Ministry of Finance
Postboks 8008 Dep.
0030 Oslo

Date: 15.12.2017
Your ref.:
Our ref.:

Review of Norges Bank's management of the Government Pension Fund Global

We refer to the Ministry of Finance's letter of 14 June 2017 on the review of Norges Bank's management of the Government Pension Fund Global. The Ministry writes that it plans to present a broad review in the annual white paper on the fund in spring 2018, and asks Norges Bank to contribute analyses and assessments. The questions from the Ministry are shown in italics below.

The Ministry introduced broad reviews of the management of the fund every four years back in 2009. As part of these reviews, the Ministry has obtained analyses and assessments from Norges Bank and external advisers. Since 2009, the management mandate has been revised to include requirements for strategy reporting at the end of each strategy period, and an annual performance assessment from the Bank's Executive Board. The fund's financial reporting was greatly expanded when International Financial Reporting Standards (IFRS) were adopted in 2011. We now publish three major reports with additional information over and above the ordinary annual report, and we make GIPS reports and data available on our website. In its letter of 14 June, the Ministry writes that it has noted the increase in reporting on the fund, and views this as positive for transparency on the management of the fund.

Our response in this letter is based on information that the Bank has already shared with the public. We will publish the 2017 annual report with additional information in the first quarter of 2018.

In recent years, the Bank has been given responsibility for more decisions on asset mix and investment strategy. We have gone from investing only in listed equities and tradable bonds, to also investing in unlisted real estate. The Bank has also been given responsibility for

POSTADRESSE
PB 1179 Sentrum,
0107 Oslo

BESØKSADRESSE
Bankplassen 2,
Oslo

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

Organisasjons-nummer
NO 937 884 117 MVA

deciding on the observation and exclusion of companies under ethical guidelines issued by the Ministry, and requirements and expectations for the fund's active ownership activities have increased.

The management assignment is wide-ranging and complex, and demands high professional standards in every aspect of its execution. We have set our sights high, with an objective of the highest possible return within the constraints imposed by the mandate. The Bank believes that this is necessary to ensure the best possible quality in the implementation of all parts of the management assignment.

Norges Bank considers that the fund has been managed well. The Bank is satisfied that the return over time has been good, and higher than the return on the benchmark index that its performance is measured against. Management costs are low, despite our management being based on best practice in different areas. Company analysis, factor strategies, the execution of index-oriented strategies, and unlisted real estate investments are all substantial undertakings in their own right. The investment strategies complement one another and are covered by a comprehensive risk management model. At the same time, we are now among the leading investors in the area of responsible investment.

The fund's management is well-equipped for the future, with all the opportunities and challenges that markets may present. Its management is also flexible in terms of possible changes to the investment strategy from the Ministry.

Investment strategies

The Ministry asks Norges Bank to describe the basis for the investment strategies employed in the management of the fund, and the future design of the main strategies chosen.

In accordance with the provisions of the management mandate, the Executive Board has adopted a plan for how the management assignment is to be carried out.[1] This strategic plan expresses the Executive Board's overall goals for the management of the fund and covers investment strategies, risk management, systems and organisation. The Bank has drawn up strategic plans for the management of the fund since 1997, and these have been published on our website since 2011.

The current plan covers the period 2017-2019 and builds on the main elements of the strategic plan for 2014-2016. In the 2014-2016 period, we further developed investment strategies that seek to exploit the fund's special characteristics. We developed a new model for financing the fund's unlisted real estate investments, and established a separate unit responsible for the management of these investments. Norges Bank Investment Management's position as a leader in responsible investment was enhanced, with clear expectations of the companies the fund is invested in, and extensive public reporting on the Bank's work on responsible investment. Capacity in the organisation was increased, with more employees and more efficient working processes. At the same time, management

[1] The Executive Board adopted the strategy for 2017-2019 on 8 February 2017, see www.nbim.no.

costs as a share of assets under management were reduced through greater efficiency, the introduction of a new investment platform, and outsourcing of selected services. This enabled us to achieve economies of scale in the management of the fund despite building up a portfolio of unlisted real estate investments and more capital for external management. More markets, asset classes and currencies were included in the fund, and requirements for responsible investment and reporting increased.

The strategy for 2017-2019 is based on the fund being a large, global investor with a long investment horizon and limited liquidity needs. The portfolio is invested widely across asset classes, countries and sectors. We take a systematic approach to investment opportunities and attach importance to implementing strategies cost-effectively.

Our investment strategies are grouped into three broad categories: asset mix ("fund allocation"), investments in individual companies ("security selection") and market exposure ("asset management").

These strategies complement one another by having different time horizons, building on different analytical frameworks, and being expected to produce excess returns under different market conditions. Variations in market conditions might take the form of higher or lower liquidity, more or less appetite for risk, or various cyclical patterns. We do not expect all strategies to produce an excess return at any given time. The idea is that together they generate an excess return over time.

Fund allocation is our work on distributing the fund across asset classes, currencies and markets. This includes the internal reference portfolios[2] and allocation to real estate. The internal reference portfolios form the starting point for our investments and result from a number of adjustments to the fund's benchmark index. Our goal here is to achieve greater diversification by spreading investments across more markets, and a higher return through judicious allocation to systematic risk factors.

Security selection is our work on analysing individual companies, and the investment decisions that result from this. The aim is to generate an excess return and provide a sound basis for our work on responsible investment. Our company investments are managed both internally and externally. Internal managers concentrate on the large and medium-sized European companies in which the fund is invested. External management mandates are awarded in areas where it is not appropriate to build up internal expertise, but where we believe that local knowledge is needed to ensure the best possible management. These mandates are mainly in emerging markets, small companies in developed markets, and environment-related investments.

Asset management is about achieving the desired market and risk exposure as cost-effectively as possible. This includes managing the broad equity and fixed-income portfolios,

[2] The Ministry of Finance has defined a benchmark *index* for the fund based on indices from FTSE and Bloomberg Barclays Indices, while the Bank has constructed internal reference *portfolios* that form a basis for its investments.

executing securities trades, and managing cash, currencies and securities lending. We aim to avoid making purchases and sales that coincide with changes to the indices from FTSE and Bloomberg Barclays Indices that make up the benchmark index. We also aim to generate a return from exposure to systematic risk factors[3] and pricing differences between securities with the same characteristics, and to minimise overall transaction costs.

These different investment strategies are implemented within a framework where the Executive Board of Norges Bank issues management guidelines based on the mandate from the Ministry. The operational management of the fund is delegated by the Executive Board through an investment mandate and job description for the CEO of Norges Bank Investment Management, and a set of principles. Norges Bank Investment Management, in turn, issues guidelines and job descriptions, and investments are executed within a clear mandate structure with unambiguous risk limits.

The Bank's investment strategies have evolved over time. Analyses and recommendations from external experts engaged by the Ministry of Finance have also provided valuable input. In the early years, Norges Bank's management of the fund was organised by asset class: equities and bonds. Mandates were awarded to both internal and external managers. More recently, we have placed greater importance on exploiting the fund's special characteristics (such as its size and long-term horizon) more systematically across the traditional asset classes. The management of the fund is therefore now organised by strategy rather than asset class. We have also developed internal expertise and capacity over time to manage strategies that we originally outsourced to external managers. We have now built a management model that is scalable for both listed and unlisted assets. This management model ensures a holistic approach and comprehensive risk management for a fund invested in a large number of markets and multiple asset classes.

Previous external reviews of the fund's management have influenced how we perform our management assignment. In the first of these, in 2009, Ang, Goetzmann and Schaefer[4] argued that exposure to systematic factors would be appropriate for the fund. The Ministry added a requirement to the management mandate from 2011 that the relative return should be exposed to multiple systematic risk factors. The Ministry concluded in 2013 that such strategies should not be included in the benchmark index from the Ministry, but should draw on the Bank's risk limits. This has been followed up partly through our internal reference portfolios.

In the second broad review, in 2014, Ang, Brandt and Denison[5] recommended greater disclosure on various parts of the investment process and switching to a model where the benchmark index for equities and bonds serves as a benchmark for all of the fund's

[3] Systematic risk factors are common characteristics which securities share over time and which contribute to both the risk and the return on investments.

[4] https://www.regjeringen.no/globalassets/upload/fin/statens-pensjonsfond/eksterne-rapporter-og-brev/2014/angbrandtdenison_2014.pdf.

[5] https://www.regjeringen.no/globalassets/upload/fin/statens-pensjonsfond/eksterne-rapporter-og-brev/2014/angbrandtdenison_2014.pdf.

investments, including unlisted real estate. They also recommended increasing the limit for relative risk, combined with the introduction of a risk limit for large negative deviations from the benchmark that are expected to occur rarely. Since then, we have expanded our reporting to shed light on various investment strategies and choices. The Ministry has raised the limit for tracking error from 1 to 1.25 percentage points, and we have introduced a limit for extreme deviation risk.

The changes to the management mandate that came into effect on 1 January 2017 have also affected the management model. The fund's real estate investments no longer form part of the strategic benchmark index, which now consists solely of listed equities and tradable bonds. The fund still invests in real estate, but it is up to Norges Bank to determine the scope and mix of real estate investments within the general limits in the mandate. The changes to the mandate ensure a holistic approach to managing a portfolio that includes both listed and unlisted investments. Real estate investments are financed through sales of equities and bonds tailored to the investment's currency and other risk characteristics. In 2017, we have begun to measure the return on real estate investments against the equities and bonds sold to finance these investments, as well as other relevant return metrics.

Enclosed with this letter are provisional extracts from the forthcoming report on return and risk for 2017. The data used for the enclosure run until 30 September 2017. More detailed descriptions of the investment strategies used in the fund's management can be found in the enclosure.

Return

The Ministry asks Norges Bank to submit analyses and assessments of the results achieved in the management of the fund since 1998, both for the full period and for various sub-periods. As part of these analyses, Norges Bank is asked to assess the performance of the main strategies used in equity and bond management. The Ministry also asks the Bank for an account of its experience of the mandate requirement that the Bank takes account of fiscal strength in the composition of government bond investments, and of its experience of the environment-related investment mandates.

The fund's annual return from 1998 until 30 September 2017 was 5.98 percent, measured in the fund's currency basket. This basket is a weighted combination of the currencies in the fund's benchmark index at any given time. The currency basket has changed considerably over time, which can make it difficult to compare the results for different periods. The fund's annual return since 1998 net of management costs and inflation has been 4.06 percent. The annual return for equity investments has been 5.96 percent, and fixed-income investments 4.80 percent.

The fund's annual excess return since 1998 has been 0.27 percentage point relative to the benchmark index the fund is measured against. Equity investments have produced an annual excess return of 0.50 percentage point relative to the equity portion of the benchmark index, and fixed-income investments 0.16 percentage point relative to the fixed-income portion. This positive excess return is robust to adjustments for costs and risk, as shown in the analyses in the enclosure.

Over the past five years, the fund's annual return has been 8.98 percent (equities 12.51 percent, bonds 3.00 percent and real estate 8.02 percent). The fund's annual excess return relative to the benchmark index during the same period has been 0.27 percentage point.

In the enclosure, we analyse five-year periods from 1998 through to the present. Absolute and relative returns have been positive in all of the sub-periods we look at. The highest absolute return was in the period 2003-2007, while the relative return was highest in 1998-2002. The weakest return, both absolute and relative, was in the five-year period from 2008 to 2012, which includes the global financial crisis. Reference should be made to the reviews in 2009 and 2013, and to our annual reports since 1998, for more detailed information and analyses of returns in previous periods.

Since 2013, Norges Bank has pursued three main management strategies: fund allocation, security selection and asset management. Taken together, these three strategies produced an annual excess return of 0.27 percentage point in the period from 2013 to 30 September 2017. Security selection and asset management strategies both contributed positively to the relative return in that period, while the contribution from the internal reference portfolios, which form part of our fund allocation strategies, has been negative. These strategies are complementary, and their performance must therefore be viewed as a whole.

Table 1: Contributions from investment strategies to the fund's relative return from 2013 until 30 September 2017. Annualised. Percentage points.

	Equity investments	Fixed-income investments	Real estate	Cross-asset allocation	Total
Fund allocation	-0.02	-0.09	0.00	0.03	-0.07
Internal reference portfolio	0.01	-0.09		0.00	-0.08
of which, systematic factors	0.02				0.02
of which, universe expansion	0.00	-0.06			-0.06
Real estate*	-0.01		0.00		-0.01
Allocation decisions	-0.02	0.00		0.03	0.02
Security selection	0.12	0.00			0.11
Internal	0.01	0.00			0.01
External	0.11				0.11
Asset management	0.14	0.09		0.01	0.23
Positioning	0.09	0.08		0.01	0.17
Securities lending	0.05	0.00			0.06
Total	**0.24**	**-0.01**	**0.00**	**0.04**	**0.27**

*The contribution from real estate is based on results since 1 January 2017 when the new management model came into effect.

The relative return can also be broken down by asset class and between internal and external management, back to 1999.[6] In the period from 1999 to 2012, equity investments

[6] Based on the cumulative monetary return.

generated an excess return of 0.54 percentage point. Internal management contributed 0.22 percentage point, and external management 0.32 percentage point. Internal equity management included asset management, general risk management and securities lending, internal security selection, and other portfolio management activities. External management consisted largely of security selection strategies.

In the period from 1999 to 2012, fixed-income investments generated an excess return of 0.21 percentage point. Internal management contributed 0.42 percentage point, and external management -0.21 percentage point. In the wake of the financial crisis, large parts of the externally managed fixed-income mandates were transferred to internal fixed-income portfolios for subsequent termination. The relative return for both internal and external mandates was affected by this change.

Section 3-4(7) of the management mandate requires the Bank to take account of differences in fiscal strength between countries in the composition of government bond investments, while section 2-4 requires the Bank to establish special environment-related mandates. These requirements are not reflected in the benchmark index set by the Ministry, which means that the Bank must put together a portfolio that deviates from the benchmark index in order to satisfy the requirements of the mandate. These deviations lead to risk and return differences between the benchmark index and the fund. The requirement to take account of fiscal strength has now been implemented for government bonds denominated in euros through the use of special country factors. This means that countries considered to have weak government finances are assigned a lower weight in the portfolio than in the benchmark index.

The requirement to take account of fiscal strength entered into force on 31 May 2012. The cumulative return differential between the fund and the benchmark index from then until 30 September 2017 was -0.36 percentage point. We would refer here to our letter of 1 September 2017, where we propose changes to the guidelines for the management of the fund’s bond investments that would mean that the mandate requirement concerning fiscal strength becomes redundant and should be removed.

The management mandate also requires the Bank to establish environment-related mandates. The market value of these investments should normally be in the interval of 30-60 billion kroner. These mandates were first established in 2009 and are currently managed by both internal and external managers. The investments are subject to the same risk and return requirements as other assets. At 30 September 2017, the market value of the environment-related mandates was 70 billion kroner.

Since their inception in 2009, the annual return on environment-related mandates has been 5.8 percent. We compare the return on these mandates with various benchmark indices. The FTSE Environmental Technology 50 index has generated an annual return of 5.1 percent over the same period, while the fund’s broad equity benchmark index has returned an average of 10.0 percent.

We have to expect a relatively small group of companies such as those covered by these mandates to show greater return volatility over time than the broad equity market. The companies in this part of the investment universe may still be at an early stage in their development and are sensitive to changes in the form of new technology, new business models and government regulation. Further information on the environment-related mandates can be found in our annual report on responsible investment, which has been published since 2014. The 2017 report will be published in the first quarter of 2018.

Risk

The Ministry asks the Bank to give an account of developments in the use of risk limits and developments in other risks. The Ministry also asks the Bank to describe how the investment strategies complement and influence one another. In addition, the Bank is asked to report on how the mandate requirement for exposure to systematic risk factors has been followed up in the management of the fund.

The management mandate sets a limit for tracking error, also known as expected relative volatility. This limit aims to regulate the size of expected deviations between the return on the benchmark index and the fund under normal market conditions. The limit has been adjusted on a number of occasions, most recently in 2016 when it was raised from 100 to 125 basis points. A limit of 125 basis points means that the deviation between the return on the fund and the return on the benchmark is not expected to exceed 125 basis points in two out of three years under normal market conditions. On 22 December 2016, the Ministry approved the Bank's method for calculating expected relative volatility, which has also included the fund's real estate investments from 1 January 2017.

For the fund as a whole, expected relative volatility was estimated at 59 basis points at the end of 2013, but 33 basis points at 30 September 2017. The decrease was due mainly to lower volatility in the markets in which the fund is invested. If we use a ten-year history, rather than the three-year history underlying the figures above, the fund's expected relative volatility at 30 September 2017 was 45 basis points. If we use a three-year history around the financial crisis, the expected relative volatility of today's portfolio is 65 basis points. We are currently in a period where measured risk in the market is low by historical standards, and it is natural to expect greater volatility in asset values in the future.

Table 2: Expected relative volatility of investment strategies at 30 September 2017. Each strategy measured on a standalone basis with the other strategies positioned in line with the benchmark indices. All numbers measured at fund level. Basis points.

	Equity investments	Fixed-income investments	Real estate	Cross-asset allocation	Total
Fund allocation	18	11	16	1	27
Internal reference portfolio	14	10		0	15
of which, systematic factors	9				9
of which, universe expansion	10	6			11
Real estate	7		16		21
Allocation decisions	6	3		1	6
Security selection	14	2			14
Internal	11	2			11
External	6				6
Asset management	7	2		4	9
Positioning	7	2		4	9
Total	**28**	**12**	**16**	**4**	**33**

At 30 September 2017, the fund's expected relative volatility was substantially lower (at 33 basis points) than the sum of the different sub-strategies (a total of 73 basis points). For example, the internal reference portfolio alone came in at 15 basis points, and real estate investments alone at 21 basis points. This reflects how these strategies bring considerable diversification of the fund's aggregate relative risk. We aim to strike a good balance between the risks in the different strategies in order to exploit these diversification effects. When market conditions change, opportunities to exploit the fund's strengths may mean that we choose to increase the allocation to one or more strategies. This can also impact on the diversification effect.

The management mandate contains a number of requirements that themselves draw on the risk limits set, including the requirement to take account of fiscal strength when investing in government bonds, and the requirement to invest between 30 and 60 billion kroner in special environment-related mandates. To satisfy these mandate requirements, the Bank needs to put together a portfolio that deviates from the benchmark index.

At 30 September 2017, expected relative volatility from the requirement to take account of fiscal strength in the composition of government bond investments was estimated at 1 basis point at fund level, and 4 basis points relative to the benchmark index for bonds.

Expected relative volatility from the requirement for environment-related mandates at the same date was estimated at 3 basis points at fund level, and 4 basis points relative to the benchmark index for equities.

Expected absolute and relative volatility estimate the risk in a normal market situation, but provide no information on the distribution and impact of less probable outcomes (known as tail risk). In its letter to the Ministry of 29 September 2015, Norges Bank provided advice and analysis on a supplementary risk limit for the fund. In line with the mandate, the Bank's Executive Board has issued a supplementary risk limit for large negative deviations from the benchmark index that are expected to occur rarely, or extreme deviation risk. This limit takes the form of a limit for expected shortfall, which is defined as the average of the deviations that can be expected beyond a given probability, and therefore includes all observations in the left-hand tail of the distribution. To ensure that the Bank's limit for extreme deviation risk complements the mandate's limit on relative volatility, we estimate expected shortfall over a longer time period.

At 30 September 2017, the expected shortfall at a 97.5 percent confidence interval (i.e. the average negative deviation in the 2.5 percent weakest observations) was estimated at 148 basis points annually. This estimate is based on a historical simulation of the past ten years' relative return. The Executive Board has set a limit for expected shortfall of 375 basis points. The method for calculating expected shortfall was submitted to the Ministry in a letter of 8 February 2016.

Table 3: Expected shortfall of the investment strategies at 30 September 2017. Each strategy measured on a standalone basis with the other strategies positioned in line with the benchmark indices. Measured in the fund's currency basket. Basis points.

Investment strategies	Basis points
Fund allocation	116
Internal reference portfolio	49
of which, systematic factors	26
of which, universe expansion	34
Real estate	100
Allocation decisions	19
Security selection	40
Internal	32
External	20
Asset management	47
Positioning	47
Total	**148**

The Ministry asks the Bank to give an account of how the mandate requirement for exposure to systematic risk factors has been followed up in the management of the fund. Systematic factors are common characteristics which securities share over time and which contribute to both the risk and the return on investments.

We seek exposure to systematic factors in various parts of our management of the fund. The internal reference portfolio is exposed to selected factors, such as value stocks, small companies and quality. Over time, we have sought exposure to a growing number of factors and developed the way in which we achieve this.

At 30 September 2017, expected relative volatility from systematic factors in the internal reference portfolio was measured at 9 basis points, compared with 7 basis points at the end of 2016. The contribution to excess return from 1 January to 30 September 2017 was 1 basis point, while the equivalent figure for 2016 was 19 basis points. The contribution to excess return from 2013 to 30 September 2017 from systematic factors in the internal reference portfolio was 2 basis points.

Exposure to systematic factors is managed dynamically in our asset management strategies, which means that these exposures are not constant over time. We combine a selection of systematic strategies over different time horizons, while looking to limit risk and trading volumes. The fund's factor exposures may therefore differ from factor exposures in the internal reference portfolio. The contribution to the fund's excess return from dynamic factor strategies within asset management from 2013 to 30 September 2017 was 2 basis points.

Assessment of risk measures and expected excess return

The Ministry asks Norges Bank to assess whether the size of the limit for deviation from the benchmark index, as measured by expected relative volatility, is well-suited to the management of the fund.

Measured risk in financial markets is currently low, and we have to allow for it rising again. We are also in a period where the fund's investments in unlisted real estate are being built up. Investments in unlisted real estate increase expected relative volatility relatively more than other investment strategies. This is because deviations between asset classes increase the fund's expected relative volatility more than deviations within asset classes. The planned build-up of unlisted real estate investments to 5-7 percent of the fund will therefore draw on the limit for expected relative volatility.

Current usage of the limit for expected relative volatility should also be seen in the light of the fund now being of a substantial size in the market, which imposes capacity constraints on some investment strategies.

We do not believe that there is a need to change the size of the limit for deviation from the benchmark index at this point. We may, however, revisit this topic after gaining more experience of the new management model that came into effect on 1 January 2017, or in the event of changes in the investment universe.

Besides assessing the size of the limit for deviation from the benchmark index, the Ministry might also consider whether the management of the fund should be based on an absolute measure of risk rather than a relative measure. Such a measure would ensure that the management of the fund focuses more on the fund's overall volatility and less on the risk of deviation from the benchmark index.

The Ministry asks Norges Bank for information on the expected contributions to the fund's risk and return from the different investment strategies. In the section on risk above, we ran through the different strategies' contributions to expected relative volatility at 30 September 2017. Assuming that the information ratio is the same for the different strategies, their expected contributions to excess return will be similar. However, the premises are very uncertain. We have to expect some strategies to contribute positively in some periods and negatively in others.

The Ministry also raises the issue of whether the substantial increase in the size of the fund has affected the potential for excess returns. Our experience is that it has become more challenging to generate an excess return in percentage terms, but that the potential in absolute terms (kroner) has not decreased.

Comparison with passive indexing strategy
The Ministry asks Norges Bank to present updated analyses of active management where the gross excess return is adjusted for relevant cost and revenue components.

Norges Bank believes that the performance of its management assignment demands a high level of ambition. Our goal is to safeguard and build financial wealth for future generations through a skilled investment management organisation.

The management assignment is wide-ranging and complex. The fund currently has an investment approach that is index-oriented but where all of the investment strategies are active. Norges Bank believes that an explicit objective of the highest possible return within the constraints imposed by the mandate is essential for ensuring the best possible standards in the execution of all parts of the management assignment. When this objective is translated into expectations for managers, departments and individual employees, everyone is involved in raising the quality of inputs into the management process. Risk management and control functions are stronger in such a framework, and we believe that this reduces the operational risk in the management of the fund. A passive approach to operational decisions is not an adequate alternative.

A passive strategy would attempt to mimic a benchmark index by following set rules. Such a strategy would not be compatible with current requirements and expectations when it comes to responsible investment, environment-related mandates, investments in real estate, investments in emerging markets, factor exposures or risk management. Such a strategy would therefore require a different management mandate to the one we have today. Direct costs could only be slightly lower with this approach than with the current model. It would also be a challenge to match the benchmark portfolio's return.

The fund's return net of management costs can be compared with the return that could theoretically have been achieved with a passive indexing strategy that includes revenue from securities lending.

In the enclosure, we calculate the relative return after costs from pursuing a passive indexing strategy. When we compare the fund's relative return after costs with the estimated relative return for a passive indexing strategy, we find that the relative return on the fund over the past three years has been 35 basis points higher than that for the passive strategy. The equivalent figure for the past five years is 23 basis points. The difference since 1998 is 26 basis points.

These estimates of the differences between the return on the fund and a passive strategy are close to the excess return reported for the fund. The reported excess return has therefore given a good indication of the return differential. The Ministry discussed the relationship between these variables in the white paper for 2015 and reached the same conclusion.

Responsible investment
The Ministry asks Norges Bank to provide further information on the reciprocity between active management and responsible investment. The Ministry also asks the Bank to present analyses and assessments of its work on responsible investment, including analyses of the estimated effect on risk and return, organisation and staffing, and share of total management costs.

Our work on responsible investment supports the fund's objective of the highest possible return with acceptable risk. The management mandate requires the Bank to integrate responsible investment efforts into the management of the fund.

Standard setting, active ownership and risk management are the three pillars of our work on responsible investment. We publish expectations, position papers and voting guidelines, and we participate in public consultations to further international standards. We support academic research to improve the theoretical and empirical foundations for our work. As an active owner, we engage with companies' board and management and vote at shareholder meetings. Special environment-related investment mandates have been awarded to internal and external managers. We monitor and analyse environmental, social and governance risks, and use these analyses to reach decisions on risk-based divestment.

Our work on responsible investment is integrated into the operational management of the fund. There is considerable reciprocity between these two sides of our management. In our active ownership work, we analyse and build up knowledge of factors that may have implications for companies' long-term profitability. Through research grants, development of data and methods, and initiatives to improve corporate disclosure, we obtain a better insight into topics that may impact on risk and return over time. This can also support our work on standard setting and initiatives to improve practices across themes, sectors or the market as whole. At the same time, information from standard-setting processes can influence how we view trends and assess companies' strategic approach. Our risk analyses can also give us an insight into opportunities that could be exploited, for example in our environment-related investment mandates.

Our experience is that it is especially important to view active ownership and investment decisions together at companies where the fund is a significant shareholder. We take account of whether a matter can be considered material at the company level, and whether it could affect the valuation of the company. Our dialogue with companies is more effective when active ownership and investment decisions are viewed together.

The Bank regularly meets representatives of the companies the fund is invested in. This provides a basis for healthy dialogue on ownership topics and provides a good insight into the companies the fund has invested in, and the challenges they face. The knowledge that we build up through our company dialogues helps ensure that our ownership activities are relevant and based on a holistic understanding of individual companies and issues. In emerging markets, external managers contribute insight into companies, including on environmental, social and governance issues.

As required by the management mandate, our work on responsible investment is an integral part of the management of the fund. Responsibility for following up different areas is assigned to different parts of the organisation, which means that it is neither possible nor appropriate to provide estimates of staffing and costs. The Bank believes that the analyses requested by the Ministry might be more appropriate at organisations where work on responsible investment is organised separately to ordinary investment management.

Based on the guidelines for the observation and exclusion of companies issued by the Ministry of Finance, a total of 135 companies are currently excluded from the fund's investment universe. The exclusion of companies can affect the fund's risk and return. Our estimates suggest that exclusions based on the criteria in the guidelines for observation and exclusion have resulted in an accumulated return difference of -1.31 percentage points at 30 September 2017. In addition, we calculate the contributions to risk and return from the environment-related mandates. For several years now, we have also published estimates of absolute and relative greenhouse gas emissions at companies in the fund's equity portfolio. These measurements say something about our positioning against the equity portion of the benchmark index, but say less about climate risk without extensive additional information and assumptions.

Companies' approach to sustainability issues, principles and frameworks are constantly evolving, as are technology and commercial markets. Through our long-term work on standard setting, expectations, positions, initiatives and meetings with individual companies, we expect to contribute to sustainable market solutions and good corporate practices. This, in turn, could contribute to the long-term value of the fund. Research grants and the development of data and methods can also result in information and strategies that contribute to well-functioning markets. This is important for the fund as a long-term market participant and owner over time, but it is hard to measure or credit with a direct effect on the portfolio.

A more detailed review of our work on responsible investment can be found in our report on responsible investment for 2016. The 2017 report will be published in the first quarter of 2018.

Real estate investments

The Ministry asks Norges Bank to evaluate the strategy for, and design and organisation of, real estate management, and the results achieved.

When the Ministry opened the door to real estate investments in Report to the Storting No. 16 (2007-2008), it stressed that the fund was to be a highly diversified and global portfolio and should therefore also be exposed to a large asset class such as real estate. Most of the fund's peers were invested in real estate, and the Ministry found it hard to see why the fund's strategy should depart significantly from that of other large international funds. The Ministry also emphasised that investments in real estate could help improve the diversification of risk, and that the fund's special characteristics made it well-suited to bearing the risk associated with investments of this kind.

Strategy

In March 2010, the mandate from the Ministry was revised to include up to 5 percent unlisted real estate. In 2013, this was clarified as a mandate to invest globally. Norges Bank has since built a global, but concentrated, portfolio of office and retail properties in selected cities, and logistics properties around the world. We invest in high-quality buildings in locations that we expect to be attractive in the long term. These are often buildings with a low initial yield, but which we believe will attract tenants for a long time, so increasing the life of our investment and reducing transaction costs. We also invest in logistics properties connected to key infrastructure in markets that are important for global distribution chains.

We invest with partners in order to draw on their local knowledge and expertise, but also undertake some transactions independently. We aim to invest at a steady rate throughout the business cycle. This helps reduce the risk of investing excessively in periods when pricing may subsequently turn out to have been high. The level of investment will nevertheless depend on market developments and available investment opportunities.

The mandate from 2010 specified that the bond portfolio was to be reduced in step with growth in the real estate portfolio. From 2010 to 2016, investments in real estate were therefore matched by a corresponding decrease in the fund's bond investments. Since 1 January 2017, the upper limit for investments in unlisted real estate has been 7 percent of the fund, and it is now up to Norges Bank to decide how purchases of real estate are to be funded by changes to other parts of the portfolio.

The investment strategy has not changed significantly since the first investment was made, and we have no plans to make any major changes. We have invested between 0.26 and 0.76 percent of the fund each year since 2011. At 30 September 2017, real estate investments accounted for 2.5 percent of the fund's market value.

Organisation

In 2014, the management of the fund's unlisted real estate investments was organised as a separate unit (NBREM) with its own management team. The organisation has been built up and developed gradually in line with an ever larger and more diverse portfolio. At the end of 2016, NBREM had 139 employees across six offices.

Decision processes for investments in unlisted real estate are governed by investment mandates, committee mandates and job descriptions. Various boards and committees, consisting of both internal and external advisers, meet regularly to consider relevant investments. These decision processes take account of investments in unlisted assets being costly to reverse.

Investments in unlisted assets are relatively illiquid, transactions are not standardised, and they take place outside regulated marketplaces. The fund invests in real estate through subsidiaries to ensure sound risk management, operational efficiency, and protection for Norges Bank and the fund's assets.

Costs

The management of the fund's unlisted real estate investments entails costs at three levels: (i) NBREM and the management companies, (ii) wholly and partly owned holding companies, and (iii) the properties themselves. We have chosen a strategy of direct investment in real estate, partly for reasons of cost-effectiveness and good control. Such a strategy results in costs at NBREM and the management companies, due partly to having a local presence, but also contributes to lower costs at the next levels down. An alternative investment strategy investing in funds, funds-of-funds, listed real estate and the like would have some costs for the investor, but the bulk would have been at the company and property level in these structures.

The organisation for investing in unlisted real estate has been built up at low cost. Total costs as a share of average assets under management have trended downwards since inception, from 0.91 percent in 2011 to 0.65 percent in 2016. Similarly, internal costs fell from 0.57 percent in 2011 to 0.25 percent in 2016.

Through our membership of INREV[7], a European platform for sharing experience and knowledge on unlisted real estate, we can compare our costs with those of other investors in this asset class. In 2015, NBREM had a total expense ratio (TER)[8] of 0.58 and 0.53 percent respectively based on the net and gross value of its unlisted real estate portfolio, compared with the INREV TER benchmark of 0.98 and 0.69 percent respectively.[9]

Results

Our overall strategy for real estate includes both unlisted and listed investments. From 2014 to 2016, listed real estate investments were included in the return reported for real estate investments. During that period, listed investments accounted on average for around a fifth of total real estate investments.

[7] The European Association for Investors in Non-Listed Real Estate Vehicles.

[8] NBREM's TER can be derived from the costs in Table 18 of the report on real estate investments for 2016 by adjusting the "Holding structure" row for minority interests and insurance, and excluding the "Asset management – variable fees" row.

[9] Benchmark available only for 2015. In 2016 and 2017, INREV has worked on standardising its cost concepts/definitions, and a new benchmark is expected to be available from 2017 onwards.

From the first investment in 2011 until the end of 2016, the annual return on the fund's total real estate investments was 5.81 percent, measured in the fund's currency basket. During this period, real estate investments were financed by selling fixed-income investments. The annual return on the benchmark index of the fixed-income portfolio during the period was 4.4 percent.

The annual return on the fund's unlisted real estate investments from 2011 to 2016 was 6.0 percent, breaking down into 4.0 percentage points income return, 3.5 percentage points capital return and -1.5 percentage points transaction costs. The income return climbed from 4.2 percent in 2012 to 4.6 percent in 2013, due partly to investments in logistics properties with a higher yield, but then fell to 3.7 percent in 2016, due primarily to higher property values. The capital return has fluctuated more than the income return during the period, but has been positive every year. Transaction costs have impacted significantly on returns during the build-up phase, but will have less of a negative effect in future when new investments account for a smaller share of the portfolio. Debt levels in the portfolio have been low and have had little impact on risk and return.

From 2017, we are reporting the return on real estate investments in the overall investment strategies table. Unlisted real estate investments returned 5.4 percent in the first three quarters of 2017. The return on the equities and bonds sold to finance these real estate investments was 4.9 percent. A comparison with this financing shows a positive relative return for unlisted real estate investments of 0.6 percentage point. Measured in local currency, the return on unlisted real estate investments in the first three quarters of 2017 was 5.3 percent, breaking down into 2.8 percentage points income return, 2.6 percentage points capital return and -0.1 percentage point transaction costs.

From 2011 through to 31 December 2016, the target set in the management mandate was a return at least matching that on the IPD Global Property Index excluding Norway, adjusted for actual management and tax costs ("the IPD index"). For 2011 and 2012, it was decided that the benchmark should be limited to the European portion of the IPD index. From 1 January 2017, results are to be compared with a broad set of return metrics.

The IPD index is based on return at the property level. Our reported return includes income statement and balance sheet items that are not directly related to the properties, such as taxes, management fees, interest on external debt, and the impact of leverage. In order to compare the real estate portfolio with the IPD index, we have therefore also calculated the return at the property level. It is important to note that these calculations exclude transaction costs, whereas IPD includes these costs. The reason why we have excluded transaction costs is that they have a much greater impact on returns during a build-up phase than in an established portfolio. IPD estimates annual transaction costs in its index at 0.2 percent.

In the period from 2011 to 2016, the IPD index had an annual return of 7.9 percent.[10] Adjusted for transaction costs, it returned 8.1 percent. The fund's unlisted real estate

[10] April 2011 has been used as the starting date, so a quarter of IPD's return for 2011 has been subtracted from the index return that year.

investments generated an equivalent return at the property level of 8.2 percent. During the start-up phase, the Bank's real estate portfolio was very different from the composition of the IPD index. This resulted in differences in annual return volatility, sector exposures and geographical exposure.

Table 4: Return on real estate investments

Measured in the fund's currency basket Period	2011*	2012	2013	2014**	2015	2016	2011-2016 annualised
Return on the fund's unlisted real estate investments	-4.4%	5.8%	11.8%	9.6%	10.8%	1.7%	6.0%
Return on the fund's listed real estate investments	-	-	-	6.0%	7.8%	-2.3%	5.2%
Return on the fund's total real estate investments	-4.4%	5.8%	11.8%	10.4%	10.0%	0.8%	5.8%
Benchmark index for fixed-income investments	6.2%	7.0%	-0.1%	7.6%	0.6%	4.2%	4.4%
Relative return	-10.6%	-1.2%	11.9%	2.8%	9.4%	-3.4%	1.4%

*The return series for unlisted real estate investments started on 1 April 2011. All figures in this column cover last three quarters of 2011
** The return series for listed real estate investments started on 1 November 2014.

Table 5: Return on unlisted real estate investments

Measured in local currency Period	2011*	2012	2013	2014	2015	2016	2011-2016 annualised
Return on the fund's unlisted real estate investments	4.9%	6.0%	8.9%	11.4%	10.6%	5.6%	8.2%
MSCI IPD Global Property Index net of transaction costs**	5.1%	4.6%	8.5%	10.1%	10.9%	7.7%	8.1%
Relative return	-0.2%	1.4%	0.4%	1.2%	-0.3%	-2.1%	0.1%

*The return series for unlisted real estate investments started on 1 April 2011. The index return has therefore been adjusted to reflect only three quarters in 2011.
**IPD Global Property Index ex transaction costs. The IPD Pan-European Property Index has been used for 2011 and 2012, and the IPD Global Property Index from 2013.

The management mandate requires the Bank's management of unlisted real estate to take account of energy efficiency, water consumption and waste management. Performance in these areas is measured via green certification schemes for large buildings and the ranking of real estate funds, companies and managers conducted each year by the Global Real Estate Sustainability Benchmark (GRESB) initiative.

Experience from building up real estate management at Norges Bank has been positive to date. Unlisted real estate investments need to be managed in a different way to the fund's other investments. The fund's real estate activities have given the Bank relevant experience of investments in unlisted assets, the operational challenges this can entail, and the demands this makes of the organisation.

Further information can be found in our report on real estate investments for 2016. The 2017 report will be published in the first quarter of 2018.

Advice on investment strategy

The Ministry asks Norges Bank to evaluate its work on advising the Ministry on investment strategy.

Norges Bank is to advise the Ministry on changes to the investment strategy. This advice may be given on the Bank's own initiative or at the Ministry's request. The Bank's role is to give the best professional advice given the management objective of maximum return at moderate risk.

The Bank's advice is founded in financial theory and empirical analyses. In recent years, recommendations on major changes to the investment strategy have been supported by discussion notes published on www.nbim.no. These discussion notes are subject to an extensive internal and external quality assurance process in which the Bank draws partly on the members of its Allocation Advisory Board.[11] Where relevant, the Bank's advice will also reflect its experience as manager of the fund. The Bank sees considerable benefit in engaging in dialogue with other market participants, and believes that there is much we can learn from other large investors, external managers, opinion formers and regulators. However, the fund's investment strategy needs to be designed in a way that ensures the best possible portfolio given the fund's objective and special characteristics.

The Bank considers the need for changes to the investment strategy on the basis of how they might be expected to impact on overall risk and return, and not on how its recommendation might affect the potential for excess returns. We have not placed great importance on whether or not the Bank has had operational management expertise in the relevant area when making a recommendation.

The Bank's advice to the Ministry is considered by the Executive Board on the basis of briefing notes from Norges Bank Investment Management. The work at Norges Bank Investment Management is led by the CIO for Allocation Strategies. In addition to staff in the allocation department, employees with relevant expertise in other departments may be involved in the advisory process. Proximity to financial markets and detailed knowledge of investment management mean that the Bank has a good insight into how its advice will actually impact on the portfolio. This is a strength of the way in which the advisory process is currently organised.

[11] NBIM's Allocation Advisory Board currently has the following members: Louis Viceira (George E. Bates Professor at Harvard Business School), Lars Løchster (Gantcher Associate Professor of Business at Columbia University) and Christoffer Polck (Professor of Finance at the London School of Economics).

The Bank's advice on changes to the investment strategy concern important choices that have implications for the fund's risk and return. The effects of some of these choices are analysed in our extended report on return and risk. The Bank believes that it is important for this type of analysis to be carried out.

Yours faithfully

Øystein Olsen

Yngve Slyngstad

Enclosure