries. If the Ministry were to otherwise direct the investments, by for example requiring these to support the green shift or development objectives, it would neither be compatible with the financial objective of the Fund, nor with Norges Bank's suggested strategy for limiting the risk of unlisted infrastructure investments.

The GPFG is a large sovereign fund with a long time horizon. These distinctive characteristics may place the Fund at an advantage over other investors. Its size and long time horizon may, when taken in isolation, facilitate unlisted investments. On the other hand, government ownership entails strict requirements with regard to transparency and political endorsement. This is reflected in the strategy for the Fund, which has been developed gradually with a strong emphasis on listed investments and low asset management costs. The investments currently under assessment for potential inclusion in the investment uni-

verse are unlisted and particularly exposed to political and regulatory risk, as well as reputational risk. There is reason to believe that the expected return on such investments will depend on how much risk of this type an investor assumes.

The Ministry of Finance is of the view that a transparent and politically endorsed sovereign fund like the GPFG is not well placed to assume the special risk of unlisted infrastructure investments. It is the assessment of the Ministry that the new observations that have emerged support the conclusion in the report on the management of the Fund in 2015. It is not, against this background, proposed to permit the GPFG to invest in unlisted infrastructure investments at present.

The Ministry notes that a new regulation for unlisted real estate was adopted with effect from 1 January 2017. At the same time, a Government-appointed commission chaired by Svein Gjedrem is examining the Central Bank Act and the governance structure of Norges Bank, including alternative governance and incorporation models for the GPFG. Experience from, and developments in, these fields may be of relevance to a potential future expansion of the investment universe to other types of unlisted investments.

3.3 Guidelines for government bonds

3.3.1 Background

Fixed-income securities represent, with effect from 1 January this year, 37.5 percent of the strategic benchmark index for the GPFG, while equities account for the remainder. The fixed-income share is made up of 70 percent government bonds and 30 percent corporate bonds. Fixed-income securities have a lower expected return than equities, but also lower risk; see section 3.1. Fixed-income securities therefore serve to reduce the fluctuations in the overall value of the Fund. In addition, fixed-income securities provide liquidity. It follows from the mandate from the Ministry of Finance that the Fund shall predominantly be invested in government bonds with low credit risk. Consequently, the investments are primarily in high- and medium-income countries.

Norges Bank can invest in all tradable fixed-income securities within the scope of the mandate. An exemption has been made for interest-bearing instruments issued by states that are subject to particularly large-scale UN sanctions or other international initiatives of a particularly large scale that are aimed at a specific country and where Norway supports the initiatives (the government bond exemption). At present, North Korea and Syria are excluded from the investment universe pursuant to this provision. At the end of the third quarter 2016, the Fund was invested in government bonds in 53 countries, with a total market value of just under NOK 2,000 billion.

In its deliberation of the report on the management of the Fund in 2015, the Storting's Standing Committee on Finance and Economic Affairs had the following comment; see Recommendation No. 326 (2015–2016) to the Storting:

> «The Standing Committee believes that the guidelines for the investments of the Fund in government bonds should be considered as a tool for Norges Bank in its assessment of financial risk. The Standing Committee requests the Government to instruct Norges Bank to provide an account of its efforts relating to the approval of government bond investments, including its assessments of country risk and the follow-up of the mandate provision on taking fiscal strength into account. Norges Bank is requested, as a part of the above, to explain how it takes account of transparency and accountability in government budget processes in the issuing states and risks relating to illegitimate debts, including whether frameworks developed by the IMF and the OECD may be suitable in that context. The Government is requested to revert with its assessments in connection with next year's report on the management of the Fund. The Standing Committee refers, furthermore, to the development of this type of guidelines in recent years as the result of the financial crisis and the subsequent debt crisis in Europe. The Standing Committee notes, at the same time, that one would not want such guidelines to result in the Fund being perceived as a foreign policy tool, and that objective criteria should therefore be applied.»

As part of the follow-up of the comments of the Standing Committee, the Ministry of Finance requested an assessment from Norges Bank in a letter of 29 June 2016. Norges Bank's input, some international developments and the Ministry's assessment are set out below.

3.3.2 Norges Bank's assessments

In letters of 19 December 2016 and 9 February 2017, respectively, Norges Bank presented its

assessments of the issues raised by the Standing Committee on Finance and Economic Affairs. Norges Bank refers to the mandate from the Ministry of Finance and the provisions on the investment universe for fixed-income instruments (section 3-1), requirements for approval of markets and instruments (section 4-10), requirements for credit rating of fixed-income instruments (section 3-5, third paragraph) and requirements for taking account of fiscal strength in the composition of the government bond investments (section 3-5, fourth paragraph). The letters explain how these provisions are followed up.

Investment universe for fixed-income instruments

Norges Bank notes that the GPFG can be invested in all tradable government bonds, with the exception of countries subject to the government bond exemption. Nor can the GPFG be invested in fixed-income securities issued by the Norwegian government or in Norwegian kroner.

Requirements for approval of markets and instruments

Norges Bank shall, according to the mandate from the Ministry, approve all markets and instruments in which investments are made. As far as bonds are concerned, the approval applies to the market for the currency in which the bond is denominated. The bond type is approved as an instrument. Examples of bond types are government bonds denominated in local currency, government bonds denominated in foreign currency and corporate bonds. For government bonds denominated in local currency, Norges Bank thoroughly reviews - for the country in which the marketplace is located – factors such as legislative framework, rule of law, corruption, tax system and any restrictions on the export of capital. For such bonds, the home state of the market place will normally coincide with the issuing state. The purpose is to ensure that the investments are sufficiently secure. Norges Bank notes that any risk that the legitimacy of government debt may be questioned will be identified in this context.

Norges Bank states that:

> «In our work on approving a new market or instrument, Norges Bank draws on a number of external sources, including the World Bank's Worldwide Governance Indicators, Verisk Maplecroft, the Economist Intelligence Unit, UNCTAD's Investment Policy Hub, the Heritage Foundation/Wall Street Journal Index of Economic Freedom, and Transparency International's Corruption Perceptions Index. Norges Bank also obtains information from independent legal advisers in the relevant country.»

For government bonds denominated in a foreign currency, Norges Bank's approval is based on the market place for bonds denominated in the relevant currency and on government bonds as a financial instrument. There is no approval of the state issuing the government bond as such. Such bonds have, like the other fixed-income investments of the Fund, a credit rating; see below.

At the end of the 3rd quarter, government bonds denominated in foreign currency accounted for 0.7 percent of the fixed-income investments of the Fund, according to the letter from Norges Bank.

At the same point in time, 31 currencies were approved for government bond investments. The number of currencies has been unchanged since 2013.

Norges Bank is of the view that the frameworks prepared by the IMF and the OECD, to which the Standing Committee on Finance and Economic Affairs refers, are primarily developed for issuers of government debt and units with responsibility for government budget processes, and not for government bond investors. Reference is also made to the IMF and OECD guidelines for government budget processes. Norges Bank's assessment is that relevant aspects of these guidelines have already been taken into account via Norges Bank's approval process, and that these are reflected in the credit ratings of various issuers.

Requirement for credit rating of fixed-income instruments

The mandate from the Ministry of Finance stipulates that Norges Bank shall organise asset management to ensure that high-yield bonds – credit rating lower than «investment grade» – do not account for more than 5 percent of the market value of the Fund's overall fixed-income investments. The provision is intended to enable Norges Bank to hold bonds to maturity, even if these are downgraded. At the end of 2015, high-yield bonds accounted for about 2 percent of the market value of the fixed-income portfolio.

Furthermore, it is a requirement under the mandate that there is a credit rating for all fixed-income investment instruments. There is cur-

rently an external credit rating from all of the three largest credit rating agencies for all government bond investments of the Fund. Norges Bank states the following:

> «The agencies' weighting of institutional quality is particularly relevant to the issues on which Norges Bank is being asked to provide input. Both Moody's and Fitch assess institutional quality on the basis of indicators from the World Bank. All three agencies attach importance to transparency, stability, predictability and accountability in public processes and the quality of fiscal management. Moody's also considers it particularly important whether public power is used for private gain. S&P looks at whether the legitimacy of debt issued by former authorities could be questioned. Where this is the case, the country is automatically assigned the lowest score in the assessment of institutional quality. Bonds issued by countries in this category will be considered high-risk by S&P.»

Requirement for taking account of fiscal strength

The composition of the government bond benchmark for the Fund is based on GDP weights. This implies that countries issuing more debts than others will, all else being equal, account for a smaller share than in a market-weighted index.

Norges Bank shall, according to the mandate, seek to take account of fiscal strength in the composition of government bond investments. Norges Bank states that it has, for government bonds issued in euros, introduced specific country factors implying that countries with weak public finances carry less weight in the portfolio. For other government bonds, Norges Bank notes that it is difficult to deviate from GDP weights in the government bond-segment of the fixed-income benchmark for the Fund, without exceeding the scope for deviations from the benchmark index (expected tracking error) of 1.25 percentage points.

3.3.3 International developments

Fiscal crises have occurred numerous times over the course of history as the result of, inter alia, wars, revolutions and other political events. In the wake of the financial crisis in 2008, several states encountered difficulties with the servicing of their debts. Such difficulties tend to arise in connection with recessions or banking crises, although their origins are often to be found in large deficits and borrowing prior to such crises. In recent times, there have also been cases of regimes coming into power that do not recognise, or wish to service, debts established by previous regimes. Both instances represent a financial risk to creditors.

Individuals or companies that fail to service their debts or come to any other form of understanding with their creditors, will normally be put into liquidation. Most countries have liquidation legislation and provisions. These contribute to predictability, clarification and the safeguarding of various interests. However, no such arrangements have been established for states. In practice, such situations are dealt with via negotiations through, inter alia, various fora such as the so-called Paris Club[14].

In recent years, there has been international interest in developing better sovereign lending guidelines. Norway has actively promoted such efforts. One specific outcome is the UNCTAD principles on promoting responsible sovereign lending and borrowing. The principles stipulate, inter alia, transparency, that the lender shall assess the sustainability of the borrowing, and that the borrower is formally authorised to conclude the agreement. Compliance with the principles can be more challenging when borrowers are countries characterised by weak governance structures. The principles have been endorsed by the UN General Assembly, and bilaterally endorsed by a number of countries, including Germany and Norway. The Ministry of Finance is aware that these issues are currently also under discussion in a G20 working group.

In 2013, the then Danish Council for Corporate Social Responsibility issued a guidance on responsible government bond investments. The Council was affiliated with the Danish Business Authority, a directorate under the Danish Ministry of Industry, Business and Financial Affairs. The specific backdrop to the guidance was investments by several Danish institutions in government bonds issued by eight African countries. The guidance lays down two principles for government bond investments. Firstly, that international sanctions

[14] The Paris Club is an informal forum comprising representatives from 22 of the world's largest economies. The World Bank and the IMF are also permanent attendees of its meetings. The role of the forum is to find coordinated and sustainable solutions for borrower countries encountering payment difficulties, in the form of restructuring, included relief, of debt when needed. The forum was established in 1956. In addition to the permanent members, other creditor countries may particulate in the deliberation of specific cases on an ad hoc basis.

and bans under the auspices of the UN and the EU shall always be complied with. Secondly, that investors shall promote compliance with international corporate social responsibility principles, under reference to the UNGP and the OECD Guidelines for Multinational Enterprises. The guidance also recommends investors to be transparent about their investments and their corporate social responsibility efforts. The guidance recognises, however, that government bonds are a special type of investment, which do not offer the same scope for active ownership, involvement and investor collaboration as, for example, equity investments.

3.3.4 The Ministry's assessments

The objective for the management of the GPFG is the highest possible return, given a moderate level of risk. There is a broad political consensus that the Fund should not be used as a foreign policy or environmental policy instrument. Government bonds offer lower expected returns than equities, but serve to reduce fluctuations in the overall value of the Fund and as liquidity.

The management of the GPFG is conducted under a mandate laid down by the Ministry of Finance. A number of the provisions in the mandate address government bond investments. These include, inter alia, requirements for approval of all markets and financial instruments used in asset management, for credit ratings and for taking account of fiscal strength. Furthermore, it is a requirement that asset management is organised to ensure that no less than 95 percent of the bonds carry low credit risk, so-called investment grade bonds. Permitting a share of up to 5 percent carrying a higher credit risk means that Norges Bank can hold bonds until to maturity, even if these are downgraded. The Fund cannot be invested in bonds issued by states that are subject to particularly large-scale UN sanctions or other international initiatives of a particularly large scale that are aimed at a specific country and where Norway supports the initiatives. Moreover, the mandate provisions on the Fund as a responsible investor also apply to its investments in fixed-income securities.

The Ministry of Finance has taken note of how Norges Bank follows up on the provisions in the mandate from the Ministry in its operational management. The account provided by Norges Bank shows that systems and procedures for following up the issues of concern to the Standing Committee on Finance and Economic Affairs have been established. The Ministry agrees with the assessment of Norges Bank that financial risk considerations in relation to government bond investments must be deemed to be adequately addressed in the current mandate. The Ministry assumes that Norges Bank evaluates, on a regular basis, which sources and indicators it is appropriate to draw on in its operational implementation of the provisions.

Some states issue bonds denominated in foreign currency. Norges Bank may generally invest in such bonds, but these are not included in the benchmark index for the Fund. As mentioned, it is a requirement under the mandate that Norges Bank shall «*approve all the financial instruments that may be used in the management and all markets the Fund may be invested in*»; see section 4-10. This provision does not require express approval of each issuing state, provided that there exists a credit rating of the bond and it is denominated in a currency approved by Norges Bank. Hence, Norges Bank does not perform a separate assessment of the issuing state for bonds denominated in foreign currency.

The Ministry of Finance is in this report proposing that the mandate (section 4-10) be amended to require the Executive Board of Norges Bank to approve each issuing state for government bonds. This implies that each issuing state needs to be approved for government bonds denominated in foreign currency. The approval shall be based on an assessment of financial risk.

The Ministry of Finance has taken note of the two principles for government bond investments highlighted by the Danish Council for Corporate Social Responsibility in its guidance. The GPFG is already subject to a government bond exemption. In addition, it is stipulated in the mandate for Norges Bank that the Fund shall be managed responsibly, based on, inter alia, international principles such as the OECD Guidelines for Multinational Enterprises; see Box 6.1. It is the assessment of the Ministry that the current management of the GPFG is well aligned with the two principles drawn up in these guidance notes.

The Government aims to promote the greatest possible transparency in the management of the GPFG. In following up on the input from the Standing Committee on Finance and Economic Affairs, Norges Bank has provided an account of its implementation of the provisions in the mandate pertaining to government bond investments. The Ministry is proposing to amend the mandate for the GPFG to require Norges Bank to account for procedures and systems for the approval of

issuers of government bonds in its annual reporting on the management of the Fund.

The Ministry of Finance is of the view that the provisions in the mandate, together with the amendments now proposed, are well suited to addressing the considerations referred to by the Standing Committee on Finance and Economic Affairs in its comments.

The Ministry of Finance assumes that Norway will continue to support, in international fora, the development of better sovereign lending guidelines. Moreover, the Ministry assumes that Norway's contributions to such efforts will be made at the intergovernmental level, and not through the management of the GPFG. This is in conformity with the principle that the Fund shall not serve as a foreign policy tool, as also referred to by the Standing Committee on Finance and Economic Affairs in its comments.

A review of the composition of the fixed-income benchmark is envisaged upon a change in the equity share of the GPFG; see section 3.1. As part of such review, it will be appropriate to address a number of issues, including country risk, the number of countries invested in, as well as the mandate requirement that Norges Bank shall seek to take account of fiscal strength in the composition of the government bond investments.

3.4 The regulation of unlisted real estate investments

3.4.1 Background

In 2008 it was decided to permit unlisted real estate investments in the GPFG, and that up to 5 percent of the Fund were to be invested in a designated real estate portfolio. It was an underlying premise that the development of the real estate investments would be counterbalanced by a corresponding reduction in the fixed-income share of the Fund. In 2010, the Ministry of Finance amended, in line with this, the mandate for the management of the GPFG to permit unlisted real estate investments. Norges Bank purchased the first property in 2011.

The Ministry of Finance adopted an international, appraisal-based real estate index (the MSCI/IPD index) as the return benchmark for the real estate portfolio. While the benchmark indices for the equity and fixed-income investments in the GPFG facilitate the reduction of risk through broad diversification of the investments, and form the basis for the measurement of risk and return in these asset classes, it is not possible to purchase a small fraction of all properties included in the MSCI/IPD index. This makes it challenging to measure return and define risk in unlisted real estate investments in a manner corresponding to that applied for listed equities and fixed-income securities. In the regulation of the real estate investments adopted in 2010, the actual real estate portfolio was therefore included in the strategic benchmark index for the GPFG.

A key theme in the report on the management of the Fund in 2015 was whether the scope of unlisted real estate investments in the GPFG should be expanded, and whether the regulation of such investments should be amended. The assessments were based on advice from Norges Bank and an expert group comprising Stijn Van Nieuwerburgh, Richard Stanton and Leo de Bever. Both the expert group and Norges Bank noted, inter alia, that the market risk of the real estate investments should be better managed, and that the return benchmark adopted for such investments was not well suited.

The Ministry of Finance proposed, in the report on the management of the Fund in 2015, that the real estate portfolio be omitted from the strategic benchmark index for the GPFG. It was emphasised that the equity and fixed-income benchmarks are better suited for assessing the real estate management performance of Norges Bank than the MSCI/IPD index. It was noted that performance will under the new regulation be measured against broad benchmarks that can, as a general rule, be closely replicated, and at low costs. Such regulation reflects the absence of good benchmark indices for unlisted real estate, and that expected return, as with other strategies involving deviations from the benchmark index, will depend on the comparative advantages of the asset manager and the choice of specific investments. It was noted, at the same time, that the composition of the strategic benchmark index would be adjusted, such as to keep overall market risk in the GPFG more or less unchanged.

Against the background of the recommendations for improved management of the market risk of the real estate investments, the Ministry of Finance proposed that all real estate investments be included in the risk limit of expected tracking error, in the same way as other deviations from the benchmark index. No change was proposed to the 1.25 percentage point expected tracking error limit. In addition, it was proposed that unlisted real estate investments be capped at 7 percent of the GPFG capital. This regulation implies that the share of unlisted real estate and the composition

of such investments will be determined by Norges Bank within the limits laid down in the mandate from the Ministry. The Storting endorsed these changes in its deliberation of the report; see Recommendation 326 S (2015–2016) to the Storting.

It was noted, in the report on the management of the Fund in 2015, that one challenge posed by the new regulation of the real estate investments is the difficulty of estimating the market risk of unlisted investments. In a letter of 24 June 2016, the Ministry of Finance requested, against this background, Norges Bank to advice on the implementation of the new regulation, including which equity share is compatible with keeping the level of market risk in the GPFG more or less unchanged. The letter was mentioned in the National Budget 2017. Norges Bank submitted its advice and assessments in a letter of 10 October 2016.

On 20 December 2016, the Ministry of Finance laid down new regulations on real estate investments in the mandate for the GPFG, with effect from 1 January 2017. The amendments to the mandate are based on proposals sent to Norges Bank on 23 November 2016 and Norges Bank's reply letter of 8 December 2016. The mandate for the GPFG and these letters are available on the Ministry's website. The changes resulting from the new regulations are discussed in further detail below.

3.4.2 The equity share of the strategic benchmark index for the GPFG

The Ministry of Finance referred, in the report on the management of the Fund in 2015, to the analyses of the expert group, which suggest that developments in the value of real estate investments are linked to developments in stock market value. Norges Bank has also previously noted that the real estate investments influence overall market risk in the Fund.[15] When the real estate portfolio is no longer a part of the strategic benchmark index for the Fund, this can be taken into account by changing the equity share of the benchmark index.

In its advice on new regulation of real estate investments in its letter of 10 October 2016, Norges Bank notes that the return on a global portfolio of unlisted real estate investments cannot be observed on an ongoing basis in the market. Consequently, the market risk of such investments must be estimated on the basis of data that are as representative as possible (time series). Based on historical data, Norges Bank has attempted to estimate the market risk of unlisted real estate by estimating relationships between stock market returns and returns on unlisted, global real estate indices and listed real estate funds, respectively. Norges Bank notes, in its letter, that the findings from such estimations depend on which data are used, the time period over which the relationships are estimated and the available data frequency. Norges Bank states that there is not, for that reason, one correct answer to how unlisted real estate investments influence overall market risk in the benchmark index. Hence, the decision on adjustment of the equity share must to some extent be based on a discretionary assessment.

Norges Bank believes that it would be reasonable to assume that a global, diversified portfolio of unlisted real estate investments will over time entail a market risk, expressed by stock market volatility, of about 0.5. This implies that the return on unlisted real estate investments is expected to fluctuate in the same direction, but not as much, as global stock market returns. Norges Bank notes that this assessment conforms well with the approach of comparable funds with which Norges Bank is conducting a dialogue, and is in line with findings from academic studies. Given a global, unlisted real estate portfolio with a value corresponding to 5 percent of the GPFG, the estimate corresponds to an increase in the equity share of the strategic benchmark index of 2.5 percentage points, to 62.5 percent, if overall market risk is to remain more or less unchanged.

The Ministry of Finance agrees with Norges Bank's assessments that there is no unambiguous answer to how unlisted real estate investments influence overall risk in the strategic benchmark index, and that the decision to adjust the equity share therefore to some extent must be based on a discretionary assessment. The Ministry has noted that Norges Bank believes that an equity share of 62.5 percent in the strategic benchmark index will contribute to the market risk in a benchmark index comprising only equities and fixed-income securities being at about the same level as before, given a global, unlisted real estate portfolio with a value corresponding to 5 percent of the GPFG.

The real estate portfolio was omitted from the strategic benchmark index for the GPFG with effect from 1 January 2017. The equity and fixed-

[15] See letter of 26 November 2015 from Norges Bank to the Ministry of Finance. The letter is available on the Ministry's website.

income shares of the strategic benchmark index for the Fund were, against the background of Norges Bank's assessments, put at 62.5 percent and 37.5 percent, respectively, with effect from the same date.

The equity share of the actual benchmark index for the GPFG was, with effect from 1 January 2017, adjusted by the implicit equity exposure in the unlisted real estate investments in the Fund as at yearend 2016. This adjustment is intended to ensure the most cost-effective adaptation to the new strategic benchmark index, and was made in consultation with Norges Bank. The Ministry of Finance adopted, with effect from the same date, updated rules on rebalancing of the actual benchmark index, in order to take account of the new equity share of the strategic benchmark index for the GPFG, see section 2.1.

3.4.3 Risk regulation, reporting and other amendments to the mandate for the GPFG

The mandate for the management of the GPFG permits Norges Bank to deviate from the benchmark index within certain risk limits. The expected tracking error limit is a key regulation. The new regulation of real estate implies that the unlisted real estate investments shall be subject to the expected tracking error limit, alongside other deviations from the benchmark index.

Norges Bank states, in a letter of 10 October 2016, that future property purchases and sales will be funded through the sale and purchase of equities and fixed-income securities. In the view of Norges Bank, such transactions are best implemented by way of a «tailored financing solution», under which the securities sold vary with the type of property. The rationale behind this is, according to Norges Bank, that such sales can be implemented in a manner that eliminates the foreign exchange risk and curtails the market risk. A tailored financing solution will, according to Norges Bank, also be robust in terms of changes to the composition of the actual benchmark index, and adjustable over time in response to changes in market conditions. Moreover, Norges Bank states that such a tailored financing solution is best in terms of overall risk and return in the Fund, and underpins Norges Bank's proposal for a comprehensive framework in its letter of 26 November 2015 to the Ministry of Finance. Norges Bank states, against the background of the choice of a tailored financing solution, that there is a need for amending some of the provisions in the mandate in order to continue to be able to manage, measure and report on asset management performance in a relevant and consistent manner.

The Ministry of Finance has noted that Norges Bank believes that financing of unlisted real estate investments tailored to each specific investment is best in terms of overall risk and return in GPFG. Tailored sales and purchases of equities and fixed-income securities to finance real estate investments allow Norges Bank to manage overall market and foreign exchange risk in the GPFG within the risk limits laid down in the mandate from the Ministry. This principle, which implies that purchases of individual assets are financed by sales of other individual assets within the scope of the mandate, also underpin other strategies involving deviations from the benchmark index. The Ministry is of the view that Norges Bank's choice of financing solution facilitates subjecting the real estate investments to the limit on expected tracking error, alongside other deviations from the benchmark index.

As the Ministry of Finance stated in the report on the management of the Fund in 2015, Norges Bank has previously indicated that the deviations between the return on the benchmark index for the GPFG and the investments of the Fund may increase somewhat in the short or medium run when the real estate investments are included in the expected tracking error limit, compared to the situation thus far.

Norges Bank states, in its letter of 10 October 2016, that a representative time series for the unlisted real estate investments of the Fund needs to be calculated in order for these to be included in the expected tracking error estimates. Norges Bank has considered three different methods for calculating such a time series, based on the return on unlisted real estate indices and listed real estate funds. Norges Bank emphasises continuation of the current estimation period and frequency for the expected tracking error estimates, and believes that it would be appropriate to opt for a method that can be verified by technical experts outside Norges Bank. Norges Bank has, against that background, made use of a risk model developed by the index provider and consultancy firm MSCI (MSCI Barra PRE2). The model calculates return series for the unlisted real estate investments in the GPFG based on simulation techniques and daily prices for equities of listed real estate funds. The calculated return series are incorporated into measurements of expected tracking error in the GPFG alongside the returns

on the listed equity and fixed-income investments of the Fund.

Norges Bank has, in accordance with section 4-3, second paragraph, of the mandate, presented the adopted method for calculating expected tracking error in the asset management to the Ministry of Finance. The Ministry has approved the method.

The mandate for the GPFG also stipulates other limits and requirements intended to curtail and diversify the relative risk in the asset management, including in the unlisted real estate investments. The Ministry of Finance has, in all key respects, upheld the special requirements applicable to unlisted real estate investments under the new real estate regulation. This includes, inter alia, requirements for the unlisted real estate portfolio to be well-diversified geographically, across sectors and across properties, as well as requirements for supplementary risk limits. At the same time, it is from 1 January 2017 specified in the mandate that supplementary risk limits shall be laid down by the *Executive Board of Norges Bank*. It is the assessment of the Ministry that the continued limits and requirements are in conformity with the chosen delegation of unlisted real estate investments, and that these contribute towards limiting the relative risk in the management of the Fund.

In line with the omission of the real estate portfolio from the strategic benchmark index for the GPFG and the subjection of all real estate investments to the limit on expected tracking error, the Ministry of Finance abolished the mandate provisions on a separate return benchmark for the real estate portfolio with effect from 1 January 2017.

The mandate from the Ministry of Finance stipulates an ownership stake limitation of 10 percent of the voting shares of any one company. Norges Bank proposes, in its letter of 10 October 2016, a continuation of the scope for holding more than 10 percent of the voting shares of any one real estate company, irrespective of whether such company is listed or unlisted. The reason given by Norges Bank is that the scope for holding more than 10 percent of the shares of a listed real estate company opens up possibilities for various types of collaboration with other parties. It is noted that the scale of investments in listed real estate companies will be moderate and subject to limitations laid down by the Executive Board.

In the updated mandate, the Ministry of Finance has maintained the scope for holding more than 10 percent of the voting shares of listed real estate companies. Section 3-5, third paragraph, of the mandate requires the Executive Board to stipulate a limit on what proportion the Fund may hold of the voting shares of any one listed real estate company. The Executive Board has capped ownership stakes in such companies at 30 percent.

There is considerable public interest in the performance of the GPFG, including the outcomes of various management strategies for equity and fixed-income. The Ministry of Finance adopted, with effect from 1 February 2016, more detailed requirements for Norges Bank's public reporting of the risk and return in the asset management. There are, inter alia, requirements for specific details of all investment strategies entailing substantial costs or high relative risk, reporting on the sources of positive and negative excess returns on the equity and fixed-income portfolios, as well as on asset management income and costs. There is also a requirement for the Executive Board to evaluate asset management performance and report on the choice of investment strategies used in the equity, fixed-income and real estate management, respectively. The Ministry emphasises that such public reporting may bolster support for profitable long-term asset management strategies; see the discussion of the new reporting requirements in the report on the management of the Fund in 2015.

Norges Bank notes, in its letter of 10 October 2016, that the establishment of reference portfolios for the various parts of asset management would enable the Executive Board to stipulate risk-taking limits for various parts of the investment portfolio, and establish a basis for relevant and consistent performance reporting on various parts of asset management.

The Ministry of Finance has stated, in letters of 23 November 2016 and 20 December 2016, respectively, to Norges Bank, that it assumes that the current benchmark indices for the equity and fixed-income portfolios shall continue to form the basis for measurement of, and reporting on, performance in the management of the GPFG – also for the equity and fixed-income portfolios separately. Equity and fixed-income management performance is measured against broadly composed indices that can, generally speaking, be closely replicated, and at low costs. The Ministry has nonetheless noted that Norges Bank's proposal on the financing of real estate investments may have an impact on the measurement of differential returns on the equity and fixed-income portfolios. The Ministry has noted, against this background,

that any contributions to differential returns on the equity and fixed-income portfolios from the financing of real estate investments should be reported separately. The Ministry is aware that amending the regulation of real estate investments may result in a break in certain reported time series, as with other changes to the mandate. The Ministry has referred, in a letter of 20 December 2016 to Norges Bank, to the requirements for publication of calculation methods and data; see section 6-3 of the mandate.

Norges Bank states, in its letter of October 2016, that the public reporting on risk and return in the real estate portfolio was expanded in 2016 by way of a separate real estate investment report (for 2015). Norges Bank notes that this report is seeking to illustrate, as comprehensively as possible, which factors are driving the return on the unlisted real estate investments and the types of risk to which the unlisted real estate investments are exposed. Norges Bank states that it will continue to develop this report to ensure the maximum possible transparency in the management of unlisted real estate investments.

The Ministry of Finance has noted that Norges Bank intends to compare the return on the unlisted real estate investments to the return on a broad range of alternatives. The Ministry assumes that Norges Bank will compare such return to indices from MSCI/IPD, an index of listed real estate companies (so-called «REITs»), the benchmark index for the GPFG, as well as the financing of the unlisted real estate investments.

3.5 Organisation of the unlisted real estate investments

Norges Bank has, in a letter of 25 November 2015, informed the Ministry of Finance that Norges Bank is considering Norwegian rather than foreign holding companies for the unlisted real estate investments. The Minister of Finance referred to this letter during the Standing Committee on Finance and Economic Affairs' hearing on the report on the management of the Fund in 2015. The Standing Committee on Finance and Economic Affairs stated, in its recommendation in relation to the report, that it is desirable to shed light on advantages and disadvantages of different ways of organising the activities, including tax issues; see Recommendation 326 (2015-2016) to the Storting. The Standing Committee requested that the matter be addressed in the present report.

In a letter of 29 June 2016, the Ministry of Finance requested Norges Bank to present its assessments, in line with the recommendation of the Standing Committee on Finance and Economic Affairs. Norges Bank stated, in a letter of 15 September 2016, that it would like to establish a holding structure in Norway, and that the primary purpose would be to simplify management and control of the unlisted real estate investments. Norges Bank notes that the establishment of a Norwegian holding structure would facilitate a good and clear reporting structure internally, and be in conformity with Norges Bank's centralised governance model, under which important decisions on the management of the GPFG are made in Norway. In principle, the Ministry of Finance agrees with Norges Bank that it is desirable for the real estate investments to be organised in a Norwegian holding structure owned by Norges Bank. However, the matter raises complex issues that need to be examined before Norges Bank can decide how the unlisted real estate investments in the GPFG should be organised. The Ministry of Finance will revert to this matter.

3.6 Review of Norges Bank's asset management

The Ministry gave notice, in the report on the management of the Fund in 2009, that it intends to conduct regular reviews of Norges Bank's management of the GPFG at the beginning of each term of the Storting. Such reviews were presented in the reports on the management of the Fund in both 2009 and 2013 based on, inter alia, analyses and evaluations from internationally recognised experts and assessments from Norges Bank.

The Ministry plans to review Norges Bank's management of the GPFG anew in the report on the management of the Fund in 2017, which will be submitted in the spring of 2018. The review will include an assessment of the performance, costs and benefits of various investment strategies, in both the short and the long run, in line with the Storting's deliberation of the report on the management of the Fund in 2015; see petition resolution no. 761 of 3 June 2016.

3.7 The governance structure of Norges Bank

Developments in the investment strategy and the growth in the Fund capital highlight the impor-

tance of good governance in the management of the GPFG. Norges Bank has established a competent organisation, and has over time delivered strong performance in its management of the Fund. A new position as Deputy Governor, with special responsibility for asset management, was created in 2015 at the behest of the Government. The Government also appointed a commission chaired by Svein Gjedrem, which is examining the Central Bank Act and the governance structure of Norges Bank. The Storting requested, during the deliberation of the report on the management of the Fund in 2015, the Government to expand the Commission's mandate to also include an assessment of alternative governance and incorporation models for the GPFG. The Ministry of Finance expanded the Commission's mandate in a letter of 15 June 2016, in line with the Storting's petition resolution. The deadline for submitting its recommendation was, at the same time, extended from 10 April 2017 until 30 June 2017.

3.8 Investments in unlisted equities

The mandate for the management of the GPFG permits Norges Bank to invest the Fund in unlisted real estate companies[16] and in the equity of unlisted companies where the board has expressed an intention to seek listing on a regulated and recognized marketplace. However, Norges Bank is not permitted to invest the GPFG in the equity of unlisted companies on a general basis.

Equity investments in unlisted companies may, inter alia, be organised via fund structures, because direct investments in individual companies will often require considerable resources and specialised expertise. Many large institutional investors hold investments in so-called private equity funds, where an external manager with specialist expertise invests in unlisted companies on behalf of an investor group or partnership.[17] The rationale behind such fund structures is to reap a financial gain by realising underlying value in the companies through a future sale or stock market listing.

The Ministry of Finance has previously discussed unlisted equity investments in the GPFG in the report on the management of the Fund in 2010, based on advice from Norges Bank, the Strategy Council for the GPFG and a report prepared by Associate Professor Ludovic Phalippou, University of Oxford.[18] The advice was not unequivocal. It was noted, inter alia, that private equity funds involve very high external asset management costs and that historically investors in such funds have, on average, not achieved excess returns, net of costs, compared to listed investments. The advice was based on research findings available at that point in time. The report on the management of the Fund noted, however, that large long-term investors may develop comparative advantages within unlisted investments. As far as investments in private equity funds are concerned, such advantages may, for example, take the form of expertise in identifying the best managers and also gaining access to the investment opportunities offered by these.

The Ministry of Finance concluded, in the report on the management of the Fund in 2010, that the investment universe of the GPFG should not be expanded to include unlisted equity investments, although it might be appropriate to revert to the issue at a later date. The Ministry noted, inter alia, that it was desirable to accumulate experience from unlisted real estate investments, that unlisted markets were in development and that a new review could be based on new research findings.

The Ministry of Finance is now planning a new assessment of whether to permit unlisted equity investments in the GPFG and how such investments, if allowed, can be regulated in the mandate given to Norges Bank. The Ministry will, in line with the overarching financial objective for the Fund, examine expected risk and return, as well as the scope for Norges Bank to exploit distinctive characteristics of the GPFG to develop comparative advantages within such investments. It is intended that the assessment will be presented in the report on the management of the Fund in 2017, which will be submitted in the spring of 2018. The Ministry will, inter alia, obtain advice and evaluations from Norges Bank as part of this assessment.

[16] See section 3.4 for a discussion of the new regulation of unlisted real estate investments.

[17] See discussion of the asset allocation of other large funds in Box 3.1 and in the NOU 2016: 20 green paper.

[18] The received advice is available on the Ministry of Finance's website.

4 The Government Pension Fund Norway: strategy and performance

4.1 The current investment strategy

Folketrygdfondet manages the Government Pension Fund Norway (GPFN) under a mandate laid down by the Ministry of Finance. The return on the GPFN is not transferred to the Treasury, but is added to the Fund capital on an ongoing basis.

Folketrygdfondet shall over time achieve the highest possible return with a moderate level of risk. The investment strategy for the GPFN is set out in the mandate from the Ministry of Finance, and is expressed through the choice and composition of the benchmark index. In addition, management of the GPFN is subject to, inter alia, various risk limits. The benchmark index for the GPFN comprises 60 percent equities and 40 percent fixed-income securities, with allocations of 85 percent to Norway and 15 percent to the rest of the Nordic region, excluding Iceland; see Figure 4.1. The distinctive characteristics of the Fund, such as size and a long time horizon, distinguish the GPFN from many other investors in the Norwegian and Nordic capital markets. Size entails, inter alia, the ability to reap economies of scale in asset management. At the same time, the size of the Fund relative to the Norwegian capital market makes it challenging to implement major changes to the investment composition within a short space of time. The long time horizon of the Fund facilitates the use of long-term asset management strategies, such as acting counter-cyclically and reaping time-variable risk premiums, within the overarching financial objective.

Rebalancing rules form part of the investment strategy for the GPFN. Rebalancing involves the Fund adding to its holdings in the asset class with the weakest value performance, in order to maintain the fixed allocation between equities and fixed-income securities as stipulated in the mandate. To avoid influencing the market and to ensure the sound execution of asset management, the detailed rebalancing rules are exempt from public disclosure.

Folketrygdfondet deviates from the benchmark index, within certain limits. The purpose is to ensure cost-effective asset management, as well

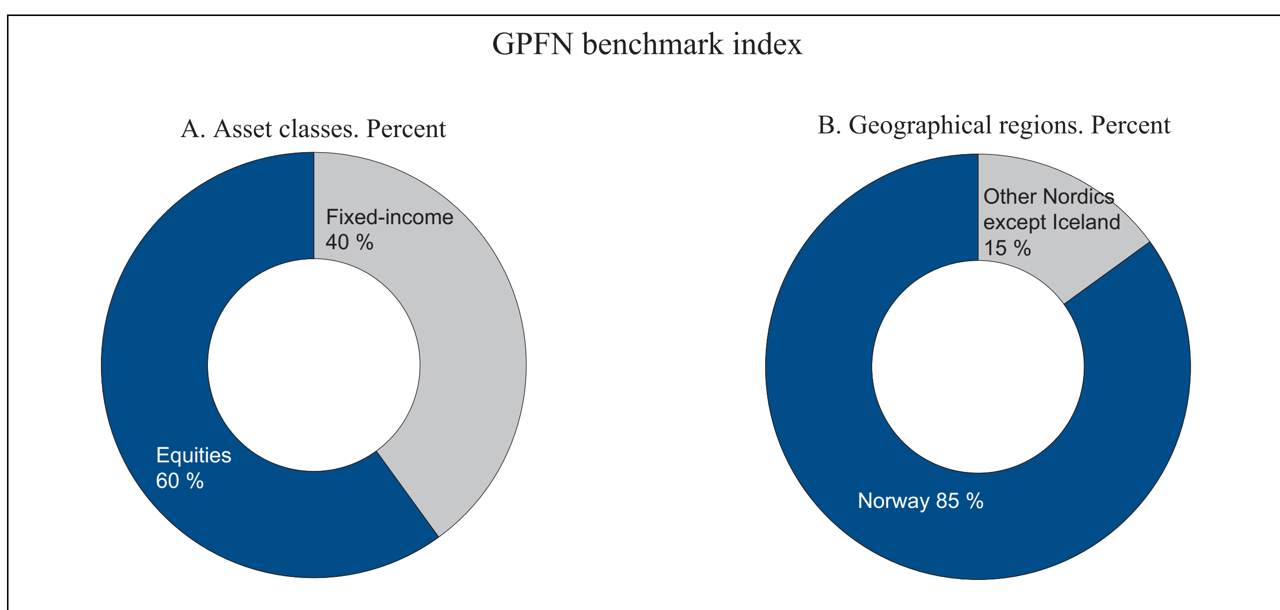

Figure 4.1 Strategic benchmark index for the GPFN

Source: Ministry of Finance.

as to generate excess return over time. The limit on expected tracking error, which expresses the extent to which the return on the GPFN can normally be expected to deviate from the benchmark index, is a key parameter. Folketrygdfondet shall organise asset management with a view to ensuring that annualised expected tracking error does not exceed three percentage points. In addition, asset management is subject to supplementary risk limits.

The mandate for the GPFN permits investments in unlisted companies whose board has expressed an intention to seek a listing on a regulated market place. The GPFN is not permitted to invest, on a general basis, in unlisted assets such as real estate and infrastructure; see the discussion in the report on the management of the Fund in 2015.

4.2 Performance

4.2.1 Market developments

The Norwegian stock market developed favourably in 2016. The main index of the Oslo Stock Exchange gained 12.1 percent. Developments in the other Nordic stock markets in which the GPFN is invested were somewhat weaker. Stock markets in Sweden and Finland rose by 9.2 percent and 7.8 percent, respectively, while the stock market in Denmark fell by 9.8 percent, as measured in local currency.[1]

Yields on Norwegian and Nordic government bonds with a long time to maturity declined in the first half of 2016, but increased significantly towards the end of the year. At yearend 2016, the yield on Norwegian ten-year government bonds was about 1.7 percent. Yields on corresponding bonds issued by Denmark, Finland and Sweden were lower. Private enterprises normally have to pay a higher interest rate than governments when borrowing money; a so-called credit spread. Credit spreads declined in 2016, particularly in the case of bonds issued by industrial enterprises and banks.

4.2.2 Market value

At yearend 2016, the market value of the GPFN was NOK 212 billion; see Figure 4.2A. This is an increase of close to NOK 14 billion, net of asset management costs, compared to the value at the beginning of the year. The market value of the

[1] Returns on the Swedish, Finnish and Danish stock market in 2016 are based on the OMXSB, OMXHB and OMXCB indices, respectively.

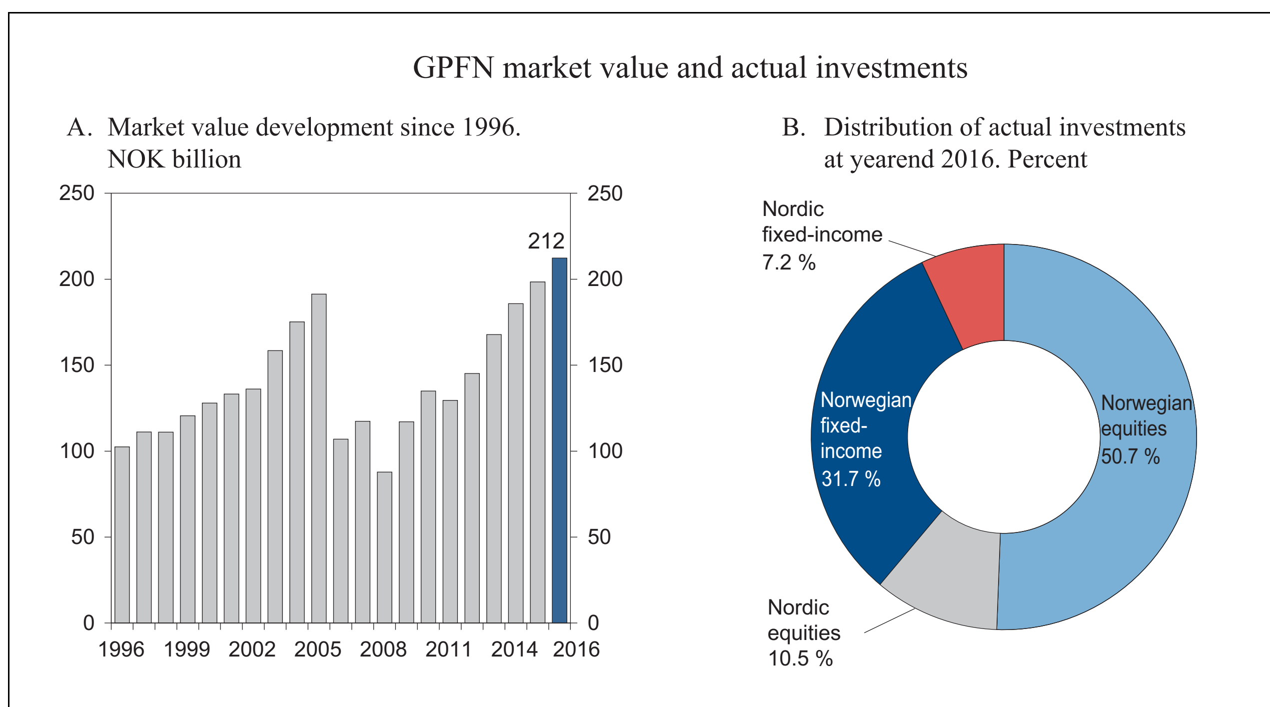

Figure 4.2 Market value of the GPFN since 1996 and distribution of actual investments at yearend 2016[1]

[1] A major part of the GPFN's capital was invested with the Treasury in the form of mandatory deposits until 2005. Folketrygdfondet's participation in the mandatory deposit arrangement was discontinued in December 2006, and fund assets amounting to NOK 101.8 billion were repaid to central government.

Sources: Folketrygdfondet and Ministry of Finance.

Table 4.1 Return on the GPFN in 2016, in the last 3, 5 and 10 years, as well as over the period 1998–2016, measured in Norwegian kroner and before the deduction of asset management costs. Annual geometric average. Percent

	2016	Last 3 years	Last 5 years	Last 10 years	1998–2016
GPFN					
Actual portfolio	7.06	8.21	10.46	7.17	7.30
Benchmark index	5.89	6.95	9.80	6.05	6.74
Excess return (percentage points)	1.17	1.26	0.66	1.12	0.56
Equities[1]					
Actual portfolio	10.46	10.33	13.89	6.53	8.33
Benchmark index	8.66	8.40	13.16	4.93	6.92
Excess return (percentage points)	1.79	1.93	0.73	1.60	1.41
Fixed-income securities[2]					
Actual portfolio	2.17	4.90	5.17	6.17	5.89
Benchmark index	1.82	4.52	4.51	5.41	5.65
Excess return (percentage points)	0.35	0.37	0.66	0.76	0.23
Real rate of return					
Inflation	3.55	2.59	2.11	2.09	2.09
Costs	0.09	0.08	0.09	0.08	0.05
Net real rate of return	3.31	5.40	8.09	4.89	5.06

1 Nordic equity investments commenced in May 2001.
2 Nordic fixed-income investments commenced in February 2007.
Sources: Folketrygdfondet, Macrobond and Ministry of Finance.

equity portfolio of the Fund was, as of this date, about NOK 130 billion, of which Norwegian equities accounted for NOK 107 billion and other Nordic equities in which the GPFN is invested accounted for NOK 22 billion. The value of the fixed-income portfolio was about NOK 83 billion, comprising NOK 67 billion in fixed-income securities from issuers in Norway and NOK 15 billion in fixed-income securities from issuers in other Nordic countries.[2] The distribution of the investments in the GPFN at yearend 2016 is shown in Figure 4.2B.

4.2.3 Return

The return on the GPFN in 2016 was 7.1 percent measured in Norwegian kroner and before the deduction of asset management costs; see Table 4.1. Both the equity and the fixed-income portfolio generated positive returns. Since January 1998, the GPFN has delivered an average annual return of 7.3 percent. This corresponds to an average annual real rate of return, net of costs, of 5.1 percent.

The Norwegian krone appreciated against the euro, the Swedish krona and the Danish krone in 2016. As a result, the returns on the GPFN's

2 The net value of the fixed-income portfolio also includes interest rate and foreign exchange hedges, collateral, liquidity and cash received to secure securities lending. These are included in the value of fixed-income securities from issuers in Norway.

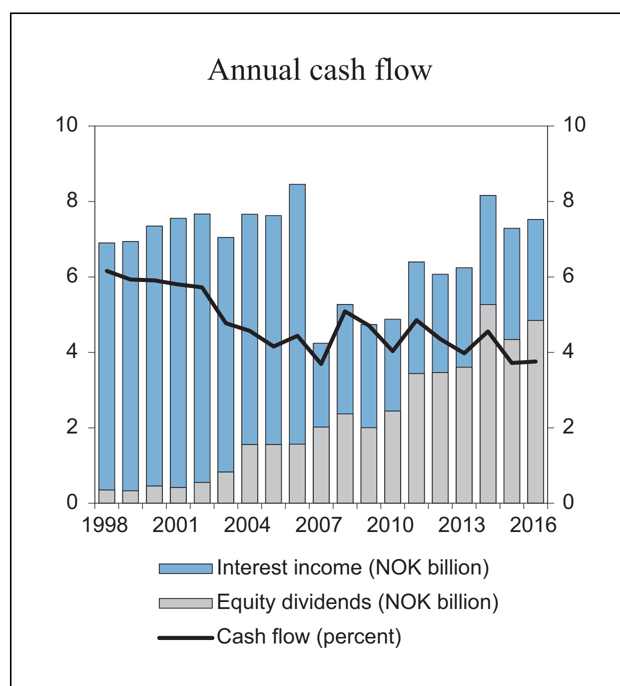

Figure 4.3 Development in the annual cash flow of the GPFN. NOK billion and as a proportion of average Fund value[1]

[1] The decline in interest income from 2006 to 2007 was primarily caused by the repayment of NOK 101.8 billion to central government upon the discontinuation of Folketrygdfondet's participation in the mandatory deposit arrangement in December 2006.

Sources: Folketrygdfondet and Ministry of Finance.

investments in Finland, Sweden and Denmark were lower when measured in Norwegian kroner than when measured in local currency.

The fixed-income investments in the GPFN generate interest income for the Fund. The equity investments also generate income, since many companies pay dividends to their shareholders. Together, these cash flows constitute, with the addition of so-called reappraisals or changes in equity and bond prices, the return on the GPFN. In 2016, stock dividends and interest income totalled NOK 7.5 billion, or about 3.8 percent measured as a proportion of the average value of the GPFN; see Figure 4.3. Since January 1998, the average annual cash flow in the GPFN has been 4.7 percent, measured as a proportion of the average value of the Fund.

Equities

The return on the equity portfolio of the GPFN was 10.5 percent in 2016; see Table 4.1. Higher oil and salmon prices contributed to companies within the energy and consumer goods sectors, respectively, delivering the highest returns. The equity investments in companies within the consumer good and health care sectors generated the lowest returns. Equities of Nordic companies delivered, on average, lower returns than equities of Norwegian companies. Since January 1998, the average annual return on the equity portfolio has been 8.3 percent.

Fixed-income securities

The return on the fixed-income portfolio in the GPFN was 2.2 percent in 2016. The investments in subordinated loans and high-yield bonds issued by industrial enterprises generated the highest returns. Investments in bonds issued by central government and other public sector issuers delivered the lowest return. The average annual return on the fixed-income portfolio since January 1998 is 5.9 percent.

Yields are somewhat higher in Norway than in the other Nordic countries. This contributes to higher interest income from the Norwegian bonds in the fixed-income portfolio. Yield changes result, at the same time, in reappraisals of bond values. The longer the maturity of a bond, the greater the reappraisal as the result of a given yield change. For a fixed-income portfolio, *duration* is a frequently used measure, denoting the average maturity of all bonds in the portfolio based on weighted future interest and coupon payments. The longer the duration, the greater the capital loss or capital gain in the fixed-income portfolio in response to yield increases or reductions, respectively. At yearend 2016, the fixed-income portfolio in the GPFN had a duration of 4.8 years, approximately in line with the benchmark index. The yield on five-year Norwegian government bonds increased somewhat in 2016. This resulted, when taken in isolation, in capital losses on Norwegian bonds. Yields on corresponding Swedish, Danish and Finnish government bonds declined in 2016, thus resulting, when taken in isolation, in capital gains on bonds issued in the other Nordic countries.

Reduced credit spreads in 2016 resulted, when taken in isolation, in capital gains on bonds issued by private companies.

4.2.4 Excess return in asset management

Folketrygdfondet deviates from the benchmark index set by the Ministry of Finance within the limits laid down in the management mandate for the GPFN. The scope for deviations affords

Folketrygdfondet some leeway for conducting cost-effective asset management and seeking excess return over time.

The return difference between the actual investments and the benchmark index is referred to as the gross excess return, and is a measure of the performance of Folketrygdfondet in its management of the GPFN. This performance measure is a good reflection of the division of labour between the Ministry and Folketrygdfondet, as well as a reasonable estimate of net value added in active management. See the report on the management of the Fund in 2015 for a detailed discussion of gross excess return as an active management performance measure.

Excess return in 2016

In 2016, Folketrygdfondet achieved a return on the GPFN that was 1.2 percentage points higher than the return on the benchmark index; see Table 4.1. The excess return is attributable to a different composition of the investments in the GPFN than in the benchmark index. In 2016, the return on the equity portfolio was 1.8 percentage points higher than the return on the equity benchmark, while the return on the fixed-income portfolio was 0.3 percentage points higher than the return on the fixed-income benchmark. At the sectoral level, equities of companies within the energy and consumer goods sectors contributed the most to the excess return in the equity management, while credit spreads on bond issues within the banking and financial sector and high-yield bonds issued by industrial enterprises contributed the most to the excess return in the fixed-income management. Securities lending income to other investors also contributed to the excess return. The contributions made by various investment strategies to overall excess return are discussed in section 4.2.8.

Excess return over time

The Ministry of Finance has previously stated an expectation of annual net value added in the management of the GPFN of 0.25–0.5 percentage points. Since January 1998, Folketrygdfondet has achieved an average annual return on the GPFN that is 0.6 percentage points higher than the return on the benchmark index. The achieved gross excess return on the GPFN over the period January 1998–2016 can be estimated at close to NOK 12 billion, of which NOK 10 billion reflects excess return on the equity portfolio.[3] Figure 4.4 shows gross excess return developments.

4.2.5 Risk-adjusted return

A different composition of the investments in the GPFN than in the benchmark index implies a risk that the return will deviate somewhat from the return on the benchmark index. This is referred to as *relative risk*, and can be measured by the standard deviation (volatility) of excess returns. The mandate for the management of the GPFN stipulates a general scope for deviations from the benchmark index of 3 percentage points, measured by expected tracking error. This scope implies that asset management shall be organised with a view to ensuring that expected annualised return on the GPFN does not normally deviate by more than 3 percentage points from the benchmark index; see section 4.1. A somewhat different composition of the investments in the GPFN than in the benchmark index implies, at the same time, that the fluctuations in the return on the Fund can be somewhat higher or lower than in the benchmark index. Return fluctuations are referred to as *absolute risk*, and can be measured by the standard deviation (volatility) of returns.

The financial literature uses different models and ratios to evaluate excess returns by reference to the risk taken by asset managers, including the *information ratio* and the *Sharpe ratio*. The literature also uses models to explain historical performance that distinguish between returns asset managers achieve by taking systematic risk and returns attributable to other deviations. There is considerable uncertainty associated with such methods; see the discussion in the report on the management of the Fund in 2015. The Ministry of Finance reviews the management of the GPFN on a regular basis, analysing and assessing the risk taking. The analyses of

[3] Gross excess return in Norwegian kroner is calculated by multiplying the excess return each month by the capital invested at the beginning of the month, and then adding up all these monthly figures. The calculation therefore excludes the effect of compound interest. A somewhat different allocation between equities and fixed-income securities in the GPFN than in the benchmark index at times over the period 1998-2006, so-called allocation effect, implies that the accumulated excess return on the GPFN is somewhat higher than the sum of accumulated excess returns on the equity and fixed-income portfolios. Parts of the allocation effects reflect that Folketrygdfondet's scope for active management of the GPFN over this period was determined on the basis of the book value of the assets, and not their market value.

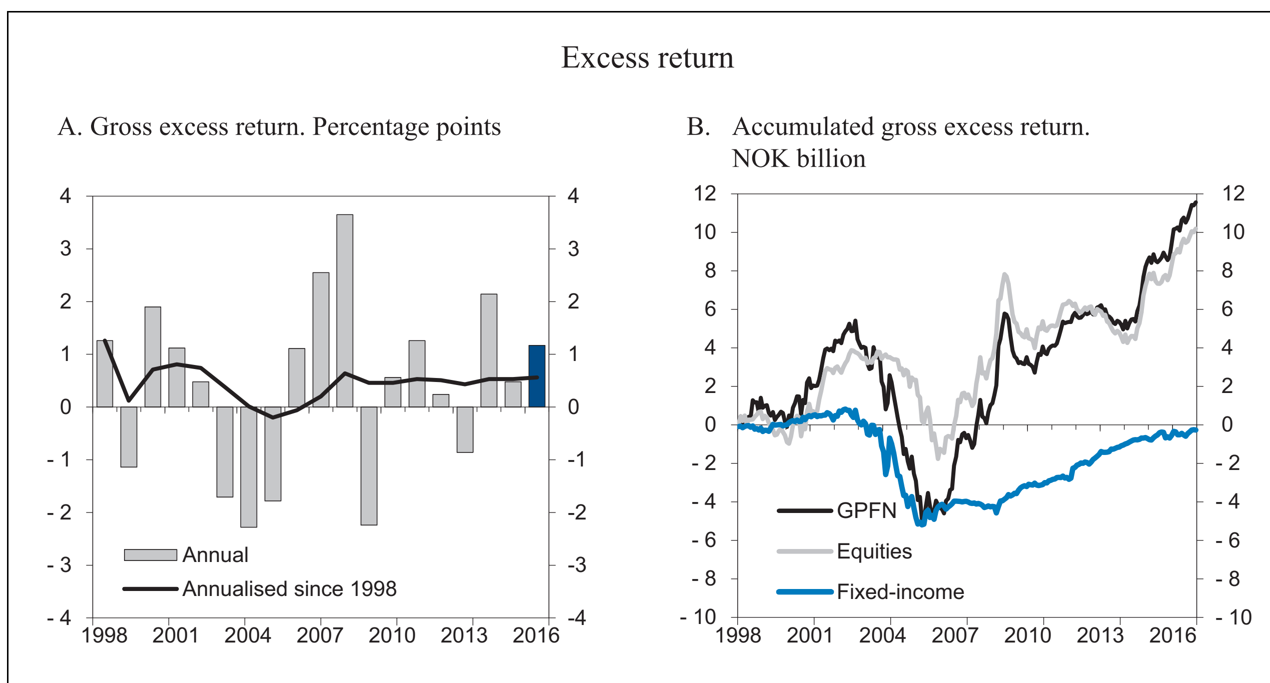

Figure 4.4 Gross excess return (differential return) from Folketrygdfondet's management of the GPFN in 2016 and since 1998

Sources: Folketrygdfondet and Ministry of Finance.

risk taking in the most recent reviews of the management of the GPFN suggest that the excess return achieved by Folketrygdfondet cannot be explained by increased systematic risk taking.

Sharpe ratio

The Sharpe ratio measures the relationship between the return on the GPFN in excess of the return on a risk-free investment of the capital and the absolute risk in the Fund. In 2016, Folketrygdfondet achieved a Sharpe ratio for the GPFN that exceeded the corresponding ratio for the benchmark index by 0.2; see Table 4.2 and Figure 4.5A. This indicates that Folketrygdfondet's active management helped secure better compensation for the risk in the GPFN, than would have been achieved by investing in line with the benchmark index. Measured over the period since January 1998, the difference between the Sharpe ratio for the GPFN and for the benchmark index is 0.1. The higher Sharpe ratio for the GPFN, compared to the benchmark index, reflects that Folketrygdfondet has achieved excess return over time, while its management at the same time has resulted in lower absolute risk in the Fund than in the benchmark index.

Information ratio

The information ratio measures the relationship between the excess return achieved by Folketrygdfondet through its active management and the relative risk taken. In 2016, the information ratio for the GPFN was 2.1; see Table 4.2 and Figure 4.5B. This means that each percentage point of relative risk was on average compensated by 2.1 percentage points of excess return. Measured in this way, Folketrygdfondet's management resulted in the GPFN being very well compensated for the relative risk taken in both the equity and the fixed-income portfolio. Since January 1998, Folketrygdfondet has achieved an information ratio for the GPFN of 0.4. The Fund has over this period been compensated more or less equally well for the relative risk in both the equity and the fixed-income portfolio.

4.2.6 Risk and limits

Absolute risk

Folketrygdfondet has estimated *expected fluctuations* in the return on the GPFN at 7.9 percent at yearend 2016, as measured by annual standard deviation. This corresponds to expected fluctuations in the value of the GPFN of about NOK 17

Table 4.2 Absolute and relative risk measures for the GPFN in 2016, in the last 3, 5 and 10 years, as well as over the period 1998–2016. Annual figures based on monthly observations[1]

	2016	Last 3 years	Last 5 years	Last 10 years	1998–2016
GPFN					
Absolute volatility of actual portfolio (percent)	6.33	5.66	6.26	10.58	8.19
Absolute volatility of benchmark index (percent)	6.65	5.94	6.50	11.21	8.74
Tracking error (percentage points)	0.51	0.59	0.56	1.19	1.21
Sharpe ratio difference	0.21	0.26	0.14	0.12	0.09
Information ratio	2.14	1.98	1.05	0.83	0.39
Equity portfolio					
Absolute volatility of actual portfolio (percent)	11.07	9.66	10.55	18.59	19.64
Absolute volatility of benchmark index (percent)	11.48	10.15	10.93	19.74	20.88
Tracking error (percentage points)	0.69	0.92	0.91	2.03	3.47
Sharpe ratio difference	0.17	0.22	0.10	0.08	0.07
Information ratio	2.34	1.87	0.67	0.63	0.30
Fixed-income portfolio					
Absolute volatility of actual portfolio (percent)	2.25	2.26	2.29	2.64	2.56
Absolute volatility of benchmark index (percent)	2.42	2.35	2.41	2.66	2.85
Tracking error (percentage points)	0.44	0.40	0.40	0.66	0.76
Sharpe ratio difference	0.19	0.22	0.34	0.28	0.17
Information ratio	0.77	0.89	1.55	1.09	0.28

[1] In its reporting for 2016, Folketrygdfondet has used weekly observations as the basis for calculating tracking error, Sharpe ratio difference and information ratio, and has not corrected for the number of degrees of freedom. In some cases this leads to deviations when compared to the calculations of the Ministry of Finance.

Sources: Folketrygdfondet, Macrobond and Ministry of Finance.

billion. Assuming normally distributed return figures, the fluctuations will exceed one standard deviation in one out of three years.

Absolute volatility in the GPFN and in the equity and fixed-income portfolios, based on actual monthly return data, shows that *historical fluctuations* in the GPFN have been lower than the fluctuations in the benchmark index; see Figure 4.6A. Consequently, Folketrygdfondet's management has historically contributed to reducing the fluctuations in the return on the GPFN. At the same time, the figure shows that the fluctuations in the benchmark index largely determine the fluctuations in the return on the Fund. In connection with the review of Folketrygdfondet's management of the GPFN, discussed in the report on the management of the Fund in 2014, calculations performed by the Ministry of Finance showed

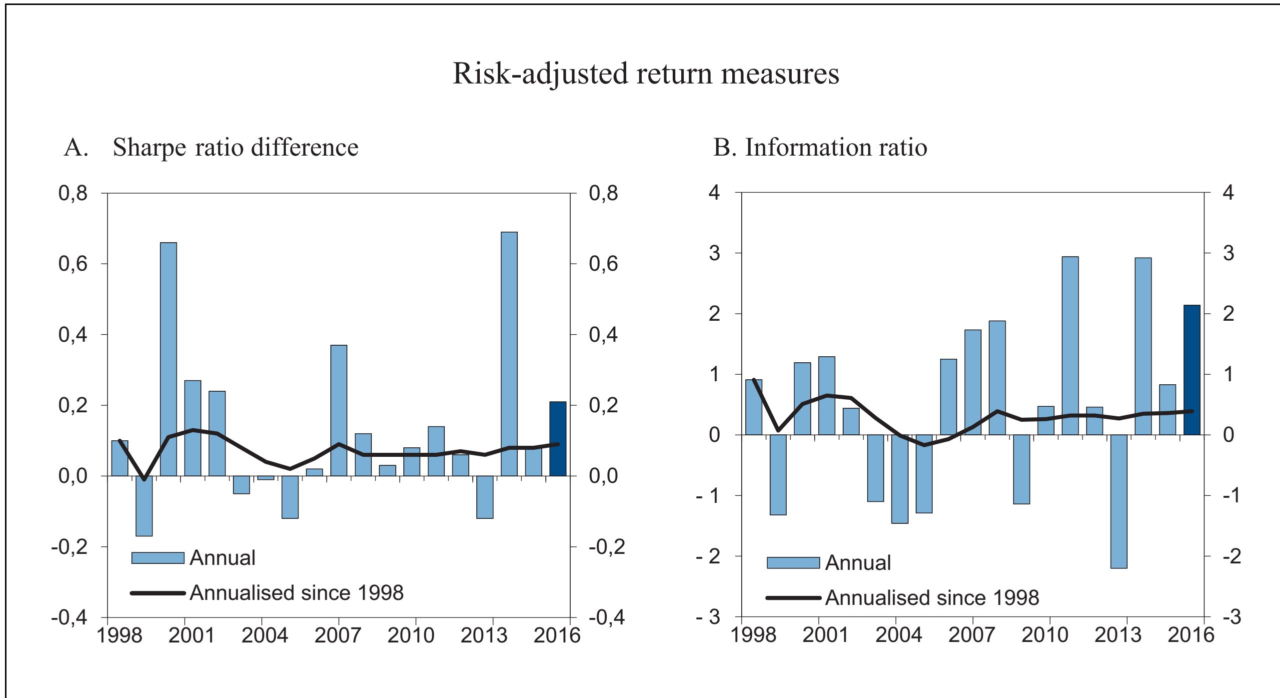

Figure 4.5 Risk-adjusted return on the GPFN. Annually and since 1998

Sources: Folketrygdfondet, Macrobond and Ministry of Finance.

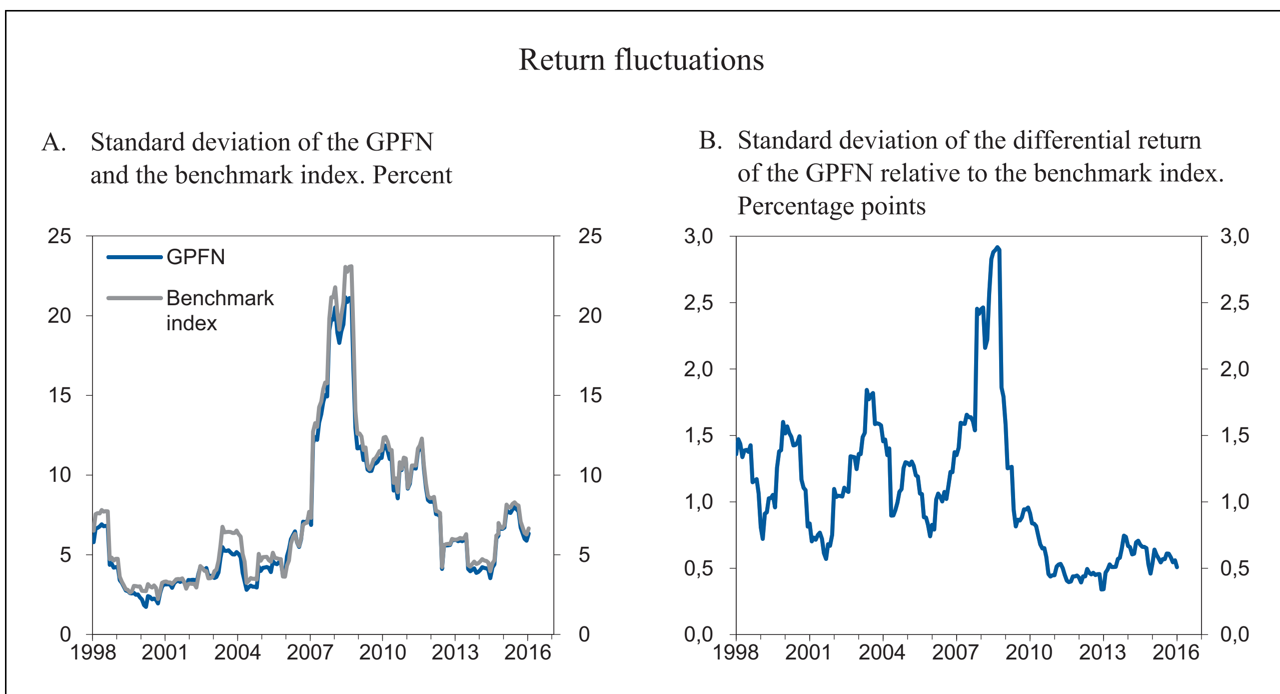

Figure 4.6 Rolling twelve-month standard deviation of the return on the GPFN and the benchmark index, as well as the differential return

Sources: Folketrygdfondet and Ministry of Finance.

that more than 98 percent of the fluctuations in the return on the GPFN over the period January 1998-2014 could be explained by fluctuations in the return on the benchmark index. The proportion of fluctuations attributable to fluctuations in the benchmark index has increased over time.

Relative risk

At yearend 2016, *expected tracking error* in the GPFN was 0.6 percentage points, about the same as at the beginning of the year. Hence, Folketrygdfondet utilises a small proportion of the 3 percentage point limit allowed by the Ministry of Finance.

Realised tracking error expresses historical relative risk in the GPFN, as measured by fluctuations in the excess return. Last year, the fluctuations in the return difference between the GPFN and the benchmark index for the Fund was about 0.5 percentage points; see Figure 4.6B. The contributions to realised expected tracking error from various investment strategies are discussed in section 4.2.8. Both expected and realised tracking error were low at yearend 2016, compared to the average since January 1998. This finding accords with analyses showing that fluctuations in the return on the benchmark index explain a large and increasing proportion of the return on the GPFN.

Tracking error is generally affected by several factors, included market fluctuations. During periods of major market volatility, tracking error is therefore expected to increase, even without any changes in the composition of the investments. The report on the management of the Fund in 2014 provided a more detailed discussion of factors affecting the measured tracking error.

Credit risk

The overall value-weighted credit quality of the fixed-income investments in the GPFN can be calculated on the basis of the market values and credit ratings[4] of the bonds in the portfolio. In 2016, the fixed-income portfolio had a value-weighted credit quality of AA, measured by credit rating. The value-weighted credit quality was unchanged from the beginning of the year. However, Folketrygdfondet has in 2016 increased the proportion of bonds in the fixed-income portfolio with the lowest credit quality; so-called high-yield bonds.

High-yield bonds are not included in the benchmark index for the GPFN. The Ministry of Finance has in the mandate for the management of the GPFN permitted Folketrygdfondet to invest in high-yield bonds, within a specified limit.[5] At yearend 2016, high-yield bonds accounted for 7.4 percent of the market value of the corporate bonds in the GPFN, or 5.4 percent of the fixed-income portfolio as a whole. This is well within the limit stipulated by the Ministry.

Individual investments

The GPFN shall be a financial investor, and diversifying the risk across many different securities is a goal. The Ministry of Finance has stipulated in the mandate for the management of the GPFN that the Fund can hold up to 15 percent of the shares or primary capital certificates of any one company in Norway, and up to 5 percent of any one company in Sweden, Denmark and Finland. At yearend 2016, the largest ownership stake in any one company in Norway was 13.8 percent, while it was 1.5 percent in the other Nordic countries in which the GPFN is invested.

4.2.7 Asset management costs

Folketrygdfondet's actual annual asset management costs relating to the GPFN are covered subject to a limit set by the Ministry of Finance. For 2016, the cost limit was set at NOK 177 million, including investments. Folketrygdfondet's asset management costs for the GPFN amounted to NOK 171.7 million, including dividends of NOK 0.7 million payable to central government. Measured as a proportion of average assets under management in 2016, the costs totalled 8.6 basis points (0.086 percent).

Cost developments over time

Figure 4.7 shows developments in asset management costs over time. The costs for the management of the GPFN increased substantially in 2007 and 2008, measured in both Norwegian kroner and basis points. This was partly due to the repayment of NOK 101.8 billion to central government

4 Standard &Poor's rating scale for credit quality is AAA, AA, A, BBB, BB, B, CCC, CC, C, D, with AAA as the top rating. Bonds with a credit rating from AAA to BBB, inclusive, are deemed to have high creditworthiness and are termed "investment grade" bonds. Bonds with lower creditworthiness are deemed to have low creditworthiness and are termed "high yield" bonds.

5 High-yield bonds shall under normal market conditions not account for more than 25 percent of the net market value of the fixed-income portfolio, adjusted for the net market value of the government bonds.

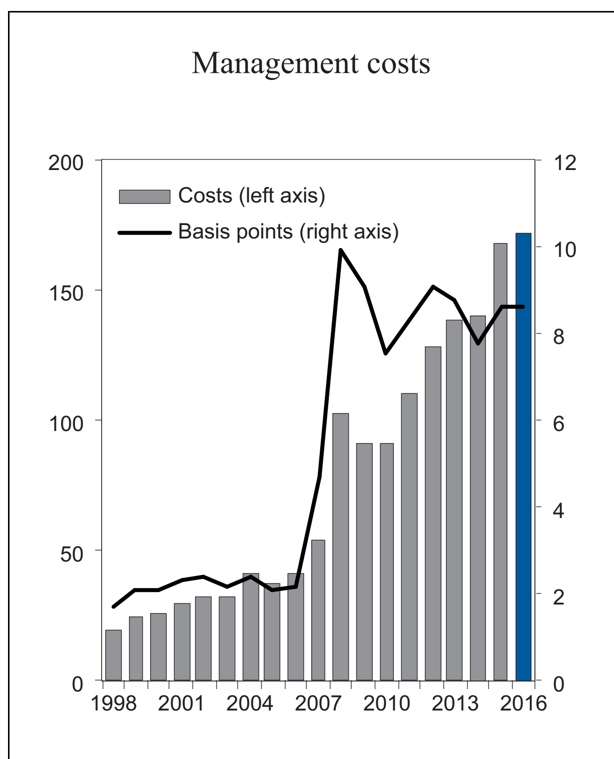

Figure 4.7 Asset management costs for the GPFN in 2016 and since 1998. NOK million (left axis) and basis points (right axis). One basis point = 0.01 percent

Sources: Folketrygdfondet and Ministry of Finance.

when Folketrygdfondet's participation in the mandatory deposit arrangement was discontinued in December 2006, which cut the market value of the GPFN more or less in half. In addition, stricter requirements for the management and monitoring of risk and reporting were introduced in 2007, which necessitated investments and additional employees. This has, in combination with general salary increases, resulted in higher costs. Measured as a proportion of assets under management, the asset management costs of the GPFN have been fairly stable in recent years.

International cost comparison

The Ministry of Finance has engaged the Canadian company CEM Benchmarking Inc. to compare the costs of the GPFN to the costs of other funds internationally. It follows from the report for 2015, which is available on the Ministry's website, that the costs of the GPFN are significantly lower than those of comparable funds. This is primarily because the GPFN is not invested in assets such as unlisted equities, as well unlisted real estate and infrastructure, which generally involve higher costs than listed equities and bonds. However, CEM has found that the costs of the GPFN are low even if adjusted for asset composition differences. The main explanation for the low costs, adjusted for asset allocation, is that all management of the GPFN is handled internally by Folketrygdfondet, and that internal management costs are low compared to those of other funds.

4.2.8 The performance of Folketrygdfondet's investment strategies

Strategies

The various investment strategies used in the management of the GPFN are outlined in the strategy plan of Folketrygdfondet.[6] Folketrygdfondet emphasises *security selection* strategies within both equity and fixed-income management. In the equity management, both quantitative and qualitative criteria are used to select companies. Reference is made, inter alia, to:

- *Quality companies.* Folketrygdfondet attempts to identify companies that largely meet qualitative criteria in terms of strategy, management, governing bodies, ownership structure, corporate governance and corporate social responsibility, and that offer potential competitive advantages and growth opportunities.
- *Over-optimism.* Folketrygdfondet seeks to invest less in – or avoid – companies that are, in the view of Folketrygdfondet, the subject of overly positive expectations.
- *Trend shifts.* Folketrygdfondet is focused on being ahead of the curve when it comes to identifying material changes in operating conditions that may influence business opportunities for sectors and companies.

The strategy plan observes, moreover, that the various security selection strategies in equity management tend to result in the GPFN holding a larger proportion of its investments in large companies and a smaller proportion of its investments in small- and medium-sized companies, compared to the benchmark index. Historically, this has resulted in somewhat lower risk in the equity portfolio, compared to the benchmark index.

As far as fixed-income management is concerned, the strategy plan refers, inter alia, to secu-

[6] The strategy plan is available on Folketrygdfondet's website.

Table 4.3 Contribution to gross excess return, asset management costs and expected tracking error from the various investment strategies in 2016. Percentage points

	Equity investments	Fixed-income investments	Total	Contribution to asset management costs
A: *Contribution to gross excess return and costs*				
Allocation	0.00	0.00	0.00	0.00
Security selection	0.95	0.14	1.09	0.08
Derived strategies	0.06	0.01	0.07	0.01
Total	1.01	0.16	1.17	0.09
B: *Contribution to expected tracking error per 31 December 2016*				
Allocation	0.00	0.00	0.00	–
Security selection	0.54	0.07	0.61	–
Derived strategies	0.00	0.00	0.00	–
Total	0.54	0.07	0.61	–

Source: Folketrygdfondet.

rity selection strategies that seek to reap *credit premiums*, especially within high-yield bonds. High-yield bonds are not included in the benchmark index defined by the Ministry of Finance. Folketrygdfondet also pursues a *yield deviation* strategy, which seeks to achieve excess return in the fixed-income portfolio by having, at times, a different duration composition than the benchmark index.

Furthermore, Folketrygdfondet has established so-called *derived strategies*. These strategies primarily seek to achieve excess return through securities lending and liquidity management in the equity and fixed-income portfolios. A different asset class distribution than the benchmark index, so-called *allocation*, is not, according to Folketrygdfondet, a strategy emphasised in utilising risk and cost budgets.

Performance in 2016

The excess return on the GPFN in 2016 is, according to Folketrygdfondet, primarily attributable to the various security selection strategies within the equity and fixed-income management; see Table 4.3A. Security selection strategies contributed 1.1 percentage points of the excess return on the GPFN, of which security selection in equity management accounted for 1.0 percentage point and security selection in fixed-income management accounted for 0.1 percentage points. Derived strategies contributed 0.1 percentage points, which were predominantly attributable to income from securities lending.

In the equity management, the strategies resulted in the GPFN holding a larger proportion of its investments in aquaculture and oil companies, and a smaller proportion of its investments in oil services and equipment companies, compared to the benchmark index. In fixed-income management, the strategies entailed a larger proportion of the investments in credit bonds, compared to the benchmark index.

The asset management costs of 0.09 percent in 2016 can, according to Folketrygdfondet, be attributed to notional passive management of the GPFN (0.04 percent), exercise of ownership rights (0.01 percent), additional costs resulting from the security selection strategies (0.03 percent) and derived strategies (0.01 percent). In Table 4.3, the costs incurred in the exercise of ownership rights and the notional passive management of the GPFN are reported as part of the costs resulting from various security selection strategies.

The contribution of the various investment strategies to the utilisation of the limit on expected tracking error is also shown in Table

Table 4.4 Contribution to gross excess return and asset management costs from the various investment strategies over the period 2007–2016. Percentage points

	Equity investments	Fixed-income investments	Total	Contribution to asset management costs
Allocation	0.00	0.00	0.00	0.00
Security selection	0.82	0.28	1.10	0.08
quality	0.56	–	–	–
over-optimism	0.22	–	–	–
trend shift	0.02	–	–	–
credit issuers	–	0.28	–	–
yield deviations	–	0.01	–	–
other	0.02	–	–	–
Derived strategies	0.01	0.00	0.01	0.00
Total	0.83	0.30	1.12	0.08

Sources: Folketrygdfondet and Ministry of Finance.

4.3B. Folketrygdfondet's active risk taking, measured in this way, is predominantly found in the various security selection strategies within the equity management. At yearend 2016, these strategies accounted for 0.5 percentage points of the 0.6-percentage points expected tracking error in the GPFN, while security selection strategies in fixed-income management accounted for 0.1 percentage points. The derived strategies appear to involve little utilisation of the scope for expected tracking error.

Performance over time

Table 4.4 shows the performance of Folketrygdfondet's investment strategies over the period 2007–2016. Since 2007, the average annual gross excess return in the management of the GPFN is 1.1 percentage points. According to Folketrygdfondet, the excess return is primarily attributable to the various security selection strategies within equity and fixed-income management. Security selection in equity management over the period 2007–2016 accounted for 0.8 percentage points of the excess return on the GPFN, while security selection in fixed-income management accounted for 0.3 percentage points. The contribution from the derived strategies was weakly positive, and predominantly attributable to income from securities lending.

The annual asset management costs over the period 2007–2016, averaging 0.08 percent of the assets in the GPFN, can, according to Folketrygdfondet, be attributed to notional passive management of the GPFN (0.05 percent), exercise of ownership rights (0.01 percent), additional costs resulting from the security selection strategies (0.03 percent) and derived strategies (0.00 percent). Table 4.4 reports the costs incurred in the exercise of ownership rights and the notional passive management of the GPFN as part of the costs resulting from various security selection strategies.

4.2.9 The Ministry's assessment

The return on the GPFN in 2016 was 7.1 percent, measured in Norwegian kroner and before the deduction of asset management costs. The return on the equity investments was 10.5 percent, while the return on the fixed-income investments was 2.2 percent. Higher oil and salmon prices boosted returns on equity investments in companies within the energy and consumer goods sectors, respectively. Falling credit spreads resulted, when taken in isolation, in favourable returns on the investments in subordinated loans and in high-yield bonds issued by industrial enterprises. Interest rate levels were still low at yearend, and one must thus be prepared for low fixed-income returns going forward. Declining interest rates

have generated capital gains for the Fund in recent years, but the scope for further gains is limited since interest rates are already at a low level.

The return on the GPFN in 2016 was close to the average annual return on the Fund, of 7.3 percent, since January 1998. The Ministry of Finance finds it satisfactory that the GPFN has generated an average annual real rate of return of 5.1 percent net of costs since January 1998.

In 2016, Folketrygdfondet achieved a return on the GPFN that was 1.2 percentage points higher than the return on the benchmark index adopted by the Ministry of Finance. The excess return was very high relative to the utilisation of the limit on expected tracking error, both in 2016 and compared to the average utilisation of this limit since January 1998. The Ministry is focused on performance developments over time. The Ministry finds it altogether satisfactory that the average annual gross return since January 1998 has been about 0.6 percentage points higher than the return on the benchmark index. This is somewhat higher than the upper range of the Ministry's expressed expectation as to the long-term excess return.

The asset management costs of the GPFN are low compared to those of other funds. The Ministry of Finance finds it satisfactory that the management of the GPFN appears to be cost effective. The Ministry will continue to emphasise cost-effective management of the GPFN going forward.

4.3 Third party verification

4.3.1 Assurance engagement

The audit firm Ernst & Young regularly reviews how Folketrygdfondet has implemented certain aspects of the mandate from the Ministry of Finance. The engagement forms part of the Ministry's follow-up and supervision of the management of the GPFN. The reports on such reviews, so-called assurance statements, are available on the Ministry's website.

One of the aspects reviewed in 2016 is Folketrygdfondet's design and implementation of the framework for the measurement and management of credit risk in the portfolio. This includes the measurement, risk management and compliance processes established to measure and manage credit risk. As part of the engagement, the auditor has, inter alia, reviewed governing documents and other relevant written materials, held meetings with senior executives and employees at Folketrygdfondet, and reviewed relevant processes. The auditor has not examined whether risk management and compliance measures have been effective and have functioned as intended, nor evaluated whether the risks identified by Folketrygdfondet are complete and representative of its asset management activities.

The assurance statement concludes that, in all material respects, the design and implementation of the framework for the measurement and management of credit risk in the portfolio conform to the measurement criteria adopted by the auditor. The assessment is based on the current risk profile of Folketrygdfondet. It is emphasised that matters currently considered immaterial may become more important in the event of material changes to the product range of financial instruments or an increase in the applicable limits, and thus require reassessment by reference to a new risk profile.

In 2015, the auditor reviewed Folketrygdfondet's design and implementation of the framework for calculation of the benchmark index, including calculation of the return on the index in 2015. As part of the Ministry of Finance's follow-up and supervision of the management of the GPFN, the auditor has also in 2016 verified the return on the benchmark index. The auditor has reviewed Folketrygdfondet's process and method for calculating the return on the benchmark index, recalculated the return on the benchmark index and compared selected index values included in the calculations with those received from external index providers.

The assurance statement concludes that the calculation of the return on the overall benchmark index for the GPFN complies with the mandate for the management of the GPFN laid down by the Ministry of Finance in all material respects.

5 The Government Pension Fund Norway: refinement of strategy and management

5.1 New reporting and risk management requirements

5.1.1 Background

Folketrygdfondet manages the GPFN according to a mandate laid down by the Ministry of Finance. The mandate expresses the investment strategy for the GPFN via, inter alia, provisions on the composition of the benchmark index and limits on Folketrygdfondet's risk taking; see section 4.1. Folketrygdfondet is permitted to deviate somewhat from the benchmark index, within the limits stipulated in the mandate. These limits offer Folketrygdfondet some leeway, with a view to ensuring cost-effective asset management and achieving excess return over time.

The limit on expected tracking error, which provides an indication of how much the return on the GPFN may normally be expected to deviate from the benchmark index, is a key variable. Folketrygdfondet is required to manage the GPFN with a view to ensuring that annualised expected tracking error does not exceed 3 percentage points. In addition, the mandate from the Ministry of Finance subjects asset management to supplementary risk limits. Such limits are intended to capture risks that historically have not been adequately reflected in the risk measure expected tracking error.

The Ministry of Finance amended the mandate for the management of the GPFN with effect from 16 December 2016. The amendments imply more detailed reporting requirements on the risk assumed by Folketrygdfondet in its management of the GPFN and requirements for a supplementary risk limit for major losses that may be expected to occur rarely.[1] The purpose of the new requirements is to enhance transparency in the management of the GPFN, provide improved support for profitable long-term asset management strategies and strengthen the capturing of risks that historically have not been adequately reflected in expected tracking error. The requirements are based on corresponding amendments to the mandate for the management of the GPFG, which were adopted with effect from 1 February 2016; see the discussion in the report on the management of the Fund in 2015.

5.1.2 New supplementary risk limit

There is no single risk measure that captures all risk dimensions arising in the management of the GPFN. Consequently, a number of measures are used in different areas and at different levels of asset management to capture risk.

In addition to regulating the scope of Folketrygdfondet for deviating from the benchmark index via the limit on expected tracking error, the mandate from the Ministry of Finance requires the establishment of supplementary risk limits for asset management. These include, inter alia, limits for the minimum overlap between the investments of the Fund and the benchmark index, credit and liquidity risk, leveraging and borrowing of securities. Insight into the operational consequences of these supplementary limits requires market proximity, and their specific formulation has therefore been delegated to Folketrygdfondet. Such limits shall nonetheless be submitted to the Ministry prior to their planned implementation.

The GPFN has a long time horizon. This makes Folketrygdfondet well placed to exploit long-term asset management strategies, such as acting counter-cyclically and reaping time-variable risk premiums. Such strategies may, as previously noted by the Ministry of Finance, entail long periods of higher or lower returns than on the benchmark index. Moreover, they may have a clearly negative impact during periods of market turmoil. It is therefore important that the risk associated with such investment strategies is prudently managed and reported.

[1] A proposal for new requirements in the mandate were submitted to Folketrygdfondet for its comments in a letter of 6 December 2016. Folketrygdfondet submitted its comments in a letter of 12 December 2016. The mandate for the management of the GPFN and these letters are available on the Ministry of Finance's website.

Expected tracking error fails to adequately capture such risk. The mandate for the management of the GPFN therefore requires, with effect from 16 December 2016, that Folketrygdfondet sets a supplementary limit for large anticipated negative deviations between the return on the GPFN and the benchmark index (expected shortfall risk).

While the limit on expected tracking error measures and defines the scope for how much the return on the Fund is normally expected to deviate from the benchmark index, the limit on expected shortfall risk is designed to measure and define the scope for the negative deviation that can be expected in extreme cases.

The risk measurement of expected tracking error is based on a statistical distribution. The limit on expected shortfall risk, on the other hand, is designed to specify future outcomes on the basis of historical simulations for the current portfolio. The measurement of expected shortfall risk is thus based on estimates of the most negative deviations between the return on the GPFN and the return on the benchmark index that the current portfolio would have experienced in the past.

Folketrygdfondet presented the limit on expected shortfall risk to the Ministry of Finance in a letter of 10 March 2017. Folketrygdfondet prepares to set the limit such that the negative deviation expected between the return on the GPFN and the return on the benchmark index in extreme cases will not exceed 9 percentage points. In situations involving extreme market movements or other circumstances that may result in violation of the limit on expected shortfall risk, Folketrygdfondet proposes that the chief executive officer shall immediately inform the board of directors and recommend measures for consideration by the board. In situations where the circumstances require measures to be decided before a board meeting can be held, the executive committee of the board of directors, which comprises the chair and deputy chair of the board, is authorised to make such a decision.

5.1.3 New reporting requirements

The Government is focused on ensuring the greatest possible transparency in the management of the Government Pension Fund. Transparency strengthens the scope for retaining the commitment to profitable, long-term asset management strategies during periods of weak performance.

The Ministry of Finance has, with effect from 16 December 2016, stipulated a clear objective for Folketrygdfondet's public reporting in section 6-1 of the mandate: There shall be the greatest possible transparency about the management of the GPFN within the limits defined by responsible execution of the management assignment. The reporting shall, furthermore, provide a true and comprehensive overview of how Folketrygdfondet executes the management assignment, including the Folketrygdfondet's choices and priorities, the results that are achieved, and how the limits provided in this mandate are utilised.

Folketrygdfondet has emphasised, in its letter of 12 December 2016, its commitment to transparency in the management of the GPFN. Folketrygdfondet states, at the same time, that it will as a major participant in the Norwegian financial market continue to attend to the financial interests of the Fund in its practising of transparency in the management of the GPFN. The Ministry of Finance has taken note of this.

The content requirements for Folketrygdfondet's public reporting on the management of the GPFN are set out in section 6-2 of the mandate. A distinction is made between three different levels of reporting: strategic, quarterly and annual.

The purpose of strategic reporting is to secure public support for the investment strategies used is asset management. It shall, inter alia, describe the investment strategies adopted by the board of directors of Folketrygdfondet, including overarching principles governing the selection of strategies, the risk and return properties of the strategies and how the strategies aim to exploit the distinctive characteristics of the GPFN and Folketrygdfondet's comparative advantages. Strategic reporting shall be done regularly, and at least every three years.

Section 1-4 of the mandate now emphasises that it is the board of directors of Folketrygdfondet which shall have a strategic plan for asset management. The Ministry of Finance has specified, in a letter of 6 December 2016, that this responsibility cannot be delegated.

The provisions on quarterly and annual reporting have been expanded through the inclusion of a requirement that Folketrygdfondet shall include a separate account of the sources of positive and negative excess returns in asset management. Furthermore, the provisions on annual reporting require Folketrygdfondet to provide a separate account of the performance of all investment strategies entailing significant costs or high relative

risk.[2] The requirement is designed to promote transparency and public support for individual strategies with a material impact on the relative performance of the GPFN. For each of these strategies, there shall be given an account of the contribution to the differential return, utilisation of the expected tracking error limit, expected shortfall risk and asset management costs.

The new provisions on annual reporting require Folketrygdfondet to include a separate account of the relationship between risk and return for the GPFN. The Ministry of Finance noted, in its discussion of the new reporting requirements for the GPFG in the report on the management of the Fund in 2015, that reporting should generally provide insight into whether the asset manager has generated a higher return than could alternatively have been achieved by increasing risk by adjusting the benchmark index. It was, at the same time, emphasised that there is no unambiguous answer to the question of how, in hindsight, risk has influenced performance, or what adjustments can be made to the benchmark index. The mandates for the management of the GPFG and the GPFN therefore require that several methods and measures be used when reporting risk-adjusted return.

The Ministry of Finance has stipulated, in section 6-3 of the mandate for the management of the GPFN, a requirement for data and methods used in the public reporting to be described and made public to the extent possible.

The new requirements for Folketrygdfondet's public reporting imply that quarterly performance shall be published earlier than before. Quarterly reports for the first and third quarter shall, under the new requirements, be published no later than one month after the end of the quarter, while reports for the second quarter shall be published no later than two months after the end of the quarter. In line with this, the Ministry of Finance amended, with effect from 16 December 2016, the Regulations relating to Folketrygdfondet's financial reporting correspondingly. Annual reports shall, like at present, be published no later than three months after the end of the year.

[2] This follows from section 6–2(3)(a) of the mandate, as opposed to the provision on specification of excess return sources in quarterly and annual reports, which is found in section 6–2(2)(b) of the mandate.

6 Responsible management

6.1 The current framework

The objective for the investments in the Government Pension Fund is to achieve the highest possible return, given a moderate level of risk. The Fund shall also be a responsible investor. The Ministry of Finance assumes, in the mandate that strong financial returns over time will depend on well-functioning markets and sustainable development. This is assumed to apply, in particular, to a large, diversified and long-term investor, whose return over time will largely be determined by value creation in the economy. Individual companies may, when taken in isolation, profit by ignoring serious harm to others (negative externalities). For a universal, long-term owner, however, such gains may be counteracted by lower returns on other parts of the portfolio, or in the future.

The Ministry of Finance stipulates overarching guidelines and limits for Norges Bank's and Folketrygdfondet's responsible management of the GPFG and the GPFN, respectively. The mandates for the management of the GPFG and GPFN refer to international principles and standards, such as the UN Global Compact, the OECD Principles of Corporate Governance and the OECD Guidelines for Multinational Enterprises. These international standards specify good corporate governance norms and set out expectations on companies' handling of issues such as environmental and social conditions; see Box 6.1.

The Ministry of Finance, Norges Bank and Folketrygdfondet have joined the Principles for Responsible Investment (PRI). The initiative is focused on asset owners, asset managers and professional collaboration partners, and is supported by two UN partners: the Global Compact and the UN Environment Programme Finance Initiative (UNEP FI). The PRI encompasses six responsible investment principles, including respect for the environment, society and corporate governance.

Norges Bank and Folketrygdfondet make investment decisions and exercise ownership rights independently of the Ministry of Finance, within the limits laid down in mandates and guidelines. Figure 6.1 shows the distribution of roles and responsibilities in the responsible management of the Government Pension Fund.

Corporate governance, environmental and social considerations are integrated in the management of the GPFG and the GPFN. Key tools include the promotion of standards, principles and relevant research. The managers of the two funds express expectations to the companies and pursue dialogue with them on relevant issues and matters, while also voting in general meetings. The handling of risk is a key responsible management focus.

The Ministry of Finance has adopted the ethically motivated Guidelines for Observation and Exclusion from the GPFG; see Box 6.2. Some criteria provide for the exclusion of companies based on their products, such as tobacco, weapons and coal. Other exclusion criteria are conduct-based and address matters such as serious human rights violations and severe environmental damage. The Council on Ethics advises on the observation and exclusion of companies. Decisions in such matters are made by Norges Bank.

The mandate from the Ministry of Finance implies that the GPFG cannot be invested in interest-bearing instruments issued by states that are subject to large-scale UN sanctions or other international initiatives of a particularly large scale and where Norway supports the initiatives. North Korea and Syria are currently excluded from the investment universe under this provision. The list of excluded countries is reviewed on a regular basis, as international sanctions and initiatives are changed over time. As Iran has complied with its introductory obligations under the so-called Joint Comprehensive Plan of Action, the country is from February 2016 no longer encompassed by the exclusion.

The frameworks for, and the use of, policy instruments in the responsible management of the GPFG and GPFN are largely based on a common platform. Responsible management efforts are discussed in further detail in section 6.2.

Box 6.1 International standards and principles

The mandates for the GPFG and GPFN refer, in particular, to three internationally recognised sets of standards and principles designed to ensure that environmental, social and corporate governance considerations are taken into account in asset management.

OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are voluntary recommendations intended to promote responsible conduct in all business sectors. The guidelines were launched in 1976, and most recently updated in 2011. They are not legally binding, and individual enterprises should assess independently how the guidelines can be implemented.

The guidelines aims for companies to contribute positively to economic, environmental and social conditions worldwide. They stipulate principles and internationally recognised standards for responsible business conduct. The guidelines encourage companies to avoid causing or contributing to negative effects through their own operations, and to follow-up cases in which such effects do occur. Guidance is also provided on how companies should follow up on their business relations and supply chains. Finally, the guidelines ask companies to conduct due diligence assessments to ensure that obligations are met. For certain selected sectors, the OECD has prepared specific and more practical guidance notes for such due diligence assessments.

Countries that have adopted the OECD guidelines are obliged to establish a national contact point for responsible business conduct. The contact points are mandated to spread knowledge about the guidelines and offer dialogue and mediation in individual cases. The Norwegian contact point is an independent specialist body subject to the administrative oversight of the Ministry of Foreign Affairs.

UN Global Compact

The UN Global Compact is currently the world's largest corporate social responsibility initiative, with more than 12,000 participants in about 170 countries. The initiative is voluntary and focuses primarily on the commercial sector. Companies are encouraged to comply with 10 universal principles relating to human rights, labour rights, the environment and anti-corruption. In addition, participants shall report annually on their efforts to implement the principles in their operations. The results are published in the annual Global Corporate Sustainability Report.

The principles are based on the Universal Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the UN Declaration Against Corruption and Bribery in International Commercial Transactions. The principles are general in nature and state, inter alia, that businesses should respect fundamental human rights, should uphold the freedom of association and collective bargaining, and eliminate all forms of forced and compulsory labour, child labour and discrimination with respect to employment and occupation. Furthermore, businesses should support a precautionary approach to environmental challenges and promote the environment, development and environmentally friendly technologies. They should also combat all forms of corruption, including extortion and bribery.

G20/OECD Principles of Corporate Governance

The G20/OECD Principles of Corporate Governance discuss the distribution of roles and responsibilities between the owners, the board of directors and the senior executives of a company. The principles are designed to promote a common understanding of best practice in areas such as transparency and disclosure, equitable treatment of shareholders, and the responsibilities and liabilities of the board of directors. The principles also give input to national decision-makers on executive remuneration, the conduct of institutional investors and the establishment of well-functioning stock markets.

The principles are based on the view that good governance over time promotes growth in company value, access to financing and well-functioning capital markets. Effective corporate governance and capital allocation will in turn promote welfare and general economic growth. The revised principles were launched in 2015 and were endorsed by the G20.

Box 6.2 Guidelines for Observation and Exclusion from the Government Pension Fund Global

The Ministry of Finance has adopted ethically motivated guidelines on the observation and exclusion of companies from the GPFG. The guidelines include exclusion criteria that are based on what the companies produce (products) or on their conduct. Companies may be placed under observation if there is doubt about whether the exclusion conditions are met. The Fund is also prohibited from investing in bonds issued by certain sovereign states.

The *product criteria* provide that the Fund's assets may not be invested in companies which themselves or through entities they control:

- produce weapons that violate fundamental humanitarian principles through their normal use;
- produce tobacco; or
- have a significant element of thermal coal in their operations; or
- sell weapons or military materiel to sovereign states in whose government bonds the Fund is barred from investing.

The weapons criterion encompasses chemical weapons, biological weapons, anti-personnel mines, undetectable fragmentation weapons, incendiary weapons, blinding laser weapons, cluster munitions and nuclear arms.[1] Moreover, the Fund shall not be invested in companies that develop or produce key components for these types of weapons.

The tobacco criterion is limited to the actual tobacco product, and does not include associated products such as filters and flavour additives or the sale of tobacco products. All companies that grow tobacco plants or process tobacco into end products, whether directly or through entities they control, shall be excluded. Tobacco is a product distinguished by its normal use entailing a risk of severe illness and death. This is reflected in strict regulations, both nationally and internationally. In 2009, when it was decided to exclude tobacco producers from the GPFG, an international tobacco control convention had been adopted and legislation had been tightened significantly in both Norway and other countries.

The coal criterion encompasses mining companies and power producers which themselves or through entities they control derive 30 percent or more of their revenue from thermal coal or base 30 percent or more of their operations on thermal coal.

There is a broad political consensus that there should be a high threshold for excluding an entire sector from the Fund. In Recommendation 290 (2014–2015) to the Storting, the Standing Committee on Finance and Economic Affairs stated, in its deliberation of investments and policy initiatives targeting coal and petroleum companies, that it is not considering further product exclusions for other operations/sectors in this regard.

The *conduct criteria* provide that observation or exclusion may be decided for companies where there is an unacceptable risk that the company contributes to or is responsible for:

- serious or systematic human rights violations, such as murder, torture, deprivation of liberty, forced labour or the worst forms of child labour;
- serious violations of the rights of individuals in situations of war or conflict;
- severe environmental damage;
- acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions;
- gross corruption; or
- other particularly serious violations of fundamental ethical norms.

[1] See the Revised National Budget 2004.

6.2 Responsible management efforts

This section describes the work done by the Council on Ethics, Folketrygdfondet and Norges Bank in the area of responsible management. Implementation of the ethically motivated guidelines on observation and exclusion from the GPFG is discussed in section 6.2.2.

6.2.1 The Government Pension Fund Global

Norges Bank's responsible management efforts are based on the mandate from the Ministry of Finance and the ethically motivated guidelines for observation and exclusion. The mandate requires Norges Bank to adopt a set of responsible investment principles to be integrated into management

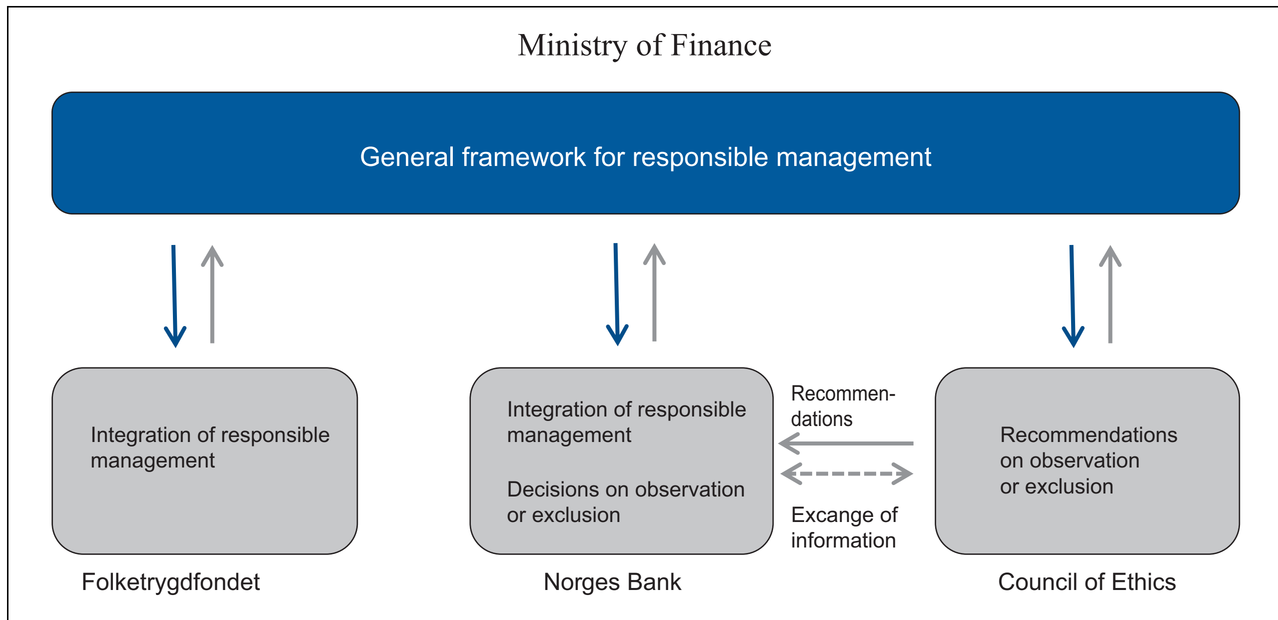

Figure 6.1 Distribution of roles and responsibilities in the management of the Government Pension Fund Global.

Source: Ministry of Finance.

of the GPFG. The principles shall reflect the objectives of good corporate governance and environmental and social considerations in line with internationally recognised standards. The mandate also identifies contributions to research and the development of good standards, as well as environment-related investment mandates, as part of the responsible management efforts. Moreover, Norges Bank is required to seek to establish a chain of responsible management measures. Norges Bank is required to publish the principles and measures applied in this work.

Norges Bank annually publishes a report on responsible investment, as a supplement to its annual report. The report on responsible investment in 2016 was published on 7 March 2017. Its responsible investment efforts rely on three pillars: standard setting, ownership and risk management.

Standard setting

Norges Bank aims to contribute to the development of standards that will serve the long-term interests of the Fund. The GPFG is invested in thousands of companies globally, with an average ownership share of 1.3 percent at yearend 2016. Standard setting can be an effective way of promoting well-functioning markets through a consistent and sustainable regulatory framework, thus also changing company practices over time. Broad international standards and principles are given priority in the standard setting efforts. The UN Global Compact, the OECD Principles of Corporate Governance, as well as the OECD Guidelines for Multinational Enterprises are examples of such standards. These are specifically referred to in the mandate from the Ministry of Finance. Other examples of standards are regulations, listing requirements, best practice codes, norms, formal standards and observed market practice. Norges Bank promotes good market practice through dialogue with regulatory authorities, other standard setters and market participants. Furthermore, Norges Bank participates in relevant international fora and consultations on the development of standards. In addition to broad international standards, Norges Bank is also involved with more specific standards, which may address a specific industry or topic.

Last year, Norges Bank submitted comments in nine consultations relating to international or company- or market-specific standards and regulations.

Norges Bank expresses its expectations to companies in which the Fund is invested via published documents and direct company contacts. Norges Bank's own responsible management principles were revised in January 2016, with, inter alia, the introduction of a reference to the UN Guiding Principles for Business and Human Rights (UNGP).

Expectation documents have been published for four areas: climate change, water management, human rights and children's rights. The expectation documents express how Norges Bank, as a financial investor, expects companies to address specific issues in the course of their business. Such documents can serve as a basis for company dialogue and form part of a broader set of responsible management strategies and activities pursued by Norges Bank. The expectation document on human rights was published in February 2016. An announced expectation document on transparency in international corporate taxation is discussed in section 6.5.

Norges Bank also promotes research in support of its responsible management efforts. Research is considered particularly useful in areas such as the relationship between environmental, social and corporate governance considerations on the one hand, and financial risk and return on the other hand. In 2016, Norges Bank supported various research projects and contributed to a number of seminars and conferences. Furthermore, Norges Bank has over time focused on the development of non-financial data. This effort has included follow-up of corporate disclosure and practise within selected areas of sustainability. In 2016, 2,392 companies were subjected to such assessments.

In addition to its cooperation with academic institutions and experts from corporate and non-corporate backgrounds, Norges Bank publishes a number of discussion notes of relevance to various aspects of asset management.

Ownership

The GPFG has ownership shares in about 9,000 companies. Ownership can be exercised by voting at general meetings, participating in governing bodies, engaging in dialogue with companies and communicating with boards of directors. Norges Bank premises its exercise of ownership rights on thorough knowledge of the companies, sectors and markets in which the Fund is invested. Ownership is followed up through, inter alia, analyses, voting and dialogue.

Norges Bank regards voting at general meetings as one of the most important tool for influencing companies. Norges Bank has established designated guidelines setting out the principles underpinning its voting. These guidelines are based on the G20/OECD revised Principles of Corporate Governance. The guidelines stipulate, inter alia, that Norges Bank shall generally vote at all general meetings unless there are material practical impediments. Moreover, the voting decisions must be published. Furthermore, the voting guidelines can be supplemented by case- and company-specific information from, inter alia, portfolio managers when making the final voting decision. In some instances, voting intentions are published prior to general meetings to promote clear expectations, transparency and shareholder influence.

The voting must reflect the Fund's long-term interests, taking into account long-term value creation, sustainable business operation, board liability, shareholder rights, equal treatment of shareholders and transparent company communication. Norges Bank publishes position papers addressing specific corporate governance topics. These can, inter alia, form the basis for voting on specific issues.

Norges Bank voted on 112,210 resolutions in 11,294 general meetings in 2016. Norges Bank pays particular attention to board composition, governance structure and core business strategy. The specific resolutions may concern the appointment of board members, capitalisation, remuneration, mergers and acquisitions.

Two other key measures in the ownership activities of the Fund are company dialogue and board contact. Company dialogue provides Norges Bank with a better understanding of the businesses in which the Fund is invested, as well as opportunities for promoting the Fund's views on ownership, sustainable operations and reporting. Every year, Norges Bank preselects company dialogue topics, but also follows up on specific events on an ongoing basis. Dialogues and follow-up of specific topics may continue for a number of years. 3,790 meetings were held between Fund representatives and company executives and specialists over the course of 2016. Board contact provides the Fund with insight into the long-term strategy of companies. In addition, work culture is emphasised; how the chair of the board can achieve productive discussions and ensure high quality in the activities of the board. Last year, Bank representative held 233 meetings at the board level.

Risk management

Norges Bank assesses risk in relation to environmental, social and corporate governance issues. Norges Bank performs risk analyses at the country, sector and company level. Such assessments provide a better understanding of the overall risk the Fund is exposed to. In 2016, Norges Bank has enhanced its gathering and development of non-

financial data, which forms the basis for such risk assessments.

Norges Bank has divested from certain companies in response to risk assessment findings. Such divestments are made within the scope of the mandate and the risk limits applicable to Norges Bank's management of the Fund, thereby differing from exclusion decided on the basis of the ethically motivated guidelines. In 2016, Norges Bank divested from 23 companies. The decisions to divest from certain companies are based on thorough analyses of environmental, social and corporate governance risks in the longer run. Issues and topics assessed included oil sand production, coal-based electricity generation, deforestation, as well as environmental and social risks in mining companies. In addition, Norges Bank reports on greenhouse gas emissions from companies in which the Fund is invested. In 2016, such emissions were estimated at about 96 million tonne CO_2 equivalents, based on the Fund's percentage ownership share in each company.

Environment-related investment mandates

Since the adoption of separate environment-related investment mandates in 2009, Norges Bank has established internal and external management mandates focusing on companies which contribute to reducing environmental problems, particularly through the development of new environmental technologies. At yearend 2016, NOK 63.7 billion was invested in securities under the environment-related mandates. In 2016, the environment-related equity investments generated a return of 12.4 percent, compared to a 6.9 percent return for the Fund as a whole. From 2010 to 2016 the return was 4.2 percent on the environment-related equity investments, compared to a 9.6 percent return on the Fund as a whole. See also the discussion in section 2.2.

6.2.2 Observation and exclusion of companies from the GPFG

The Ministry of Finance has adopted ethically motivated guidelines on observation and exclusion of companies from the GPFG; see Box 6.2. Norges Bank makes decisions on exclusion and observation, based on recommendations from the Council on Ethics. As far as the coal criterion is concerned, Norges Bank can make exclusion or observation decisions without any recommendation from the Council on Ethics.

A list of the companies excluded or under observation is available on the Norges Bank website, while the relevant recommendations are available on the website of the Council on Ethics. Norges Bank publicly discloses the grounds for exclusion of coal companies when such decisions are made on its own initiative.

A total of 124 companies were excluded, while 13 companies were placed under observation, at yearend 2016. Norges Bank has in 2016 excluded 59 companies and placed 11 under observation under the coal criterion.

Last year, an additional eight companies were excluded on the basis of advice from the Council on Ethics. Furthermore, one additional company was placed under observation, while the exclusion of one company was revoked.

The role of the Council on Ethics in product-based exclusion

The Council on Ethics uses an external consultancy firm that continuously monitors the companies in the portfolio for production that may potentially violate the guidelines. In addition, the Council on Ethics collaborates with other financial institutions to identify companies that produce cluster munitions.

The Council on Ethics contacts companies if there is reason to believe that they are engaged in production in violation of the guidelines for the Fund. If a company confirms the information held by the Council, an exclusion recommendation is sent to Norges Bank. Companies that fail to respond to an enquiry from the Council are recommended for exclusion if the Council's documentation shows that they are highly likely to be involved in the production of goods encompassed by the exclusion criteria. This procedure is designed to achieve a reasonable degree of assurance that companies making products in violation of the guidelines are excluded from the Fund. However, there is no guarantee that the Council on Ethics' monitoring system will cover all companies at all times.

The government bond exclusion provision was introduced in 2010, and currently applies to interest-bearing securities issued by North Korea and Syria. Moreover, the GPFG shall not invest in companies that sell weapons or military materiel to governments of these countries. The Council on Ethics has thus far not identified any companies in the Fund's portfolio that do so. One company was excluded when Myanmar was previ-

ously included on the list, but this exclusion was subsequently revoked.

As at yearend 2016, 36 companies were excluded from the Fund under other product-based criteria than the coal criterion. Some 16 of these companies have been excluded on the basis of production of weapons that violate fundamental humanitarian principles in their normal use, while 20 companies are excluded for producing tobacco.

Conduct-based exclusion

For the conduct-based criteria, the Council on Ethics assigns priority to companies and topics which are deemed to entail the highest risk of violate the guideline. While the review of such topics is often based on a long-term plan, individual cases may also be investigated in response to news coverage. An external consultancy firm monitors a range of news sources in multiple languages every day for material on portfolio companies. The Council on Ethics receives quarterly reports from the consultancy firm and investigates the companies which appear to present the greatest risk of future breaches of standards. Norges Bank may also highlight potential issues to the Council on Ethics. The Council on Ethics also receives enquiries from individuals and organisations relating to specific companies or issues.

The Council on Ethics thereafter selects the most serious instances for further investigation. Weight is attached to, inter alia, how serious the norm violation is, whether the company is accused of several counts of unethical conduct, whether it is likely that norm violations will continue, and the scope for documenting the conduct of which the company is accused. The aim is to identify companies where there is an unacceptable risk that violations of the ethical guidelines are taking place and will continue.

The Council on Ethics obtains information from researchers and research institutions, international, regional and national organisations and various other sources. The Council on Ethics often engages consultants to investigate suspected guideline violations. The portfolio companies themselves are also an important source of information. There is often close dialogue, both oral and written, with the companies during the investigation process.

For several years, the Council on Ethics has systematically reviewed the investments of the GPFG in companies involved in certain types of activity capable of causing severe environmental problems. Since the criterion relating to severe environmental problems was introduced, the Council on Ethics has issued 10 recommendations on exclusion and one recommendation on observation of companies establishing plantations in tropical rainforests. Moreover, the Council on Ethics has for several years been considering whether companies in the Fund are involved in activities that may be harmful to particularly valuable protected areas, and has issued recommendations on three companies involved in such activities. The Council on Ethics has also continued efforts on companies involved in illegal fishing, and has recommended the exclusion of one fishing company.

Furthermore, the Council on Ethics has sought to develop a method for identifying and assessing companies for potential exclusion under the climate criterion. The first phase of this effort will be focused on high-emission sectors and industries; see section 6.3.

Under the human rights criterion, the Council on Ethics has, inter alia, looked into companies in the portfolio with textile production in certain Asian countries, companies with operations in Qatar and companies associated with serious human rights violations in the fishing industry. Under the criterion «other particularly serious violations of fundamental ethical norms», the Council on Ethics has also examined a number of companies exploring oil in Western Sahara. The Council on Ethics adopts a risk-based approach to corruption cases, in which it reviews countries and sectors that are identified as particularly vulnerable to corruption in international rankings. In 2016, the Council on Ethics has focused on the oil and gas, defence and telecommunications sectors.

The Council on Ethics contacts companies at an early stage in its examination, requesting them to answer questions or send information to the Council. In 2016, the Council contacted 77 companies, and met with 21 of these. The Council prioritises obtaining information directly from companies, but may also issue a recommendation to Norges Bank if a company fails to respond to the Councils' enquiries.

At yearend 2016, a total of 29 companies were excluded from the GPFG under these criteria, including 18 companies excluded because they are deemed to cause severe environmental damage. Three companies are excluded on the basis of contributions to serious or systematic human rights violations, while five companies are excluded based on other particularly serious vio-

lations of fundamental ethical norms. Moreover, two companies have been excluded on the basis of serious violations of individuals' rights in situations of war or conflict. One company has been excluded on the basis of a risk of corruption.

Two companies have been placed under observation under these criteria; one under the environmental criterion and one under the corruption criterion. The Council on Ethics is monitoring these companies on an ongoing basis, providing an annual assessment of them to Norges Bank.

Discontinuation

The Council on Ethics evaluates annually whether the grounds for exclusion or observation continue to apply. If new information indicates that the basis for excluding or observing a company is no longer pertinent, the Council on Ethics recommends the revocation of the earlier decision. In 2016, one company has been readmitted to the investment universe of the Fund.

The annual report of the Council on Ethics provides further details on its activities in 2016.

6.2.3 The Government Pension Fund Norway

Folketrygdfondet shall, according to the mandate for the management of the GPFN, adopt responsible management principles, which also attach weight to the investment strategy and long time horizon of the Fund. The mandate from the Ministry refers to international standards such as the UN Global Compact, the OECD Principles of Corporate Governance and the OECD Guidelines for Multinational Enterprises. The principles adopted by the board of directors of Folketrygdfondet are in conformity with these standards. Folketrygdfondet also refers to the UN-supported Principles for Responsible Investment (PRI) and the Norwegian Code of Practice for Corporate Governance (NUES).

Folketrygdfondet requires the companies in which the Fund is invested to address environmental, social and corporate governance issues. As a financial investor, Folketrygdfondet engages in key issues like financial objectives and capital structure, anti-corruption, executive remuneration schemes, climate, fundamental human rights, labour rights and the environment.

Folketrygdfondet has prepared its own guidance notes on these issues, which are designed to facilitate effective dialogue with companies. The notes are incorporated into Folketrygdfondet's responsible investment principles and based on the UN Global Compact and NUES.

Focus areas for active ownership

Folketrygdfondet assigns priority on environmental, social and corporate governance (ESG) issues of importance to the companies in the Fund's portfolio, which may have financial implications if not addressed by companies themselves. In 2016, Folketrygdfondet has focused on company efforts on financial objectives and capital structure, climate, aquaculture, anti-corruption, as well as fundamental human rights and labour rights. The objective is to make companies address key challenges, thus providing them with a solid foundation for long-term value creation. Folketrygdfondet uses various policy tools to achieve this, such as dialogue with companies, participation in general meetings and governing bodies, as well as the development of best practices.

Dialogue

The most frequently used tool is meetings with the chair of the company board and company executives. Companies may in such dialogue be asked for updates, feedback, clarifications or initiatives on specific matters or in relation to specific topics. In addition, companies will raise issues they expect Folketrygdfondet to address. In the Norwegian stock market, Folketrygdfondet holds regular meetings and maintains regular contact with company executives, and with the chair of the board on matters that fall within the responsibilities of the board of directors. In its annual report for 2016, Folketrygdfondet states that it has, over the year, engaged in 161 dialogue meetings with 61 companies. The agenda for these meetings has included key ownership issues, strategy, company and industry risk, as well as major ESG risks.

As far the fixed-income portfolio of the GPFN is concerned, there is a systematic effort to integrate environmental, social and corporate governance analyses into the credit ratings. Folketrygdfondet believes that a bond issuer's handling of key environmental, social and corporate governance issues may influence companies' credit risk.

General meetings and governing bodies

Participation in, and input to, general meetings, corporate assemblies and nomination committees are other key tools used by Folketrygdfondet in its active ownership. A key aspect of the exercise of ownership rights is voting in the general meetings of all companies of which Folketrygdfondet is a shareholder. In 2016, votes were cast in 56 annual and 12 extraordinary general meetings of companies listed on the Oslo Stock Exchange, as well as 87 general meetings of companies listed on stock exchanges in Denmark, Finland and Sweden. Generally speaking, Folketrygdfondet attaches considerable weight to the assessment of the board in addressing specific items on the agenda of a general meeting. In some cases, there may be conflict between proposed resolutions, the interests of shareholders and recognised corporate governance principles. Folketrygdfondet will in such cases normally request an explanation of the board's position prior to the general meeting. In those cases where it votes against the resolution proposed by the board, Folketrygdfondet will normally publish an explanation of its voting on its website.

Folketrygdfondet is focused on ensuring adequate expertise and an appropriate composition of company boards. The Fund is not itself represented on company boards, but expects the portfolio companies to have a nomination committee. In some cases Folketrygdfondet is itself represented on nomination committees, and it does provide input to committees on which it is not represented. In 2016, Folketrygdfondet was represented on seven nomination committees and four corporate assemblies.

Development of best practice

Folketrygdfondet is involved in various initiatives to develop best practices and standards for business activities, including the Norwegian Institute of Directors, the Norwegian Society of Financial Analysts and the Eierforum group of institutional investors. Folketrygdfondet is also one of the driving forces behind, and an active member of, the Norwegian Forum for Sustainable and Responsible Investment (NORSIF).

In 2016, Folketrygdfondet has represented NORSIF as a participant in the working group on the preparation of the Oslo Stock Exchange's guidance note on corporate social responsibility reporting. Folketrygdfondet believes that companies should report on material corporate social responsibility risks and opportunities, and expects Norwegian companies to comply with these guidance notes.

6.3 Experience with the coal and climate criteria in the GPFG

6.3.1 Introduction

In 2016, the ethically motivated Guidelines for Observation and Exclusion from the GPFG were expanded by two additional criteria. A new conduct-based climate criterion was introduced from 1 January 2016, under which observation or exclusion can be decided for companies where there is an unacceptable risk that they contribute to or are responsible for acts or omissions that on an aggregate company level lead to unacceptable greenhouse gas emissions. Furthermore, a new product-based criterion was introduced with effect from 1 February 2016, under which observation or exclusion may be decided for mining companies and power producers which themselves or through entities they control derive 30 percent or more of their revenue from thermal coal or base 30 percent or more of their operations on thermal coal.

In making the assessment under the product-based coal criterion, the guidelines stipulated that «… importance shall be attached to forward-looking assessments, including any plans the company may have that will reduce the share of its income or business based on thermal coal and/or increase the share of its income or business based on renewable energy sources.» The coal criterion shall not apply to green bonds.

The new criteria are discussed in the report on the management of the Fund in 2015 and in the National Budget 2016. In connection with the Storting's deliberation of the report on the management of the Fund in 2015, the Standing Committee on Finance and Economic Affairs stated, in Recommendation No. 326 S (2015–2016) to the Storting, inter alia, that: «… both the conduct-based climate criterion and the product-based extraction criterion for coal have only been in effect for a short period of time, and the Standing Committee is therefore anticipating a further assessment of operationalisation and appropriateness in the administration of the new criteria in connection with the report on the management of the Fund in 2016.»

The Ministry of Finance requested, in a letter of 19 October 2016 to Norges Bank and the Council on Ethics, an account of the experience thus far with the application of the two new criteria. In

assessing the two new criteria, the Ministry is focusing on which strategies and operating procedures Norges Bank and the Council on Ethics have established to follow up on these. Information exchange and coordination between Norges Bank and the Council on Ethics are also important. The Council on Ethics and Norges Bank have outlined their efforts in letters of 26 and 31 January 2017, respectively, to the Ministry.

As far as the climate criterion is concerned, it is for the Council on Ethics to identify any companies that may merit exclusion or observation. The corresponding responsibility with regard to the coal criterion is shared between Norges Bank and the Council on Ethics. Nonetheless, since the coal criterion requires follow-up and insight that Norges Bank is clearly best placed to provide, it is in practice primarily Norges Bank that identifies companies that may merit exclusion or observation under this criterion. The Council on Ethics states that the Council may best contribute by looking into borderline cases or examining companies that come to the attention of the Council after Norges Bank has completed its review of the portfolio.

6.3.2 The coal criterion

Norges Bank states that the criterion targeting companies that derive 30 percent or more of their revenue from thermal coal is most relevant for mining companies. Reporting from mining companies provides the information necessary to assess whether the criterion will apply.

Companies that base their operations on thermal coal are, on the other hand, primarily found within power generation. Norges Bank states that it starts out by identifying companies that derive 30 percent or more of their revenues from their own power generation, and then examines, amongst these, the composition of such power generation in terms of different energy sources. A company will be encompassed if 30 percent or more of its overall power generation, measured in energy units, is based on coal.

Norges Bank states that it has, in its follow-up of the product-based criterion, established systems for gathering and analysing corporate information. Information on corporate mining activities is, according to Norges Bank, often more readily available than information on power generation. As far as mining companies are concerned, accounting details will often provide enough information to assess the share of extraction represented by coal. For power generation, further analysis will often be required. Norges Bank states, inter alia, the following:

> «Sourcing information of sufficient quality and detail for the operationalisation of this criterion is a challenge. In addition to a general shortage of adequate data sources, the information reported by the companies themselves is not normally detailed enough for the analyses required. We have therefore contacted multiple suppliers and data sources. While the average level of different suppliers' data points is comparable, the individual data points can vary substantially. Reporting across different time periods and metrics is a particular challenge. All of the data we use are systematically structured and stored. Our data sources include suppliers of market data, internal analyses and selected investment banks. Information and analyses from our external managers have proven particularly useful when assessing companies in emerging markets.»

The guidelines state that «observation may be decided on when there is doubt as to whether the conditions for exclusion are met or as to future developments, or where observation is deemed appropriate for other reasons.» If a company has announced plans, or there are circumstances indicating that the company will be below the threshold within a reasonable period of time, it may be appropriate to place such company under observation. Plans for the acquisition or divestment of companies and assets, or for closing down, starting new, or making changes to production capacity may, according to Norges Bank, be examples of what should be taken into account for purposes of such assessment. Specific events that may recently have affected the mix of energy sources, such as draught or accidents, should also be taken into account.

Norges Bank has in 2016 announced the exclusion of 59 companies based on the product-based coal criterion, and placed 11 companies under observation. Norges Bank has also published the reasoning behind its decisions. None of the excluded companies have issued green bonds.

Norges Bank states the following in its letter:

> «We assessed relevant companies against the product-based coal criterion over the course of 2016. Going forward, we will continue our work on sourcing and analysing information. We need to follow up companies placed under observation, excluded companies and non-

excluded companies alike, in the light of changes of material importance to assessment against the criterion. In our work on the criterion in 2016, we found that purchases and sales of assets and subsidiaries can greatly affect whether a company is encompassed by the criterion or not. We will also need to assess any new companies entering the market.»

6.3.3 The climate criterion

The Council on Ethics states that the climate criterion provides limited information on which types of emissions it is intended to encompass. Unlike for most of the other criteria, there is not, according to the Council on Ethics, any regulatory framework or internationally recognised norm as to what is acceptable.

The Council on Ethics would, against this background, characterise its current efforts as involving the establishment of norms, and the Council has deemed it necessary to spend some time on this, in order to enable the adopted interpretation of the criterion to be applied across industries and companies. The Council on Ethics states the following:

«It is a challenge that there is little availability of the most relevant data, such as companies' greenhouse gas emissions, at the company level. The Council on Ethics is therefore of the view that it will be necessary to base the assessments on both emissions data, where these are available, but also on other indications, such as technology and raw material choices. It would be unfortunate if the Council on Ethics' application of the criterion only targeted companies that voluntarily report their emissions.

Even when emissions data are available, it will in heterogeneous industries be challenging to make company comparisons. The Council on Ethics is tentatively assuming that «aggregate company level» means that comparisons can be made between different companies, but in such cases on comparable activities, such as for example emissions relating to all production of comparable products.

Companies that have large emissions in absolute terms, while also having specific emissions that are unnecessarily much higher than the industry average, may be considered for exclusion. If the company has high emissions and no relevant plans pointing towards the objectives under the Paris Agreement, this may have an impact on the Council's assessment. Both high specific emissions and missing, languishing or vague plans may thus give rise to an assessment as to whether a company's «acts […] lead to unacceptable greenhouse gas emissions.»

The Council on Ethics will process recommendations under the climate criterion in the same manner as recommendations under other criteria. The recommendations will be published in the ordinary manner. Thus far, no company has been excluded from the Fund on the basis of this criterion.

6.3.4 The Ministry's assessment

The Ministry of Finance has taken note of the accounts provided by the Council on Ethics and Norges Bank of their experience and efforts thus far in relation to the climate and coal criteria.

The letters refer to the division of responsibilities established between Norges Bank and the Council on Ethics in their follow-up of the product-based coal criterion. It is important for the criterion to be followed up effectively, without unnecessary duplication. The Ministry is of the view that the division of responsibilities established between the Council on Ethics and Norges Bank is conducive to this.

The companies that are excluded and the companies that are placed under observation are assessed against the criteria in the guidelines. There may also be new companies meriting assessment under the coal criterion. The Ministry has noted that Norges Bank will continue its information gathering and analysis efforts, and that the Council on Ethics believes that it is most appropriate for Norges Bank to retain principal responsibility for the implementation of the coal criterion.

The Ministry noted, in its report on the management of the Fund in 2014, that the conduct-based climate criterion will apply irrespective of industry or sector and type of greenhouse gas. It should accommodate potential norm developments in this field over time, in line with, inter alia, energy production changes and technological developments. The climate criterion addresses a field where there is a dearth of both available experience and relevant norms and standards. The Ministry has taken note of the challenges highlighted by the Council on Ethics in its letter. A thorough preparatory effort to interpret the criterion is a priority, thus enabling it to be applied across industries and companies, as noted by the Council on Ethics.

The Ministry also refers to the discussion in the report on the management of the Fund in 2014, which drew, inter alia, on a report submitted by an expert group chaired by Martin Skancke:

> «The Ministry has also noted that the expert group emphasises that it seems reasonable, in considering the severity of a breach of ethical norms in this area, to focus, as one of several considerations, on emission intensity, and not necessarily on absolute emission levels. By emission intensity is meant emissions relative to, for example, production or sales. The Ministry agrees with the group that it should be possible to evaluate comparable companies against each other, although it is difficult to establish absolute measures of emission intensity.
>
> The proposed wording also makes clear that both *acts and omissions* may give rise to observation or exclusion under this criterion. It further accommodates a focus on the *aggregate company level*. Such a general company assessment is appropriate in view of the underlying premise of existing systems for curtailing greenhouse gas emissions and limiting global climate change, that activities in one area may be offset by activities in other areas, for example through trading in quotas. (…)»

«To an unacceptable degree» implies that gross norm violations are the target, in line with the established high threshold for exclusion under the Guidelines for Observation and Exclusion. The Ministry also take it that the assessments shall continue to be forward-looking.

In 2016, meetings were held between the Executive Board of Norges Bank and the Council on Ethics, and between NBIM and the secretariat of the Council on Ethics. The purpose was to exchange information and coordinate efforts. The Ministry is of the understanding that the arrangements for information exchange and coordination established between Norges Bank and the Council on Ethics are well-functioning.

6.4 Climate risk

6.4.1 Introduction

For a long-term investor like the GPFG, the return on invested capital will largely follow economic growth in the world economy. Climate risk in the form of climate change, climate policies and the technological development effects of these may influence long-term returns. The mechanisms influencing the interrelationship between climate risk and future returns in financial markets are, at the same time, uncertain, because of limited empirical data and little research in this field. Knowledge and awareness of the financial risk associated with climate change are therefore important in the management of the GPFG.

The Mork Commission, which examined the equity share of the GPFG, also discussed these issues, observing that future climate policy is subject to considerable uncertainty, such as for example the follow-up of the climate accord agreed in Paris in 2015. The Paris-agreement established a long-term, global aim of holding the increase in the global average temperature well below 2° C above the preindustrial level and seeking to limit such temperature increase to 1.5° C.

Climate risk is *systemic*, in that if affects economic growth and overall corporate earnings. It is also *market-specific*, in that the return on exposed asset classes, sectors and companies is affected more than other returns. At the same time, new investment opportunities materialise in those parts of the economy which are less exposed to such risk or which develop or promote new solutions. Systemic and market-specific risk are discussed in sections 6.4.2 and 6.4.3.

Climate risk has for a long time formed an integral part of the management of the Government Pension Fund. The mandates for the management of the GPFG and the GPFN are based on the premise that favourable returns in the long run depend on sustainable development and well-functioning markets. Sections 6.4.4 and 6.4.5 provide an overview of the role accorded to climate risk in the operational management of the two funds. The tools used are focused on both systemic and market-specific risk. The Ministry of Finance's assessment of the efforts relating to financial climate risk is outlined in section 6.4.6. In addition to the focus on climate risk in asset management, certain climate-related criteria have been included in the ethically motivated Guidelines for Observation and Exclusion from the GPFG; see Box 6.2. These supplement the other tools.

6.4.2 Systemic risk

The Government Pension Fund is a large fund, with a long time horizon and ownership stakes in several thousand companies globally. This makes developments in the value of the Fund vulnerable

to risk factors that may impair global production and the earnings of the companies in which the Fund is invested.

The World Economic Forum identifies, in its Global Risks Report 2017, the risk of inadequate climate measures and adaptation as one of the key global risk factors for the next decade.[1] The IMF believes that climate change constitutes a significant risk factor for macroeconomic development.[2] The Intergovernmental Panel on Climate Change (IPCC) notes that a 2° C temperature increase is likely to have a negative impact on global economic growth.[3] The panel estimates the average GDP reduction at 0.2 – 2.0 percent, depending on which country is examined. The panel identifies, at the same time, factors that may serve to exacerbate this effect. Although these numbers are uncertain, there is a broad consensus that overall economic growth is likely to be higher in a scenario where global temperature increases are curtailed.

According to the Bank of England, climate change may threaten the stability of global financial markets in several ways.[4] Physical damage may inflict losses on business and affect trade. There is also a risk of litigation against businesses for physical damage suffered as the result of carbon emissions or the extraction of oil, gas and coal. Climate change may also pose significant challenges to companies and governments in terms of their ability to restructure. Restructuring of activities may impact the prices of many financial assets and inflict major losses on investors. Increased uncertainty may in itself exacerbate the financial implications.

In January 2016, the Financial Stability Board (FSB) established a working group tasked with examining how companies might report better and more systematically on climate-related risk. The group submitted its report in December 2016.[5] An updated report is expected in June 2017, following a public consultation.

The working group wanted to develop a uniform reporting tool for the financial risk associated with climate change, which companies may use voluntarily. Its purpose is to reduce the risk of financial instability by providing investors, banks and other financial institutions with better, more accessible and more comparable reporting as a basis for investment decisions.

The working group notes that climate change and the transition to a low-emission economy entail considerable risk, but also opportunities, for investors.

The working group recommends companies and investors to report on how climate risk is factored into strategy processes, and how such risk is identified, measured and managed. The working group encourages, as part of such reporting, stress testing of companies' business model for different climate policy scenarios, including one that realises the objectives under the Paris Agreement.

6.4.3 Market-specific risk

Individual asset classes, sectors and companies can be more or less exposed to climate risk. Such market-specific risk is analysed in several reports published in recent years. The reports outline various scenarios for climate change, climate policy and technological development, and examine how the prices of various types of securities are affected in these scenarios. Such analyses are useful in that they illustrate the short run impact of a shift from one climate scenario to another, for example as the result of a change in market expectations. At the same time, such analyses show a static picture, in that changes in activity over time, at both the company level and sectoral level, are not factored into the analysis.

A report from the University of Cambridge Institute for Sustainability Leadership[6] looks at three such scenarios to shed light on market-specific risk: active climate policy to realise a two-degree objective, no climate policy measures and the current climate policy measures. The latter is assumed to be somewhere between the first two scenarios. Financial loss as the result of changing market expectations is analysed for each of the scenarios, before climate risk is actually realised. Such expectations may change swiftly, for example as the result of climate accords. The findings

[1] World Economic Forum, Global Risks Report 2017, 12th Edition, 2017.

[2] International Monetary Fund, Managing Director's statement on the role of the Fund in addressing climate change, 25 November 2015.

[3] Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers. I: Climate Change 2014: Impacts, Adaptation and Vulnerability, 2014.

[4] Mark Carney, Governor of the Bank of England, «*Breaking the Tragedy of the Horizon — Climate Change and Financial Stability*", speech given at Lloyd's of London, September 2015.

[5] Financial Stability Board, Recommendations of the Task Force on Climate-related Financial Disclosures, 14 December 2016.

[6] The University of Cambridge Institute for Sustainability Leadership, Unhedgeable risk: How climate change sentiment impacts investment, 2015.

show that investment portfolios with a high equity share are particularly exposed to the scenario with no climate measures, although portfolios with a low equity share are also affected by such scenario in the short run. The two-degree scenario entails a risk of financial loss in the short run, which varies little with the equity share. Moreover, the findings show that sectors with a large carbon footprint are relatively more affected in the various scenarios than are sectors with a small carbon footprint. A corollary to this may be that other sectors are made to seem more attractive.

The consultancy firm Mercer has also analysed long-term climate risk in financial markets (to 2050), based on various climate policy and technology development scenarios.[7] In all scenarios examined by Mercer, financial market returns are affected by climate policy measures or technological developments, but primarily at the sectoral level, and only to a lesser extent at the company level. Sectors involving climate-friendly energy production, including renewable energy and nuclear power, are doing relatively well, while sectors with a large carbon footprint, especially the coal and oil sectors, are doing less well. Findings are mixed as far as asset classes are concerned. Equities of developed market companies, small companies and unlisted companies appear to be particularly vulnerable to downside risk. In a two-degree scenario, involving forceful climate policy measures, equities in emerging markets, infrastructure, real estate, as well as forestry and agricultural investments, are identified as potential «winners» within a time horizon up to 2025. In the longer run, well-diversified portfolios with a long investment horizon are less vulnerable.

BlackRock, which is one of the world's largest asset management companies, has noted in a report that climate risk gives rise to both market risk and investment opportunities.[8] The report identifies four climate risk channels: physical damage, technological development, regulatory and social risk. In the short run, regulatory risk may be of particular importance, while technological risk is of prime relevance in the intermediate run. In the long run, the report is highlighting physical damage. BlackRock is of the view that climate risk is accumulated, rather than reduced, over time. The report discusses various strategies for addressing such risk, and emphasises that investors must be prepared for higher pricing of carbon emissions.

6.4.4 Climate risk in the management of the GPFG

Systemic risk is of particular importance to a universal, long-term investor like the GPFG. Hence, it is important to focus on such risk.

Climate risk has influenced the management of the GPFG for a number of years. The mandate from the Ministry of Finance to Norges Bank refers to internationally recognised standards for responsible management, in which environment and climate have been accorded key roles. Climate change is one of the focus areas of Norges Bank. Norges Bank is involved in standard setting, research, the exercise of ownership rights and the handling of climate risk at the company level.

One policy tool encompassing the entire portfolio of the Fund is participation in the development of internationally recognised principles and standards for handling systemic climate risk. Norges Bank's support for CDP (formerly known as the Carbon Disclosure Project) is an example of this. CDP is an independent organisation that, inter alia, gathers and publishes information on businesses' greenhouse gas emissions, as well as other information on the handling of emissions.

Norges Bank has over time supported research into risk factors that may impact future returns on the GPFG, including climate risk. In 2015, Norges Bank provided financial support for the first global conference on assets whose value may be severely impaired as the result of climate change, so-called «stranded assets». Norges Bank has also funded a seminar and a literature study to evaluate climate change theories within financial economics under the auspices of the Department of Economics at the University of Oslo,[9] and has included financial economics and climate change as a theme in the research programme under the Norwegian Finance Initiative (NFI), established by Norges Bank.

In 2009, Norges Bank published an expectation document on climate to strengthen the role of

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7 Mercer, Investing in a time of climate change, 2015. See also: Mercer, Climate Change Scenarios – Implications for Strategic Asset Allocation, 2011, a report to which the Ministry of Finance contributed through participation in the evaluation project, along with large pension funds.

8 BlackRock, Adapting portfolios to climate change, September 2016.

9 See Ingrid Hjort, *Potential Climate Risks in Financial Markets: A Literature Overview,* Memo 01/2016, and *Potential Climate Risks in Financial Markets: Report from a workshop, January 20, 2016*, Memo 02/2016, Department of Economics, University of Oslo.

climate risk in the exercise of ownership rights. The expectation document forms part of the basis for the asset manager's dialogue with companies. The document has subsequently been updated in 2012 and 2015. Norges Bank expects, inter alia, companies to assess the risk associated with their long-term business strategies, as well as their profitability under various future regulatory and physical climate scenarios. In order to support strategic decision-making, companies should identify future scenarios for climate policy, carbon pricing and environmental conditions.

The investments in the GPFG are diversified across asset classes, countries, currencies, sectors and individual companies. Consequently, climate change may influence financial returns differently for different parts of the portfolio. Norges Bank assesses the portfolio companies on an annual basis as part of its follow-up of climate risk, especially market-specific risk. Large greenhouse gas emissions may expose a company to the risk of new regulations and other market changes. These assessments may give rise to risk-based divestment in certain companies and sectors. Such divestments are financially motivated. Companies' greenhouse gas emissions are a key element in Norges Bank's risk assessments. Over the course of 2016, Norges Bank assessed 1,238 companies in eight industries involving particularly high climate risk. The Fund has divested from a total of 68 companies on the basis of the climate risk posed by such emissions.

In order to assess the overall climate risk in the GPFG, Norges Bank analyses greenhouse gas emissions from the companies in the equity portfolio. In 2016, Norges Bank estimated the so-called carbon footprint of the equity portfolio for the third year running. The analyses shows, on the basis of emissions data for companies' direct emissions (scope 1) and indirect emissions from procured energy and heating (scope 2), that the emissions of the companies in the actual equity portfolio are 4 percent lower than in the equity benchmark for the Fund. This applies, in particular, to companies within materials, oil and gas, as well as power and water supply.

The benchmark index for the Fund implies that the GPFG holds considerable investments in companies engaged in environment-related activities. At yearend 2016, about 7 percent of the equity benchmark comprised companies with more than 20 percent of their earnings from such activities. The investments in environment-related companies, including renewable energy companies, will as a general rule increase if these grow as a proportion of global listed stock markets.

In 2009, the Ministry of Finance decided to establish a specific allocation for environment-related investment mandates. This allocation is currently in the range NOK 30–60 billion. The environment-related investments are subject to the same risk and return requirements as the other investments of the Fund. At yearend 2016, the market value of the securities (equities and green bonds) encompassed by the environmental mandates was about NOK 64 billion. These can be categorised as investments in renewable energy and alternative fuels, energy efficiency and natural resource management.

6.4.5 Climate risk in the management of the GPFN

Folketrygdfondet has for a long time attached weight to climate risk in the management of the GPFN, and has launched a number of initiatives. Examples of initiatives targeting systemic risk are support for international standards in the field, expectations communicated with regard to company reporting, risk assessments and company dialogue. Folketrygdfondet joined CDP in 2009. The objective is to reduce climate risk in the portfolio over time.

Folketrygdfondet expects the companies in the equity portfolio of the Fund to handle their own climate risk, and to provide reliable information on this in their public reporting. Greenhouse gas emissions are defined as a key risk factor to which the GPFN portfolio is exposed. Folketrygdfondet is therefore focused on how each company addresses climate issues. This applies both to the assessment of risk and to potential measures, such as reduction of own emissions and adaptation to changes in laws and regulations, customer preferences, weather conditions and raw material access. At the same time, Folketrygdfondet wants companies to be able to spot the long-term opportunities that will arise. Folketrygdfondet is of the view that companies which take climate risk seriously and integrate it in their business strategies can be more profitable in the longer run.

Folketrygdfondet is dependent on good and reliable information that the Fund can use in its company analyses. It therefore emphasises the need for companies to report on emissions, as well as on material climate-related risks and opportunities. The reporting may encompass environmental accounts, energy consumption and greenhouse gas emissions. Folketrygdfondet has

prepared a guidance note detailing its expectations on companies' climate risk follow-up and their reporting of risks and opportunities, as well as objectives and performance.

Folketrygdfondet has carried out emissions analyses since 2013. In 2016, Folketrygdfondet compared the greenhouse gas emissions in the equity portfolio with the emissions in the equity benchmark. The analysis showed that the emissions intensity in the equity portfolio of the Fund was lower than in the benchmark index. Folketrygdfondet holds the emissions analysis to be an important tool for identifying financial risk in the future pricing of carbon emissions. Such analysis is also used as a basis for the exercise of ownership rights.

6.4.6 The Ministry's assessment

The objective for the investments in the Government Pension Fund is to achieve the highest possible return with a moderate level of risk. There is a broad political consensus that the Fund shall not be a foreign policy or climate policy tool. The assessments in this section therefore start out from a financial premise.

Climate is an important financial risk factor for the Government Pension Fund in the long run. The Fund is large, has a long time horizon and has investments spread across thousands of companies. It is therefore especially exposed to systemic risk, in that economic growth and overall corporate earnings are affected by, inter alia, climate change. The mandates for the management of the GPFG and the GPFN are based on the assumption that favourable long-term returns depend on sustainable development and well-functioning markets. The mandates also refer to internationally recognised standards for responsible management, in which environment and climate have been accorded key roles.

Climate risk is an integral part of the management of the GPFG and the GPFN. The funds are large investors in the markets in which they operate, and shall promote improved international standards and corporate reporting on climate issues. This requires operational management expertise, but also general knowledge of the relationship between climate and financial market risk. Participation in, and support for, research will therefore continue to be important in coming years. Norges Bank and Folketrygdfondet also have other policy tools aimed at curtailing the systemic risk resulting from climate change, both in risk management and in active ownership.

The general policy tools also contribute to enhanced awareness and understanding of the market-specific risk associated with climate change. However, biasing the composition of investments to address market-specific risk is more challenging. The investment strategy is based, inter alia, on the assumption that financial markets are generally well-functioning, with a high level of competition between market participants. This means that new information in the public domain is swiftly reflected in securities prices. This must, generally speaking, be assumed to apply to climate risk as well, thus implying that securities prices must be held to reflect the overall market assessment of, inter alia, the probability that various future climate change scenarios will materialise. If such is the case, only investors with an informational advantage will be in a position to modify their investments to achieve a better return than the market.

The Ministry assumes that one does not, in the management of the Government Pension Fund, have systematically better information on climate risk than other investors. Potential modification of the investments will, moreover, require proximity and in-depth knowledge of the markets. In the framework governing the Government Pension Fund, such assessments are delegated to the asset manager, within the scope of the mandates, along with other portfolio adjustments that cause deviations from the benchmark indices. The Ministry of Finance expects Norges Bank and Folketrygdfondet to continually assess market-specific climate risk in their asset management.

6.5 Expectation document on transparency in international corporate taxation

In the Standing Committee on Finance and Economic Affairs' hearing on the report on the management of the Fund in 2015, the Minister of Finance raised the issue of closed jurisdictions and financial transparency in the companies in which the GPFG is invested. The Minister of Finance pointed out that transparency and good reporting builds trust, prevents secrecy and supports correct taxation, and observed that Norges Bank is already focused on such issues in its active ownership. The Standing Committee on

Finance and Economic Affairs stated, inter alia, the following in its recommendation:

> «The Standing Committee is of the view that enhanced transparency and reporting requirements for the companies in which the GPFG is invested, with regard to revenue flows and tax positions, can counter the effects of the secrecy offered by such jurisdictions. Clear expectations from financial investors, such as the GPFG, in this regard can counter the use of closed jurisdictions to conceal unlawful acts such as, inter alia, corruption, money laundering and tax evasion, and thus promote more well-functioning and legitimate markets. The Standing Committee believes that it will be important to have more knowledge of the various aspects of tax issues in, and associated with, the companies in which Norges Bank is invested.»

The Storting adopted, against this background, the following petition resolution:

> «The Storting petitions the Government to request Norges Bank to consider the preparation of an expectation document on tax for the companies in which the Fund is invested.»

In a letter of 29 June 2016, the Ministry of Finance requested Norges Bank to consider the prospects for preparing such an expectation document, in line with the resolution of the Storting. Norges Bank has outlined its assessments in a letter of 30 January 2017.

Norges Bank endorses the importance of transparency and good reporting to build trust, prevent negative secrecy implications and support correct taxation across jurisdictions. As a long-term, global investor, Norges Bank wishes to promote standards and practices that facilitate competition on equal terms and are sustainable in the longer run.

Norges Bank is planning to issue an expectation document on transparency in international corporate taxation during the first quarter of 2017. In preparing such document, Norges Bank will solicit input from relevant experts, businesses and other stakeholders. Norges Bank will approach this from the perspective of investors' role in corporate governance, international frameworks and best practice.

Norges Bank furthermore notes, in its letter, that it is for the authorities to determine the tax level and enforce the tax legislation. Various initiatives are currently underway to strengthen the international framework for the taxation of multinational enterprises, for example the OECD Base Erosion and Profit Shifting (BEPS) package. Norges Bank assumes that the national implementation of such regulatory frameworks will over time serve to make corporate taxation more predictable and consistent across countries. It may also serve to level the playing field as far as completion is concerned, and make complex tax-motivated structures less attractive. Norges Bank believes that the role of investors in this regard can be to promote good international standards and transparency on the part of companies. This can facilitate legitimate and well-functioning markets.

Norges Bank bases its contact with companies on the division of responsibilities between owners and company boards, as laid down in for example the G20/OECD Principles of Corporate Governance. Norges Bank believes that increased transparency can make it easier for investors to assess company strategy and any risks associated with cross-border taxation. Norges Bank assumes, at the same time, that investors will not be in a position to follow up the details of the strategies chosen by companies in their approach to taxation.

Norges Bank's expectation document on transparency in international corporate taxation will complement the four existing expectation documents on human rights, climate change, water management and children's rights.

6.6 OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are voluntary recommendations intended to promote responsible conduct in all business sectors; see Box 6.1. Countries that have adopted the guidelines are obliged to establish national contact points for responsible business conduct. The contact points are mandated to spread knowledge about the guidelines and offer dialogue and mediation in individual cases. There are major variations between countries in how the 46 contact points are organised, and what resources they have at their disposal. A more uniform practice is sought, in order that companies may be provided with similar follow-up of the guidelines on the part of the authorities and the contact points, irrespective of which of the relevant countries their businesses are located in. The Norwegian contact point is contributing actively to this effort.

The management mandate for the GPFG requires Norges Bank to adopt a broad set of responsible investment principles. The principles shall reflect environmental, social and corporate governance considerations in line with internationally recognised principles and standards, including, inter alia, the OECD Guidelines for Multinational Enterprises.

A research report prepared in 2013 showed that many financial institutions regarded the OECD Guidelines for Multinational Enterprises as unclear, and that the guidelines are little used in the financial sector. In 2014, the OECD discussed the interpretation of certain principles and terms in the guidelines, among other things in response to an enquiry from Norway. This work was supervised by the OECD's investment committee and a working group on responsible business conduct. It was agreed that the guidelines are also applicable to the financial sector, including, in principle, to minority shareholders. However, the guidelines do not discuss explicitly how their provisions shall be applied to financial investments. This contrasts with the provisions on, for example, the responsibility of purchasers for suppliers.

The OECD has for several years worked to develop specific due diligence guidance on how the guidelines can be applied in different sectors. In the autumn of 2015, work began on a due diligence guidance on the use of the guidelines in the financial sector. This work was supervised by the working group on responsible business conduct and a reference group comprising representatives from government bodies, industry, international organisations, trade unions and academic institutions. The Ministry of Finance and Norges Bank have participated in the reference group. The due diligence guidance for institutional investors was approved by the OECD in early 2017 and launched in late March. The OECD is also guidance for other parts of the financial sector.

Part II
Thematic articles

7 The national wealth and the investments in the GPFG

Financial theory suggests that the composition of financial wealth should be considered in the context of the investor's liabilities and other wealth. There is a comprehensive research literature on portfolio choices for households, and the Mork Commission examined how such research can be applied to Norway as a financial investor. This thematic article outlines how the investments in the GPFG can be considered in such a framework. In this report, this perspective is also discussed in section 3.1 on the equity share.[1]

Theoretical framework

The financial wealth in the GPFG places Norwegian government finances in a special position internationally. The financial wealth held by central government corresponds to almost three years' GDP in the mainland economy. Few others countries are in a similar position. This may be one of the reasons why there is little discussion of portfolio choices for countries in financial literature. However, there is an extensive literature studying corresponding issues for households.

Classic contributions to the literature on portfolio choices for households were focused on purely financial assets. Later on, the literature was expanded to also take into account assets that cannot be traded in a market. Another key part of the literature examines the relationship between preferences for stable consumption and the compensation expected for carrying risk. See chapter 6 of the report of the Mork Commission for a detailed review of the literature.

Some contributions also look at other economic agents than households. Merton (1993) seeks to model the preferences of a university endowment. Bodie and Briere (2013) examines sovereign wealth funds, and note that one must, in addition to looking at central government's aggregate wealth and liabilities, also look at the country's human capital and natural resources. Bremer et.al (2016) examine portfolio choices for countries that also have petroleum in the ground, but do not consider all aspects of the national wealth.

The literature starts out from the premise that risk can be categorised into risk that is tradable, in the form of securities trading, and risk that is not tradable. Listed equities, which confer a right to the profits of a company after other liabilities have been paid, are an example of tradable, risky income. An individual's future labour income is also uncertain, but cannot be traded in the same way as a security. Consequently, it is an example of non-tradable, risky income. It is also usual to consider the economic rent from natural resources as the net present value of non-tradable capital income.

A decision as to how much financial risk a household shall take and how it shall compose its portfolio of tradable, financial assets must, according to financial theory, be considered in connection with the quantities and characteristics of other, non-tradable income and assets, as well as what the resources are going to be used for. Such a balancing of the portfolio serves to maximise the welfare of the household, by optimising the ratio between expected risk and return in total wealth.

For a household it is appropriate to start out from an overall asset and liability balance sheet. The asset side will comprise capital and the estimated net present values of all future income (total wealth). Typical assets of a household will be real estate, financial assets such as equities and bank deposits, as well as future labour income. For a young household, future labour income will usually represent the main wealth component. For an older household, its home and financial assets will tend to be the main wealth components. The liability (debt) side of the balance sheet is the net present value of future liabilities, for example payment for the purchase of goods and services. Such net present values can be difficult to calculate in practise and with a high degree of precision. There must over time be assumed a balance between income and expenses. This implies that the net present value of future liabilities, in the form of purchase of goods and services, cannot exceed the net present value of future income.

[1] The thematic article is based on chapter 6 of the report of the Mork Commission (NOU 2016: 20 green paper).

The quantities and qualities of the assets and liabilities affect the ability to absorb risk. For most households, their labour income will be less risky than their financial income. Early in working life, the value of a household's future labour income is relatively high. The theory then suggests that the household should hold a large share of equities in its financial portfolio since the large, non-tradable future labour income has a risk profile corresponding to that of a fixed-income portfolio.[2] When a household is nearing the retirement age, the value of future labour income is relatively low. The household should then hold more fixed-income securities and less equities in its financial portfolio, such as to keep the risk in its overall assets more or less unchanged.

It can be challenging to change consumption habits from year to year. It is reasonable to assume that most households prefer relatively stable consumption of goods and services. High financial risk taking may conflict with the ability to maintain stable consumption. Stable future consumption may be considered a liability item, or as a negative holding of a low-risk asset, such as fixed-income securities. This should be matched by low-risk income. The more stability is desired, the more will a household need to be compensated in the form of a higher expected return in order to carry risk. Over a longer time horizon there may, at the same time, via economic growth, be a link between expected return and household consumption expectations. A desire to maintain the relative funding contribution from the financial wealth may then work in the opposite direction.

The asset allocation in the financial wealth should, moreover, be adapted to the implicit holding of various assets, such as non-tradable natural resources. All else being equal, more risky non-tradable wealth components will imply that it is optimal to have a less risky asset allocation in the financial wealth. This insight implies that it is not necessarily optimal to keep the asset allocation in the financial wealth fixed over time, as the relative magnitude of the various wealth components may change over time.

Is the investor the Norwegian government or the nation of Norway?

Public sector finances have distinctive characteristics compared to the finances of private agents. Households and businesses have a limited lifespan and income that is largely market-determined. Government is an agent with an infinite lifespan, in principle, and whose most important source of revenue is its right to tax private sector economic activity. Its lifespan means that government may adopt a very long time horizon for its financial investments.

For households and businesses, a financial balance sheet of assets and liabilities can be prepared, which in addition to the wealth components requires an estimate of the net present value of future cash flows. For government, however, it is difficult to estimate the net present value of its key asset, the right to tax households and businesses. Furthermore, it is difficult to estimate future expenditure, since government's obligations to provide public services are predominantly political rather than contractual. Consequently, public sector revenues and expenditures are not directly comparable to the income and expenses of a household or business, but rather a policy tool for using the real resources of society in a political desirable manner.

Taxes on private sector economic activity is the dominant source of public sector revenues. Tax revenues differ from the non-financial income of households in that these are not determined in a market – in principle, government can itself decide what proportion of economic value to channel into the public coffers via the tax system. At the same time, the structure of the tax system may affect both labour input and productivity in the private sector, and thus also the tax base. Major parts of government revenues will in practice take the form of so-called distortive taxes, which are assumed to have a negative impact on private sector economic activity. This is also referred to as the marginal cost of public funds. The negative effects are assumed to be particularly high when tax rates are high or vary significantly over time. This will in practice limit what proportion of economic value can be taxed.

The Ministry of Finance prepares, on the basis of projections for the Norwegian economy and population, estimates for long-term developments in public revenues and expenditures. The purpose of these estimates is to analyse the sustainability of government finances, i.e. whether current welfare schemes can also in future be funded at the current tax level. The analyses in, inter alia, the 2017 white paper on Long-Term Perspectives on the Norwegian Economy shed light on this issue.

Another key difference between government tax revenues and the income of private parties is

[2] The relationship is less unambiguous if there is a correlation between labour income and long-term equity returns, see e.g. Collin-Dufresne and Goldstein (2006).

that the primary function of taxation is to channel purchasing power away from the private sector in order to manage the allocation of the overall real resources of society in the form of manpower and production equipment. For households, income is, irrespective of whether it comes in the form of wage income, capital income or transfers, the basis for purchasing goods and services. Resource use in society can also be managed through government orders and regulations that directly affect resource allocation. Government can, for example, introduce conscription instead of taxing households to employ professional soldiers. The limitation on government activity, the budget constraint, is not primarily financial, but determined by which real resources are available.

The revenues from the GPFG are foreign currency revenues, which are invested abroad and can only be used to pay for goods and services produced abroad. The alternative would have been to fund such imports through export revenues.[3] This would have required man-hours and productive capacity that can instead be used in production for domestic consumption or investment. Hence, the foreign currency revenues from the GPFG do not directly increase the number of man-hours available in the Norwegian economy, but changes the composition of production. A decline in such revenues would reduce consumption opportunities over time, but can be partially countered by increasing domestic labour supply and production.

The Mork Commission noted that the distinctive characteristics of the government balance sheet and the GPFG imply that it is inappropriate to consider the Fund in the context of other public sector revenues for purposes of assessing the investment strategy of the GPFG. Instead, the Commission recommended that the Fund be considered in the context of overall economic activity in Norway.

Norway's national wealth

The national accounts specify the value and composition of overall economic activity in Norway in a single year. A weakness of the calculations in the national accounts is that these do not reflect whether natural resource revenues are sustainable over time. Petroleum activities mean that oil and gas are converted into revenues that are

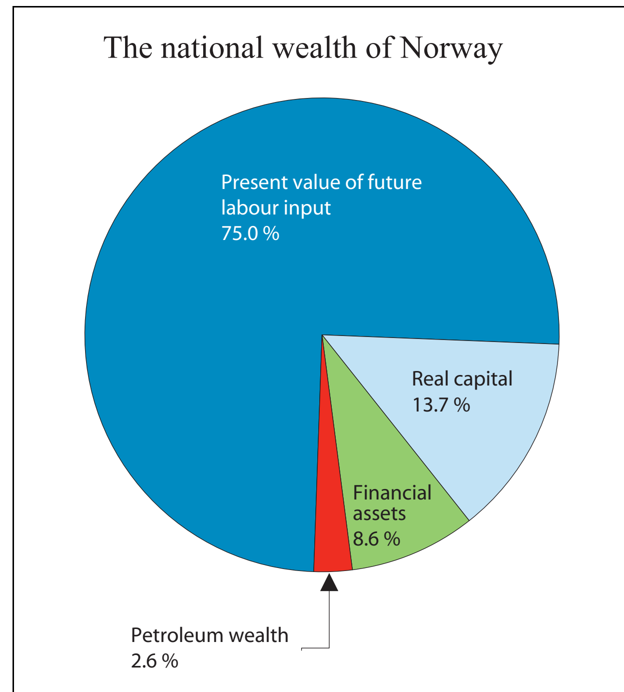

Figure 7.1 Net national wealth. Percent

Source: Ministry of Finance.

included in GDP, while the reduction in petroleum resources on the Norwegian continental shelf is not reflected in the national accounts. Overexploitation of renewable natural resources will also be reflected in a temporary revenue increase in the national accounts. Since Norway's ongoing revenues are influenced by large, but temporary, petroleum revenues, the national wealth provides a better illustration of the factors that will contribute to Norway's future revenues.

The national wealth can be calculated in different ways, but the wealth is generally defined as the net present value of the future consumption opportunities it provides. Such calculations are presented in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy; see Figure 7.1. These comprise calculations for four components included in overall national wealth:[4]

- *Human capital.* The human capital is estimated as the net present value of future labour input.
- *Natural resources*. The petroleum wealth estimate is calculated as the net present value of future economic rent in the petroleum sector. As a simplification, other natural resources are disregarded.

[3] In the short run, imports may also be funded by borrowing abroad.

[4] The method used, as well as alternative calculation methods, is outlined on the Ministry of Finance's website.

- *Fixed assets*. The national accounts use the estimated value of fixed assets, calculated at the replacement cost of such assets.
- *Financial wealth*. Estimate of Norway's net financial wealth abroad from the Statistics Norway financial balance sheets. The GPFG accounts for most of the financial wealth.[5]

The net present value of future labour input is estimated to represent about three fourths of overall national wealth. This implies that long-term welfare developments will primarily be determined by labour input and how much one gets from each man-hour (the productivity of labour). Both the part of the wealth that has been extracted in the form of oil and gas reserves, and invested in the GPFG, and the part remaining on the seabed in the form of petroleum resources, are estimated to represent much smaller portions. Fixed assets, financial wealth and future economic rent in petroleum activities are estimated at 14 percent, 9 percent and 3 percent, respectively, of the national wealth.

Estimates from such calculations are uncertain. The value of the petroleum wealth depends, inter alia, on the future oil price. Moreover, the value of the human capital depends on future productivity growth. If long-term economic growth is significantly weaker than anticipated, the net present value of future production – and thus the net present value of the human capital – will also be less than estimated. If long-term productivity growth is lower, it is likely that the return on the financial wealth, including the GPFG, will also be lower. In addition, the value of the human capital depends on the labour input per capita. If an average worker works longer hours in future, the value of the human capital will also increase. Hence, future generations' trade-offs between consumption and leisure will be decisive.[6]

The uncertainty does not only pertain to the magnitude of these components, but also to the relationships between them. There may be a correlation between certain parts of the assets and liabilities, because both of these are influenced by the same underlying causes, for example future productivity growth. Such interrelationships are difficult to estimate and may vary over time.

A national wealth perspective is one potential approach to certain choices…

The theoretical framework for the composition of a decision-maker's financial wealth involves comparing the net present value of future income to the net present value of future liabilities. The composition of the financial wealth shall then be such as to optimise the ratio between expected risk and return for the overall wealth, considering the future liabilities. For the GPFG, it will in such a framework be appropriate to adopt a national wealth perspective, in which the financial wealth is considered in the context of society's other revenues.

Such a perspective may shed light on key choices in structuring and investing the financial wealth in the GPFG. The equity share largely determines the level of risk in the GPFG, and is an example of a choice that may be approached in this manner. For government, the economic rent from underground oil and gas reserves is uncertain. The oil price has historically been highly volatile. The conversion of such economic rent into well-diversified financial wealth abroad serves, all else being equal, to reduce the risk associated with the overall petroleum wealth. One may therefore, for a given level of risk, carry more risk in the financial part of the petroleum wealth as the value of the oil remaining in the ground is reduced over time.

Both the Mork Commission and Norges Bank pointed to the significant conversion of wealth that has taken place in recent years, from underground oil and gas reserves to financial wealth abroad, which, when taken in isolation, is an argument in favour of a higher equity share in the GPFG; see section 3.1. At the same time, the framework implies that other considerations must also be taken into account in choosing the level of risk. The guidelines for fiscal policy and the Fund's explicit objective facilitate a long time horizon and the ability to withstand short-term fluctuations in value. In addition, it needs to be taken into account how large fluctuations in overall consumption the nation can tolerate over time. A revenue shortfall will have a negative impact on consumption opportunities. It is, as noted by the Mork Commission, undesirable to have large fluctuations in the tax level and the standard of public

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[5] Klaus Mohn (2016) finds few indications that increased savings on the part of government is offset by increased borrowing on the part of the private sector. Nor is it reflected in significant private sector debts owing to creditors abroad, as measured here.

[6] For the estimates in Figure 7.1, it is assumed that the number of man-hours in the base year remains unchanged. This is a common approach in preparing such estimates. It is also assumed that the productivity of labour is maintained at the current level. Findings based on other assumptions are found in the documentation memorandum on the Ministry of Finance's website.

services over time. Whether a revenue shortfall shall result in scaled back public services for households, or higher taxes and lower private consumption, will be a political choice. Such choice also needs to take the costs of tax financing into account.

Such an analytical framework can also shed light on the role of the Fund in the funding of future expenditure. The guidelines for fiscal policy imply that the non-oil deficit in the fiscal budget shall be fully funded through a transfer from the Fund. The objective of this mechanism is to avoid accumulating financial debt while at the same time accumulating savings on the part of government in the GPFG. A national wealth perspective makes it clear that this would not be meaningful on an aggregate basis.

A national wealth perspective implies that future liabilities need to be taken into account in the composition of the financial wealth. Projections indicate that government finances will come under considerable pressure in future years, as the result of an aging population. This is because public benefits are predominantly paid for through taxes on income generated by the population of working age, while children, young people and older people are net recipients of such benefits. The savings in the Government Pension Fund will make it easier to meet such expenditure. At the same time, there will be little scope for meeting the increased expenditure resulting from aging of the population by increasing current savings. Temporary oil and gas revenues cannot fund a permanent and growing gap between public revenues and expenditures.

Both the increase in age-related expenditure and the limited contribution of the Government Pension Fund were known at the time of the introduction of the fiscal policy guidelines in 2001. It was emphasised, at that time, that this challenge must primarily be met through reforms that make government finances more robust in relation to such aging, such as measures to increase labour supply and public sector productivity. Subsequent reports from the Ministry of Finance, as well as the report from the Thøgersen Commission, have also adopted such an approach.

…but of little relevance to other and more detailed choices

In principle, many issues are important for assessing the strategy for the investments in the GPFG from a national wealth perspective. The above framework suggests that it is feasible to adapt the composition of the financial part of the wealth to reflect changes in the value of the non-tradable parts of the national wealth. Trond Døskeland, Associate Professor, Norwegian School of Economics (NHH), highlights, in a memorandum written in connection with the 2017 white paper on Long-Term Perspectives on the Norwegian Economy, the human capital, which largely reflects productivity and future labour input, and asks whether there are investments that would generate relatively higher returns if productivity growth in Norway and the remainder of the OECD were to decline significantly. In a scenario in which prices decline for other important export products like fish and metals, are there any counter-cyclical investments? Another example is the discussion of oil and gas equities in the GPFG; see the discussion in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy. A permanent decline in oil and gas prices will have a negative impact on the Norwegian economy and future revenues. Could and should such vulnerability be reduced by divesting the GPFG's holding of equities in oil and gas companies?

In principle, one can analyse the risk associated with each of the various national wealth components and the correlation between these, thereby arriving at an asset allocation that is theoretically optimal. In practice, however, it is challenging to perform such analyses because they require precise empirical knowledge about the relationships between various prices and developments in global stock and bond markets. Historical data show that the correlation between the various components is uncertain and varies over time, as also noted by the Mork Commission. Furthermore, any attempt at calculating an optimal allocation will serve to complicate and fragment the strategy for the investments in the GPFG. It will also have to be modified on an ongoing basis, such as when the interrelationships change in nature, for example as the result of time-variable compensation for carrying risk in the financial markets. This would entail considerable transaction costs.

More fundamental objections may also be raised against the use of such a framework. The Mork Commission notes that the tobacco consumption of the Norwegian population reduces the value of the human capital as a national wealth component. From a national wealth perspective, this might be countered by investing in tobacco companies, thereby having a stake in the revenues from the sale of tobacco. This would be contrary to the Storting's stand that investment in such companies shall be avoided on ethical grounds.

Another objection is that government may in many cases have other, more targeted policy tools for addressing some of these issues than tilting the composition of the investments in the GPFG. An example of this is the vulnerability of the Norwegian economy to a permanent decline in oil and gas revenues, which is discussed in the 2017 white paper on Long-Term Perspectives on the Norwegian Economy. It is noted in that discussion that a good capacity for economic restructuring, supported by economic policy and labour market flexibility, will be much more important in such a situation than whether or not the GPFG has divested its oil and gas equities.

Human capital measured by the net present value of future labour input is the dominant revenue component of national wealth. This implies that lower labour input is a key risk factor for consumption opportunities. Should the composition of the investments in the GPFG be changed if future generations have other leisure preferences than the current generation? It was noted, upon the establishment of the GPFG, that petroleum revenues represent a non-renewable natural resource, and that savings in the Fund are intended to distribute such resource evenly across generations. Consequently, savings in the Fund are motivated by the fair distribution of the petroleum wealth across generations, but not by evening consumption out across the same generations.

The investments in the GPFG reflect the long time horizon of the Fund and the desirability of broad diversification of risk across countries, sectors and companies. There will over time be major changes in industrial structure and production technology worldwide. There is reason to believe that technological developments will continue, but it is nonetheless difficult to predict which sectors and companies will benefit or suffer from such developments. Dimson (2015) notes large variations in long-term returns between sectors. Broad diversification of the investments in the GPFG protects us against loss as the result of concentrated positions in countries or industries with low long-term returns. It is of decisive importance for the ability to carry the long-term risk associated with equity investments. If one sought to make detailed modifications to the composition of financial wealth on the basis of national wealth considerations, it might involve significant costs in the form of a less diversified platform for the long-term returns on the GPFG. The Ministry of Finance does not know of any other, similar fund that makes this type of modifications in its investment strategy.

The Ministry of Finance

r e c o m m e n d s :

Recommendation of 31 March 2017 from the Ministry of Finance on the Management of the Government Pension Fund in 2016 be submitted to the Storting.

Appendix 1

Glossary of terms

Active management

Active management involves the asset manager composing, on the basis of analyses and assessments, a portfolio that deviates from the benchmark index established by the asset owner. In such a portfolio, some securities will be overweighted and some underweighted compared to the benchmark index. The purpose of such deviations is to achieve an excess return or improve the risk-return ratio compared to the benchmark index. In the GPFN and GPFG, deviation from the benchmark index is primarily regulated by means of a limit on expected tracking error. See *Excess return, Actual benchmark index, Index management, Strategic benchmark index* and *Tracking error*.

Actual benchmark index

The actual benchmark index for the GPFG and the GPFN is based on the strategic benchmark index. The strategic benchmark index specifies the allocation across asset classes and comprises a given number of securities, determined by the criteria adopted by the index provider for inclusion in the index. However, since the various asset classes generate different returns over time, the asset allocation of the actual benchmark index will drift from the strategic weights. In order to prevent the deviation from the strategic weights from becoming excessive, the Ministry has adopted rebalancing rules for the equity share for the actual benchmark index. See *Strategic benchmark index and Rebalancing*.

Within the established asset management framework, the composition of the actual portfolio may deviate from that implied by the actual benchmark index. Since the scope for deviations is limited, the risk and return of the Fund will largely be determined by the actual benchmark index. The actual benchmark index forms the basis for the measurement of excess return and risk assumed in active management. See *Active management, Excess return and Actual portfolio*.

Actual portfolio

The term actual portfolio designates the total investments included in the fund. The actual portfolio will normally deviate from the benchmark index (active management). See *Active management, Actual benchmark index* and *Strategic benchmark index*.

Arithmetic return

Arithmetic return is a historical measure of the average return over several time periods. It is calculated by adding up the return achieved in different time periods and dividing the sum by the number of periods. See *Return* and *Geometric return*.

Asset allocation

Asset allocation means the allocation of capital under management across different asset classes. A distinction is made between strategic asset allocation and tactical asset allocation. Strategic asset allocation expresses the asset owner's underlying risk tolerance and return expectations, and is for the Government Pension Fund Global expressed through the composition of the benchmark index. Within the limits of the investment mandate, the asset manager may engage in tactical asset allocation. This entails actively choosing to deviate from the strategic asset allocation on the basis of assessments as to whether one asset class is over- or underpriced relative to another in the short run. See *Asset classes*.

Asset classes

Asset classes are different types or classes of financial assets with different risk and return properties. The benchmark indices for the GPFG and the GPFN include two asset classes: equities and bonds. See *Bond*.

Bond

A bond is a tradable loan with a maturity of more than one year. Bonds are redeemed by the issuer (borrower) upon maturity, and the issuer pays interest (so-called coupon) to the bondholders during the period between issuance and maturity. Most bonds are based on a fixed nominal interest rate, i.e. the coupon is a specified predetermined amount. A fixed-rate bond will appreciate in value when the general interest rate level falls and correspondingly depreciate when the general interest level rises. Bonds may have different features, including a floating interest rate, a zero coupon or a redemption structure. See *Coupon*.

Capital Asset Pricing Model

The Capital Asset Pricing Model is an equilibrium model for the pricing of securities (or a portfolio of securities) with an uncertain future return. The model describes a linear relationship between the expected return in excess of a risk-free rate and the sensitivity of the security (or portfolio) to market risk.

Concentration risk

If investments or loans are concentrated in an individual company, industry or market, the portfolio becomes vulnerable to incidents which affect these investments in particular. Concentration risk can be reduced through broad diversification of investments or loans. See *Diversification*.

Correlation

Correlation refers to the degree and direction of the covariation between two variables. Perfectly positive correlation (= 1) means that the variables always move perfectly in tandem. Zero correlation means that there is no covariation whatsoever. Perfect negative correlation means that the variables always move in exact opposition to each other. The risk associated with a portfolio can be reduced by diversifying the investments across several assets, unless there is perfect positive correlation between the returns on the individual investments. See *Diversification*.

Counterparty risk

Counterparty risk is the risk of loss as the result of another contracting party not fulfilling its legal obligations. See *Credit risk*.

Coupon

Coupon denotes the interest paid to bondholders during the period between issuance and maturity. Bonds may be issued with or without a coupon.

Covariation

See *Correlation*.

Credit risk

Credit risk is the risk of loss due to non-fulfilment of legal obligations by the issuer of a security or a counterparty to a securities trade, for example as a result of bankruptcy. See *Counterparty risk*.

Currency basket

The GPFG is exclusively invested in foreign securities, and thus only in securities that are traded in currencies other than Norwegian kroner. Hence, the return on the GPFG measured in Norwegian kroner will vary with changes in the exchange rate between Norwegian kroner and the currencies in which the Fund is invested. However, the international purchasing power of the Fund is unaffected by developments in the Norwegian kroner exchange rate. The return on the Fund is therefore measured in foreign currency. This is done on the basis of the currency basket for the Fund, which weights together the currencies included in the benchmark portfolio.

Differential return

See *Excess return*.

Diversification

The risk associated with a portfolio can normally be reduced by including more assets in the portfolio. Doing so reduces the impact on the portfolio of fluctuations in, for example, an individual share, industry or market. This is referred to as diversification, or the spreading of risk. Diversification is the main reason for spreading the benchmark index of the Fund across several asset classes and a broad range of countries, sectors and companies. Diversification can improve the ratio between expected risk and return. See *Asset classes*.

Duration

Duration measures how long it takes, on average, for the cash flows of a bond to be redeemed. By cash flows are meant both coupons and principal. The value of a bond is sensitive to interest rate changes, and such sensitivity increases with longer duration. See *Bond*.

Emerging markets

The term emerging markets denotes countries with economies that are less developed than those of traditional industrialised nations. There is no unambiguous set of criteria that defines whether a market is emerging, and country-classification practice varies. The classifications of index providers such as FTSE are commonly used for investments in listed stock markets. FTSE classifies emerging markets on the basis of, inter alia, gross domestic product per capita. Since indices provide the foundation for financial investments, account is also taken of financial market characteristics such as size, liquidity and regulatory framework.

Excess return

The contribution made by active management to the return on the invested capital is referred to as the excess return, and is measured as the difference in return between the actual portfolio and the benchmark index. It is also referred to as the differential return, or as a negative excess return when the actual portfolio produces a lower return than the benchmark index. Risk and asset management costs also need to be taken into account when evaluating active management performance.

Exchange rate risk

Investments may feature a different distribution across countries and currencies than the goods and services they are intended to finance. Changes in international exchange rates will therefore influence the amount of goods and services that can be purchased. This is referred to as (real) exchange rate risk. International purchasing power parity plays a key role when it comes to measuring such exchange rate risk. See *International purchasing power parity*.

Expected return

Expected return is a statistical measure of the mean value in a set of all possible return outcomes. If an investment alternative has a 50 percent probability of a 20 percent appreciation, a 25 percent probability of a 10 percent appreciation and a 25 percent probability of a 10 percent depreciation, the expected return is (0.2 x 0.5) + (0.1 x 0.25) + (-0.1 x 0.25) = 10 percent. Expected return is normally specified as an annual rate. See *Return*.

Externalities

Externalities are production or consumption costs or benefits that are not incurred by, or accrue to, the decision maker. An example of a negative externality is environmental damage which affects society but not the company which causes it. Without government regulation, the profitability of a company will not reflect the negative externalities of its production. When an externality is negative, the economic cost is higher than what is paid by the producer. The opposite applies to positive externalities. Such market failure results in inefficient resource use compared to scenarios in which the full economic cost is reflected in prices. Government regulation can promote correct pricing of externalities and thus effective use of resources for the benefit of society, for example through a tax on environmental damage.

Factors

Factors influence the return on a broad range of investments. Investors may require an expected return in excess of the risk-free rate to accept exposure to factors that are systematic, thus preventing the reduction of the risk associated with such factors through diversification. This is labelled a factor premium. Known systematic factors in the stock market include market risk, size, value, momentum, liquidity and volatility. Important systematic factors in the bond market are term, credit and liquidity, with corresponding factor premiums. See *Diversification* and *Systematic risk*.

Financial owner

The term financial owner is applied to investors who primarily have a financial objective when investing in securities. To spread risk, a financial owner will often prefer to be a small owner in many companies, rather than a large owner in a small number of companies. See *Strategic owner*.

Fundamental analysis

Fundamental analysis primarily aims to analyse the factors that influence the future (expected) cash flow of an asset. A key feature of a fundamental analysis of individual stocks will be assessments relating to the income, costs and investments of the company. Fundamental analysis is used for, inter alia, the valuation of companies. Active management strategies will often involve the purchase of equities that are deemed to have a low valuation in the stock market relative to the estimated fundamental value of the company. The investor therefore expects the fundamental value of the company to be reflected in its share price over time. See *Active management.*

Geometric return

Geometric return (or time-weighted return) is a historical measure of average return over several time periods. The measure specifies the average growth rate of an investment in each period. The larger the variation in the annual return, the greater the difference between the geometrically and arithmetically calculated returns. In quarterly and annual reports, return over time is most commonly reported as a geometric average. See *Arithmetic return.*

Index

An index comprises a set of securities defined on the basis of selection criteria applied by the index provider. The index return is the average return for the securities included in the index. Securities indices are prepared by securities exchanges, consultancy firms, newspapers and investment banks. They may, for example, be based on countries, regions, markets or sectors. If it is possible to invest in a portfolio in line with the index composition, the index is investable. This will typically be the case with highly liquid securities, like listed equities. An index of unlisted real estate developments, on the other hand, will not be investable. When an index is used as a return measure for a specific securities portfolio, it is referred to as a benchmark index. See *Index management, Actual benchmark index* and *Strategic benchmark index.*

Index management

Index management (passive management) entails organising asset management to ensure that the actual portfolio reflects the composition of the benchmark index. If the composition of the actual portfolio is identical to the composition of the benchmark index, the return on the actual portfolio will be equal to the return on the benchmark index, ignoring transaction costs, taxes and asset management costs. If the benchmark index includes most of the securities traded in the market, index management will achieve a return that reflects the return on the market as a whole. The return resulting from a broad market exposure is often termed beta return. The costs associated with index management are normally low. See *Index, Actual benchmark index* and *Strategic benchmark index.*

Inflation

Inflation is an increase in the general price level.

Inflation risk

Inflation risk is the risk of a loss of purchasing power as the result of unexpectedly high inflation. See *Inflation.*

Institutional investor

Institutional investors are organisations set up for the purpose of engaging in investment activities, typically on behalf of clients. Institutional investors normally manage large portfolios covering several asset classes and geographical markets. Examples of institutional investors are pension funds, insurance companies, securities funds and sovereign wealth funds. Banks and hedge funds may also be classified as institutional investors.

International purchasing power parity

This term denotes a theory which states that over time exchange rates are determined by the amount of goods and services which can be purchased using each currency. Exchange rates will be drawn to a level at which the prices of goods and services converge when measured in a common currency. No account is taken of transportation costs, trade barriers or the fact that not all goods can be traded internationally. There is a broad consensus among researchers that international purchasing power parity applies in the long run. Purchasing power parity plays a key role in the measurement of exchange rate risk. See *Exchange rate risk.*

Investability

By investability is meant the extent to which an investment idea or rule can be implemented in operational asset management. Investability may differ for small and large funds.

Liquidity premium

A liquid security can be traded relatively quickly and at a relatively predictable price. A liquidity premium is an expected compensation for investing in illiquid securities. In practice, liquidity premiums are difficult to define and measure. See *Risk premium*.

Market efficiency

Market efficiency implies that the price of a financial asset, such as an equity or a bond, at all times reflects all available information about the fundamental value of the asset. If this hypothesis is correct, it will be impossible for a manager consistently to achieve an excess return through fundamental analysis. See *Active management* and *Fundamental analysis*.

Market risk

Market risk is the risk that the value of a securities portfolio will change as the result of broad movements in the market prices of equities, currencies, commodities and interest rates. It is normally assumed that higher market risk is accompanied by a higher expected return. See *Expected return*.

Market value weights

A portfolio or index is market-value weighted when the investments in each individual security or asset are included with a weight corresponding to the security's or asset's proportion of total market value. See *Index*.

Nominal return

Achieved return measured in nominal prices, i.e. without inflation adjustment. See *Return, Inflation* and *Real rate of return*.

Operational risk

Operational risk is the risk of economic loss or reputational loss as the result of deficiencies in internal processes, human error, systems error or other loss caused by circumstances that are not a consequence of the market risk in the portfolio. Operational risk does not generate a risk premium. In managing operational risk, the gain to be made by keeping the probability of such losses low must be balanced against the costs incurred as a result of increased control, monitoring, etc.

Passive management

See Index management.

Portfolio

A collection of different securities and asset classes held by an investor. See *Diversification*.

Principal-agent problem

Principal-agent problems describe situations in which there is not a complete alignment of interests between the person issuing an assignment (the principal) and the person performing it (the agent). In cases where the principal and the agent have access to different information, the agent may make choices that are not necessarily in the interest of the principal. In the capital markets, such situations may generally arise both between an asset owner and an asset manager and between an asset manager and the senior executives of the companies in which investments are made.

Probability distribution

A probability distribution describes potential values that an uncertain (stochastic) variable may have, as well as the relative frequency with which each of these values occur. The best known probability distribution is the normal distribution, which is symmetric around the mean value (expected value). Asymmetrical distributions are often referred to as skewed. Distributions in which extreme outcomes (large or small) carry a higher probability than under the normal distribution are referred to as distributions with "fat" or "heavy" tails.

Real rate of return

The real rate of return is the achieved nominal return adjusted for inflation. It may also be referred to as return measured in constant prices or in terms of purchasing power. See *Inflation* and *Nominal return*.

Rebalancing

The Ministry has adopted strategic benchmark indices for the GPFG and the GPFN which incorporate a fixed equity share and, for the GPFN, also a fixed regional allocation. Since returns develop differently in respect of each asset class and region, the equity share in the actual benchmark index will over time move away from the strategic allocation. The Fund's actual benchmark index is therefore permitted to deviate somewhat from the strategic composition, and rules have been issued on the rebalancing of the index. When deviations exceed predetermined limits, the necessary assets are purchased and sold to bring the actual benchmark index into conformity with the strategic benchmark index. Rebalancing returns the risk in the Fund to the level implied by the strategic benchmark index. It also gives the investment strategy something of a counter-cyclical flavour, since over time the Fund will buy the asset class which has fallen substantially in value in relative terms and sell the asset class which has experienced high relative value growth. See *Actual benchmark index* and *Strategic benchmark index*.

Relative return

See *Excess return*.

Return

Historical return is calculated as the change in market value from one specific date to another. Cash outflows during the period, such as dividends and coupons, are included when calculating the return. See *Arithmetic return*, *Geometric return*, *Excess return* and *Expected return*.

Risk

Risk is a measure that provides some indication as to the probability of an event occurring and the consequences thereof, for example in the form of losses or gains. There are various aspects to risk. One important aspect is the distinction between risk that can be quantified and risk that is difficult to quantify. An example of the former is the market risk associated with investments in the securities market. An example of the latter is the operational risk inherent in a portfolio. Standard deviation is one common way of quantifying risk. See *Market risk, Operational risk, Credit risk, Systematic risk* and *Standard deviation*.

Risk premium

Investors will normally demand an expected return beyond the risk-free rate for accepting risk which cannot be eliminated by diversification, i.e. for exposure to systematic risk factors. This excess return is referred to as the risk premium. See *Diversification* and *Factors*.

Standard deviation

Standard deviation is often used to measure portfolio risk. It indicates how much the value of a variable (in this case the portfolio return) is expected to fluctuate around its mean. The standard deviation of a constant value will be 0. The higher the standard deviation, the larger the expected fluctuations (volatility) or risk relative to the average return. Linking the standard deviation to a probability distribution sheds light on the probability of a portfolio decreasing in value by more than x percent or increasing in value by more than y percent during a given period.

If normally distributed, a return will deviate from the average return by less than one standard deviation in approximately two out of three instances. In 95 percent of the cases, the return will deviate by less than two standard deviations. Empirical studies of returns in the securities markets indicate that very low and very high returns occur more frequently than implied by a normal distribution. This phenomenon is called "fat tails" or "tail risk". See *Probability distribution* and *Risk*.

Strategic benchmark index

The overarching investment strategy for the Government Pension Fund is expressed through strategic benchmark indices for the GPFN and the GPFG, respectively. The strategic benchmark indices specify a fixed allocation of capital across different asset classes and, in the GPFN's case, also a fixed regional allocation. The strategic benchmark indices provide a detailed description of the asset allocation, and are set by the Ministry of Finance in the respective fund mandates for the GPFN and the GPFG. See *Asset allocation, Asset classes* and *Actual benchmark index*.

Strategic owner

The term strategic owner is used to describe investors who, unlike financial owners, actively seek to exploit their ownership status for non-financial purposes, for example to secure a

desired change in conduct. For a strategic owner, it is important to exercise influence over the company, preferably through a large ownership share and a seat on the company's board of directors. Such owners are also referred to as industrial owners. See *Financial owner*.

Systematic risk

Systematic risk refers to the proportion of risk associated with a security or portfolio that cannot be diversified away by holding more securities. Investors cannot diversify away from recessions, lack of access to credit or liquidity, market collapse, etc. Systematic risk thus reflects the inherent uncertainty of the economy. According to financial theory, higher systematic risk will be compensated for in the form of higher expected returns over time. See *Diversification* and *Factors*.

Tracking error

The asset owner will normally define limits as to how much risk the asset manager may take. A common approach is to define a benchmark index, together with limits specifying how much the actual portfolio may deviate from the benchmark index. In the mandates of Norges Bank and Folketrygdfondet, the Ministry of Finance has defined a limit in the form of a target for expected tracking error, i.e. the expected standard deviation of the difference in the returns on the actual portfolio and the benchmark index. This means that over time, if certain statistical assumptions apply and the entire limit is utilised, the actual return will deviate from the return on the actual benchmark index by less than the defined limit as expressed in percentage points in two out of three years. See *Active management, Excess return, Actual portfolio, Actual benchmark index* and *Standard deviation*.

Unlisted investments

Unlisted investments are investments in assets which are not traded in open and regulated markets.

Volatility

Return variations. Measured by standard deviation. See *Standard deviation*.

Appendix 2

Historical tables

Table 2.1 Return on the GPFG in 2016, in the last 3, 5, and 10 years, as well as over the period 1998–2016, measured in Norwegian kroner. Annual geometric average. Percent

	2016	Last 3 years	Last 5 years	Last 10 years	1998–2016
GPFG incl. real estate					
Actual portfolio	1.95	13.53	14.33	7.39	6.69
Norwegian inflation[1]	3.60	2.61	2.12	2.10	2.09
Asset management costs	0.05	0.06	0.06	0.08	0.09
Return net of costs and inflation	-1.64	10.59	11.90	5.11	4.42
GPFG excl. real estate					
Actual portfolio	2.14	13.51	14.33	7.39	6.69
Benchmark index	2.00	13.56	14.12	7.33	6.43
Excess return (percentage points)	0.14	-0.05	0.21	0.06	0.26
Equity portfolio					
Actual portfolio	3.67	14.69	17.95	6.92	6.67
Benchmark index	3.53	14.62	17.56	6.68	6.20
Excess return (percentage points)	0.14	0.07	0.39	0.25	0.46
Fixed-income portfolio					
Actual portfolio	-0.53	11.47	8.47	6.50	5.82
Benchmark index	-0.68	11.75	8.64	6.47	5.68
Excess return (percentage points)	0.15	-0.28	-0.17	0.03	0.14
Real estate portfolio[2]					
Actual portfolio	-3.91	14.87	12.71	10.81	

[1] Inflation figures in the table are not based on inflation measured in the currency basket of the Fund, but on Norwegian CPI data.
[2] The first real estate investment was made in the first quarter of 2011. Return reported in the column «Last 10 years» is the annualised return since 1 April 2011.

Sources: Norges Bank, Macrobond and Ministry of Finance.

Table 2.2 Nominal return on the GPFG and inflation[1] in selected currencies and measured in the currency basket of the Fund. Annual geometric average. Percent

Year	Currency basket of the Fund		NOK		USD		EUR		GBP	
	Return	Inflation	Return	Inflation	Return	Inflation	Return	Inflation	Return	Inflation
1997	9.07	1.75	10.83	2.62	-4.01	2.29	11.87	1.53	-0.16	1.89
1998	9.26	0.92	19.75	2.25	15.87	1.56	7.63	1.10	14.59	1.57
1999	12.44	1.28	13.84	2.30	7.92	2.21	26.43	1.08	11.40	1.26
2000	2.49	2.02	6.53	3.13	-2.91	3.36	3.66	2.14	4.75	0.83
2001	-2.47	1.17	-5.34	3.03	-6.93	2.85	-1.87	2.36	-4.48	1.24
2002	-4.74	1.91	-19.09	1.29	4.76	1.58	-11.11	2.18	-5.30	1.22
2003	12.59	1.57	19.96	2.45	24.92	2.28	3.92	2.13	12.34	1.34
2004	8.94	2.37	3.93	0.44	14.16	2.66	5.94	2.09	6.45	1.32
2005	11.09	2.33	14.28	1.59	2.22	3.39	17.80	2.17	14.32	2.09
2006	7.92	2.13	5.89	2.26	15.16	3.23	3.01	2.24	1.01	2.30
2007	4.26	3.12	-3.90	0.76	10.20	2.83	-0.61	2.07	8.35	2.38
2008	-23.31	1.42	-6.66	3.79	-27.62	3.86	-23.87	3.27	0.21	3.55
2009	25.62	1.82	7.88	2.11	30.77	-0.37	26.69	0.33	16.42	2.24
2010	9.62	1.98	9.49	2.47	8.82	1.68	16.38	1.63	12.24	3.23
2011	-2.54	2.84	-1.39	1.24	-3.96	3.12	-0.75	2.68	-3.25	4.47
2012	13.42	1.98	6.70	0.77	14.42	2.09	12.66	2.51	9.39	2.78
2013	15.95	1.41	25.11	2.13	14.77	1.48	9.81	1.32	12.63	2.60
2014	7.58	0.91	24.23	2.01	0.52	1.59	14.47	0.50	6.78	1.52
2015	2.74	0.86	15.54	2.12	-2.13	0.13	9.02	0.00	3.54	0.00
2016	6.92	1.52	1.95	3.60	4.83	1.27	7.97	0.20	25.05	0.70
1998–2016	5.70	1.76	6.69	2.09	5.83	2.14	6.01	1.68	7.43	1.92
1997–2016	5.87	1.76	6.90	2.11	5.31	2.15	6.30	1.67	7.04	1.92

1 Inflation figures in individual currencies presented in the table are not based on inflation measured in the currency basket of the Fund, but on CPI data for each country/currency area.

Sources: Norges Bank, Macrobond, Thomson Reuters Datastream and Ministry of Finance.

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