NORGES BANK
INVESTMENT MANAGEMENT

RETURN AND RISK

GOVERNMENT PENSION FUND GLOBAL

/2017

No. 03

Our mission
is to safeguard
and build financial
wealth for future
generations

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APPENDIX Available on www.nbim.no

The fund's investments

The fund's investments are diversified across asset classes, regions and sectors. The goal is to have well diversified investments that spread risk and generate high long-term return.

The fund is invested in three major asset classes, equities, fixed income and unlisted real estate. At the end of 2017, the fund's asset allocation was 66.6 percent equity investments, 30.8 percent fixed-income investments and 2.6 percent unlisted real estate investments.

EQUITY INVESTMENTS

The fund's asset allocation to equities increased by 4.1 percentage points in 2017 to reach 66.6 percent at the end of the year. The fund had equity investments in 72 countries at the end of 2017. 38.4 percent of the equity portfolio was invested in North America, 36.6 percent in Europe and 22.9 percent in Asia and Oceania. 89.0 percent of our equity investments were in developed markets and 11.0 percent in emerging markets, including frontier markets.

The fund's largest equity sector is financials, accounting for 24.5 percent of the fund's equity investments at the end of 2017. Industrials and consumer goods were the second and third largest sectors, with 14.3 percent and 13.5 percent respectively. The technology sector moved up to the fourth largest with 11.2 percent of the equity investments at the end of 2017, from being sixth largest with 9.5 percent last year.

The equity portfolio was invested in 9,146 companies at the end of the year. Our largest equity investment was in Apple Inc, where we had 66.0 billion kroner invested. The fund's average holding in the world's listed companies, measured as its share of the equity benchmark index was 1.4 percent at the end of 2017. In Europe, the average ownership share was 2.4 percent.

FIXED-INCOME INVESTMENTS

The fund's allocation to the fixed-income asset class decreased to 30.8 percent at the end of 2017 from 34.3 at year-end 2016. The bond holdings were denominated in 31 different currencies, but bonds in the four most liquid currencies made up 82.3 percent of our fixed-income investments. 43.5 percent of our investments were in bonds denominated in US dollars, 26.4 percent in euros, 7.8 percent in Japanese yen and 4.6 percent in British pounds. Government bond holdings in emerging market currencies accounted for 10.6 percent of our fixed-income investments.

55.8 percent of the fund's fixed-income investments were in government bonds, 12.1 percent in government-related bonds and 5.0 percent in inflation-linked bonds. The allocation to the corporate bond sector was 24.2 percent at the end of 2017. Securitised bonds, consisting primarily of European covered bonds, represented the remaining 5.1 percent.

The fund's fixed-income portfolio had an average duration of 6.4 and an average yield of 2.1 percent. The fund's average ownership share in fixed-income markets, measured as its share of the benchmark index for bonds, was 0.8 percent.

Chart 1 The fund's annual return and accumulated annualised annual return. Percent

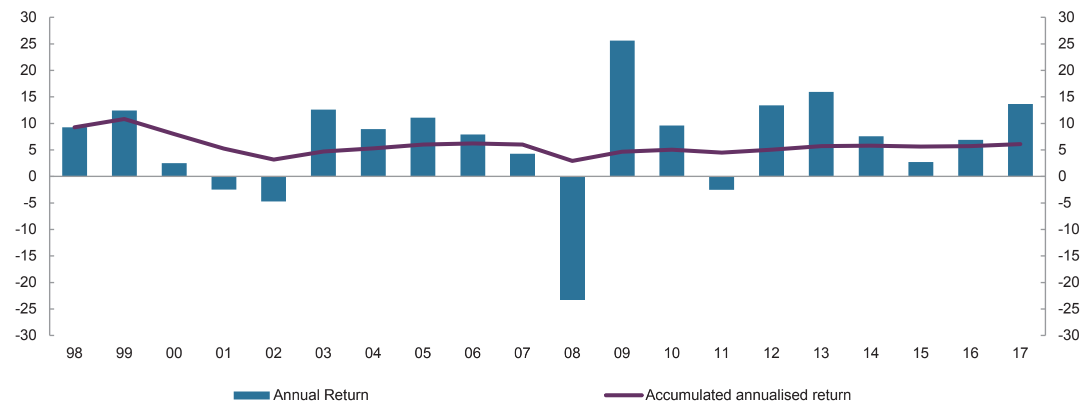


Chart 2 Return on the fund's investments. Percent

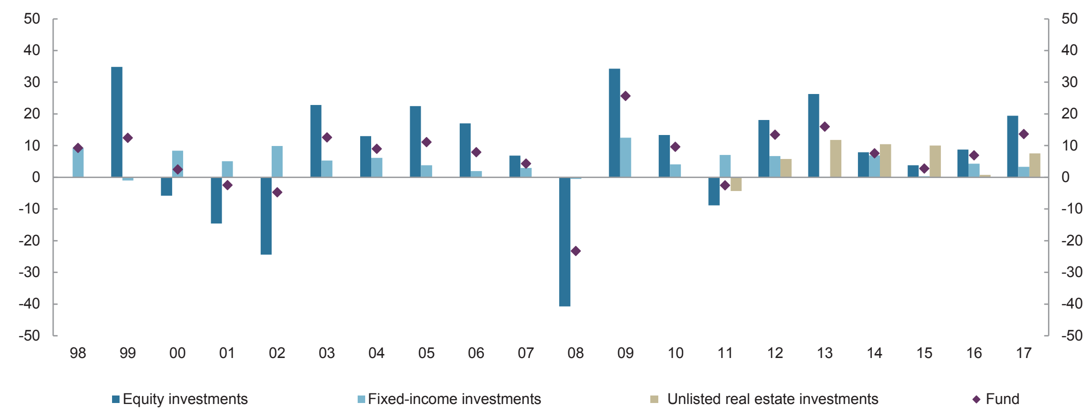


Chart 3 The fund's market value. Billions of kroner

Table 1 Regional composition of the fund's equity holdings

Region	Millions of kroner [1]	Percent
North America	2,170,044	38.4
United States	2,042,110	36.1
Canada	127,934	2.3
Europe	2,067,090	36.6
United Kingdom	548,581	9.7
Germany	344,548	6.1
France	289,270	5.1
Switzerland	261,167	4.6
Sweden	102,550	1.8
Netherlands	100,803	1.8
Spain	100,020	1.8
Italy	93,130	1.6
Denmark	62,687	1.1
Belgium	48,925	0.9
Finland	32,661	0.6
Asia	1,164,973	20.6
Japan	517,074	9.1
China	202,687	3.6
South Korea	110,443	2.0
Taiwan	90,806	1.6
Hong Kong	79,600	1.4
India	66,301	1.2
Oceania	129,489	2.3
Australia	122,914	2.2
Latin America	81,003	1.4
Brazil	49,265	0.9
Africa	46,506	0.8
South Africa	40,609	0.7
Middle East	21,423	0.4

[1] Does not sum up to total market value due to cash and derivatives.

Table 2 Sector composition of the fund's equity holdings

Sector	Millions of kroner [1]	Percent
Financials	1,383,198	24.5
Banks	596,252	10.5
Insurance	289,389	5.1
Real estate	280,087	5.0
Financial services	217,471	3.8
Industrials	809,835	14.3
Industrial goods and services	675,593	12.0
Construction and materials	134,242	2.4
Consumer goods	765,236	13.5
Personal and household goods	317,081	5.6
Food and beverage	257,243	4.6
Automobiles and parts	190,912	3.4
Technology	632,572	11.2
Technology	632,572	11.2
Consumer services	572,093	10.1
Retail	285,602	5.1
Travel and leisure	155,323	2.7
Media	131,168	2.3
Health care	554,178	9.8
Health care	554,178	9.8
Basic materials	338,655	6.0
Chemicals	202,972	3.6
Basic resources	135,683	2.4
Oil and gas	316,470	5.6
Oil and gas	316,470	5.6
Telecommunications	160,675	2.8
Telecommunications	160,675	2.8
Utilities	147,616	2.6
Utilities	147,616	2.6

[1] Does not sum up to total market value due to cash and derivatives.

Table 3 Currency composition of the fund's bond holdings

Currency	Millions of kroner [1]	Percent
US Dollar	1,137,231	43.5
Euro	690,362	26.4
Japanese Yen	204,240	7.8
British Pound	120,739	4.6
Canadian Dollar	99,583	3.8
Australian Dollar	60,333	2.3
South Korean Won	45,357	1.7
Mexican Peso	44,747	1.7
Indian Rupee	27,978	1.1
Brazilian Real	25,289	1.0
Swedish Krona	24,430	0.9
Indonesian Rupiah	22,694	0.9
Swiss Franc	19,864	0.8
Russian Ruble	18,385	0.7
Malaysian Ringgit	15,581	0.6
Danish Krone	14,041	0.5
South African Rand	13,870	0.5
Singapore Dollar	13,639	0.5
Turkish Lira	12,976	0.5
Polish Zloty	12,287	0.5
Colombian Peso	7,780	0.3
New Zealand Dollar	7,481	0.3
Israeli Shekel	7,140	0.3
Thai Baht	7,001	0.3
Chinese Yuan	5,570	0.2
Czech Koruna	4,736	0.2
Philippine Peso	4,385	0.2
Chilean Peso	3,114	0.1
Hong Kong Dollar	500	0.0
Omani Rial	2	0.0
Hungarian Forint	0	0.0

[1] Does not sum up to total market value due to cash and derivatives.

Table 4 Sector composition of the fund's bond holdings

Sector	Millions of kroner [1]	Percent
Government bonds	**1,458,829**	**55.8**
Government bonds	1,458,829	55.8
Government-related bonds	**316,784**	**12.1**
Agencies	150,029	5.7
Local authorities	101,287	3.9
Supranational	57,374	2.2
Sovereign	8,094	0.3
Inflation-linked bonds	**131,125**	**5.0**
Inflation-linked bonds	131,125	5.0
Corporate bonds	**631,957**	**24.2**
Industrials	334,909	12.8
Financials	250,449	9.6
Utilities	46,599	1.8
Securitised bonds	**132,642**	**5.1**
Covered	132,642	5.1
CMBS	0	0.0

[1] Does not sum up to total market value due to cash and derivatives.

At the end of 2017 the fund had equity investments in 9,146 companies worldwide.

Table 5 Largest holdings of equities and bonds excluding sovereigns as at 31 December 2017. Covered bonds issued by financial institutions and debt issued by other underlying companies are included in bonds. Millions of kroner

Name	Sector	Equities	Bonds	Total
Apple Inc	Technology	66,029	8,122	74,152
Nestlé SA	Consumer goods	51,040	1,895	52,935
Royal Dutch Shell Plc	Oil and gas	50,258	2,673	52,930
Microsoft Corp	Technology	47,549	2,155	49,704
Alphabet Inc	Technology	47,892	844	48,737
Bank of America Corp	Financials	25,546	17,002	42,548
Novartis AG	Health care	36,770	3,952	40,722
Amazon.com Inc	Consumer services	36,579	3,428	40,006
JPMorgan Chase & Co	Financials	25,823	12,730	38,553
HSBC Holdings Plc	Financials	30,777	7,380	38,158
Roche Holding AG	Health care	35,151	2,008	37,159
AT&T Inc	Telecommunications	17,518	16,526	34,044
Tencent Holdings Ltd	Technology	33,952		33,952
Berkshire Hathaway Inc	Financials	26,740	6,615	33,355
Wells Fargo & Co	Financials	21,626	10,031	31,657
Samsung Electronics Co Ltd	Consumer goods	30,402		30,402
Facebook Inc	Technology	29,759		29,759
Johnson & Johnson	Health care	27,365	2,278	29,644
Credit Suisse Group AG	Financials	18,875	10,521	29,395
Kreditanstalt für Wiederaufbau	Government-related		28,703	28,703
BP Plc	Oil and gas	24,854	1,758	26,612
Citigroup Inc	Financials	16,945	9,636	26,580
Anheuser-Busch InBev SA/NV	Consumer goods	20,565	5,390	25,955
UBS Group AG	Financials	18,787	7,022	25,810
Verizon Communications Inc	Telecommunications	16,602	8,723	25,325
Exxon Mobil Corp	Oil and gas	25,266		25,266
Banco Santander SA	Financials	18,177	6,559	24,736
Lloyds Banking Group Plc	Financials	14,621	9,721	24,342
Canada Mortgage & Housing Corp	Government-related		23,399	23,399
Taiwan Semiconductor Manufacturing Co Ltd	Technology	22,550	574	23,124
Linde AG	Basic materials	23,057		23,057
TOTAL SA	Oil and gas	20,449	2,278	22,728
BASF SE	Basic materials	21,572	1,023	22,595
SAP SE	Technology	20,151	1,360	21,510
Sanofi	Health care	16,504	3,684	20,188
Bayer AG	Basic materials	18,894	1,251	20,145
Prudential Plc	Financials	19,470	447	19,917
Vodafone Group Plc	Telecommunications	15,839	3,920	19,759
European Investment Bank	Government-related		19,421	19,421
Siemens AG	Industrials	16,001	2,845	18,845

Global investments

NORTH AMERICA

2,170 companies
2,132 bonds from 594 issuers
356 properties

LATIN AMERICA

281 companies
128 bonds from 38 issuers


EUROPE
1,900 companies
1,588 bonds from 484 issuers
414 properties
ASIA
4,067 companies
562 bonds from 79 issuers
5 properties
MIDDLE EAST
169 companies
26 bonds from 9 issuers
AFRICA
200 companies
15 bonds from 2 issuers
OCEANIA
359 companies
165 bonds from 41 issuers

Benchmark index

The strategic benchmark index is defined in the mandate set by the Ministry of Finance to regulate our management of the fund. It reflects important decisions that determines how developments in the broad markets affect the total return on the fund over time.

The first benchmark index designed for the management of the fund was introduced in January 1998. The benchmark index is the key representation of the investment strategy and has defined the main return and risk properties of the fund.

We seek to safeguard the long-term international purchasing power of the fund at acceptable risk. This has remained unchanged since inception. However, the benchmark index derived from this goal has evolved. The authority to set and change the benchmark index rests with the Ministry. The Ministry has drawn on advice from Norges Bank, and independent third party experts appointed to provide such advice. On matters of strategic importance the Ministry has used national budget documents and periodic white papers to anchor decisions on fund strategy in parliament (the Storting). The Ministry has laid down changes to the investment mandate based on these deliberations.

The investment mandate entails a number of important decisions. In financial theory, the term "market portfolio" is used to describe the most diversified portfolio. In practical terms, this theoretical construct is both unobserved and un-investable.

The Ministry defines the investment universe for the fund. The investment universe is restricted to investments in listed equities, tradable fixed-income instruments and unlisted real estate. In addition, the fund can be invested in unlisted equity of companies where the board has expressed an intention to seek public listing.

While market-weighted portfolios are passive in the sense that they require the fewest transactions, the asset owner may choose to depart from market weights and construct a benchmark index which better reflects specific objectives and characteristics. The fund's most important departure from market weights is the choice of equity share in the benchmark index. The recent decision to increase the equity share in the benchmark index to 70 percent was a move further away from the relative market weights of equities and bonds we observe in liquid markets. Another important departure from market weights is the regional weights the Ministry has set within asset classes.

The Ministry then needs to choose which market representation to use for the benchmark index. There is no unique market portfolio and an investor will have to create an own market representation or choose between externally provided indices to benchmark actual investments. Independent providers create capitalisation-weighted indices. This involves choosing the securities to be included in the index, choosing constituent weights, and how these weights change over time.

The Ministry has formulated a rebalancing regime for the fund. The departure from market weights requires active trading to return the portfolio to its strategic targets. Being a dynamic trading strategy, the design of the rebalancing regime will have important consequences for the long run return and risk characteristics of the fund. Rebalancing may enhance the long-run portfolio efficacy.

Finally, the Ministry has to formulate the objective for the manager. This objective has been to maximise returns within the mandate. Any deviations in the actual portfolio from the benchmark index have been contained through tracking error constraints. Since February 2016 the tracking error limit has been 125 basis points.

The 2014 review of the active management of the fund advocated that the fund should report return and risk from active decisions in each discrete phase of the investment process.

THE STRATEGIC BENCHMARK INDEX

The composition of the strategic benchmark index has evolved over time. It now consist of listed equities and bonds. At the end of 2017, while under transition from a strategic equity share of 62.5 percent towards a new strategic allocation of 70 percent, the actual equity share in the benchmark index stood at 67.1 percent equities and 32.9 percent fixed income. The sub-indices for equities and fixed income were based on publicly available, widely used, investable indices.

Table 6 The fund's benchmark return, key figures, measured in various currencies. Annualised. Percent

	Since 01.01.1998	Last 10 years	Last 5 years	2017
US Dollar	6.17	4.71	6.96	19.18
Euro[1]	5.70	6.79	8.98	4.68
British Pound	7.25	8.83	10.96	8.86
Norwegian Krone	6.76	9.08	15.52	13.25
Currency basket	5.81	6.01	8.96	12.96

[1] Euro was introduced as currency on 01.01.1999. WM/Reuters' Euro rate is used as estimate for 31.12.1997.

Table 7 The fund's benchmark return, 5-year buckets, measured in various currencies. Annualised. Percent

	1998 – 2002	2003 – 2007	2008 – 2012	2013 – 2017
US Dollar	2.86	12.67	2.50	6.96
Euro[1]	3.82	5.44	4.64	8.98
British Pound	3.46	7.99	6.74	10.96
Norwegian Krone	1.74	7.32	3.00	15.52
Currency basket	2.78	8.52	3.14	8.96

[1] Euro was introduced as currency on 01.01.1999. WM/Reuters' Euro rate is used as estimate for 31.12.1997.

Unlisted real estate is a separate asset class in the portfolio, but is not reflected in the fund's benchmark index as the decision on how much and when to invest in unlisted real estate is delegated to Norges Bank as the manager of the fund within the limits laid down in the investment mandate.

Equity benchmark index

The equity benchmark index is based on the FTSE Global All Cap index, which is a global market-capitalisation-weighted index covering approximately 7,700 stocks in 47 countries, or roughly 98 percent of the world's investable market capitalisation. FTSE conducts an annual review of all countries in the index, as well as those being considered for inclusion, against minimum standards of governance and investability. Eligible securities are assigned to a country and are required to pass screens for liquidity, free float and foreign ownership restrictions prior to being included.

The equity benchmark index deviates from the composition of the FTSE Global All Cap index along two important dimensions: geographical distribution and ethical exclusions. In terms of the geographical distribution, the benchmark index has a larger weight in European developed markets and lower weight in the US and Canada compared to market capitalisation weights. The weighting of other countries is close to the FTSE Global All Cap index with the exception of Norway and securities denominated in Norwegian kroner, which are excluded. In addition, securities issued by companies excluded by Norges Bank under the guidelines for observation and ethical exclusion from the fund are not included in the benchmark index.

Table 8 The fund's equity benchmark versus the FTSE Global All Cap Index (GEISAC) by country as at 31 December 2017

Country	Share of equity benchmark Percent	Share of FTSE GEISAC index Percent	Deviation from FTSE Percentage points	Millions of kroner
UK	10.0	6.0	3.9	218,564
Germany	5.6	3.1	2.5	139,289
France	5.3	3.1	2.2	123,176
Switzerland	4.6	2.5	2.1	116,224
Netherlands	2.0	1.1	0.9	49,543
Czech Republic	0.0	0.0	0.0	-370
Malaysia	0.3	0.3	0.0	-1,144
Norway	-	0.3	-0.3	-14,472
Canada	2.2	3.2	-0.9	-52,292
US	36.1	51.9	-15.8	-877,000

Table 9 The fund's equity benchmark versus the FTSE Global All Cap Index (GEISAC) by sector as at 31 December 2017

Sector	Share of equity benchmark Percent	Share of FTSE GEISAC index Percent	Deviation from FTSE Percentage points	Millions of kroner
Financials	24.0	22.9	1.2	64,133
Consumer goods	13.2	12.4	0.8	43,089
Health care	10.4	10.1	0.4	20,108
Telecommunications	3.1	2.7	0.3	18,660
Basic materials	5.3	5.0	0.3	14,992
Oil and gas	6.1	6.0	0.1	7,976
Industrials	13.9	14.1	-0.2	-10,603
Utilities	2.7	3.0	-0.3	-18,146
Consumer services	10.0	10.7	-0.7	-39,339
Technology	11.2	13.0	-1.8	-100,869

Fixed-income benchmark index

The fixed-income benchmark index consists of two sub-indices for government bonds and corporate bonds. Each sub-index is assigned a fixed weight, and the benchmark index is rebalanced back to these weights on a monthly basis. The government sub-index is assigned a weight of 70 percent and draws its constituents from three different Bloomberg Barclays indices in 24 currencies, including both developed and emerging markets. The corporate sub-index is assigned a weight of 30 percent and comprises all securities issued in seven developed markets and included in the corporate sector and the covered bond sub-sector of the Bloomberg Barclays Global Aggregate Index. Bloomberg Barclays Indices evaluates the fixed income landscape annually. To be considered for inclusion in its flagship indices, government issuers must be rated investment-grade and the currencies sufficiently tradable, convertible and hedgeable for international investors.

The Bloomberg Barclays Global Aggregate is a global market-capitalisation-weighted index of investment-grade debt from 24 local currency markets, including government, government related, corporate and securitised bonds. The most significant difference between the benchmark index for fixed income and the Bloomberg Barclays Global Aggregate is that while government bonds in the Bloomberg Barclays index are market-weighted, government bonds in the fund's benchmark index are weighted according to the size of the respective issuing countries' GDP. Another difference is that agencies, local authorities, sovereigns, MBS pass-through bonds, ABS and CMBS are not included in the benchmark, while inflation linked bonds are included. For corporate bonds, the main difference is the number of currencies. The Bloomberg Barclays Global Aggregate includes corporate bonds issued in 15 currencies, while the benchmark index only includes bonds issued in US dollars, Canadian dollars, euros, British pounds, Swedish kronor, Danish kroner and Swiss francs. Furthermore, the benchmark index has a higher weight of covered bonds than the Bloomberg Barclays Global Aggregate.

Table 10 The fund's fixed-income benchmark versus the Bloomberg Barclays Global Aggregate Index by currency as at 31 December 2017

Currency	Share of fixed-income benchmark Percent	Share of Bloomberg Barclays Global Aggregate index Percent	Deviation from Bloomberg Barclays Percentage points	Millions of kroner
Mexican Peso	1.7	0.3	1.4	38,201
Euro	26.8	25.5	1.2	33,670
Swiss Franc	1.5	0.6	0.9	23,267
South Korean Won	2.1	1.2	0.8	22,878
Swedish Krona	1.1	0.4	0.6	17,405
Hong Kong Dollar	0.1	0.0	0.1	2,668
Chilean Peso	0.1	0.0	0.1	2,229
South African Rand	-	0.0	0.0	-424
Norwegian Krone	-	0.1	-0.1	-3,278
Japanese Yen	7.0	16.2	-9.2	-250,547

Table 11 The fund's fixed-income benchmark versus the Bloomberg Barclays Global Aggregate Barclays Global Aggregate Index by sector as at 31 December 2017

Sector	Share of fixed-income benchmark Percent	Share of Bloomberg Barclays Global Aggregate index Percent	Deviation from Bloomberg Barclays Percentage points	Millions of kroner
Treasuries	60.4	53.7	6.7	183,816
Inflation-linked bonds	6.7	-	6.7	182,377
Industrial	14.4	10.5	3.9	105,873
Financial institutions	10.0	7.1	2.9	78,463
Covered	3.8	2.7	1.1	29,960
Supranational	2.9	2.2	0.6	16,843
Utility	1.8	1.5	0.4	9,803
ABS	-	0.3	-0.3	-7,318
CMBS	-	0.8	-0.8	-21,223
Sovereign	-	1.2	-1.2	-32,047
Local authorities	-	3.0	-3.0	-82,746
Agencies	-	5.7	-5.7	-154,056
MBS Passthrough	-	11.4	-11.4	-309,745

ETHICAL EXCLUSIONS

The Ministry first issued guidelines for the observation and exclusion of companies from the Government Pension Fund Global in November 2004. The Ministry appointed a Council on Ethics to research and evaluate companies, and to make recommendations on exclusions based on the criteria set out in the guidelines. When companies are excluded from the fund, the benchmark index will be adjusted accordingly.

Two types of criteria are set out in the guidelines. One set relates to specific product types and excludes companies that produce tobacco, or weapons that violate fundamental humanitarian principles. The product-based exclusions have reduced the cumulative return on the equity index by around -2.4 percentage points, or -0.10 percentage point annually. Both the exclusion of tobacco companies and certain weapons manufacturers have reduced returns.

A separate set of criteria exclude companies where there is an unacceptable risk of conduct that contribute to serious or systematic human rights violations, serious violations of the rights of individuals in situations of war or conflict, severe environmental damage, gross corruption or other serious violations of fundamental ethical norms. The conduct-based exclusions have increased the cumulative return on the equity index by around 0.9 percentage point, or 0.04 percentage point annually.

The Ministry revised the guidelines in February 2016. Two new criteria were introduced. First, the corporate conduct criteria were broadened to cover companies that are responsible for acts or omissions that on an aggregated company level lead to unacceptable greenhouse gas emissions. Second, a product-based coal criterion was introduced. Mining companies and power producers, that derive 30 percent or more of their revenue from thermal coal or base 30 percent or more of their operations on thermal coal, may now be excluded.

Over the last twelve years, the equity benchmark index has returned 1.6 percentage points less than an index which is unadjusted at constituent level, or 0.06 percentage point less on an annualised basis.

Chart 4 Return impact of equity benchmark index exclusions relative to an unadjusted index at constituent level. Measured in dollars. Percentage points

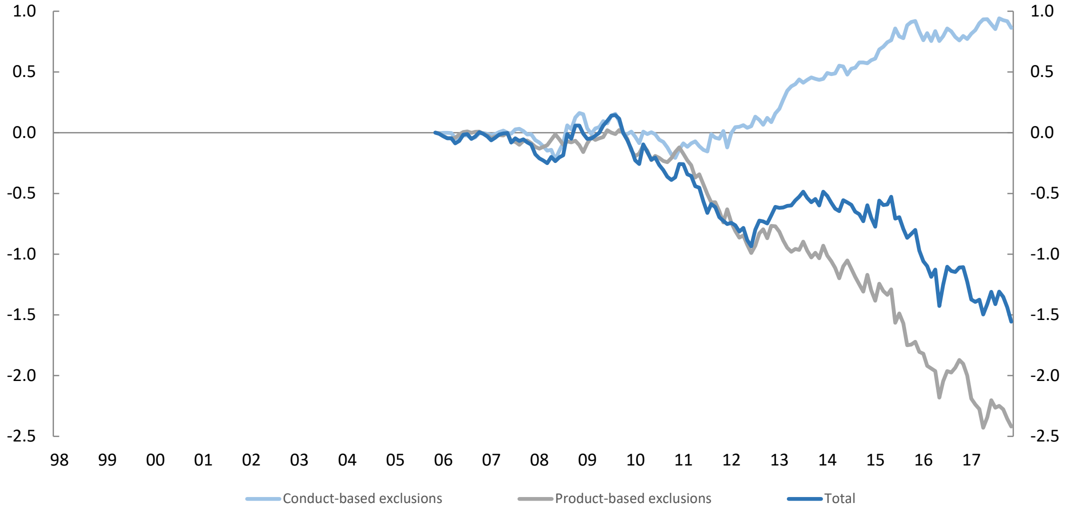


Table 12 Contribution to return impact of equity benchmark index exclusions by exclusion criterion as at 31 December 2017. Market value in billions of kroner. Contribution measured in dollars. Percentage points

Criterion	Number of excluded companies from benchmark	Market value in benchmark if not excluded	2017	2006-2017 annualised
Product-based exclusions	98	159	-0.02	-0.10
Production of specific weapon types	19	62	-0.18	-0.05
Production of tobacco	17	69	0.13	-0.05
Thermal coal mining or coal based power production	62	28	0.04	0.00
Conduct-based exclusions	27	43	-0.08	0.04
Serious or systematic human rights violations	2	12	-0.04	-0.01
Serious violations of the rights of individuals in situations of war or conflict	1	0	0.00	0.00
Severe environmental damage	19	29	-0.04	0.04
Gross corruption	1	0	0.00	0.00
Other particularly serious violations of fundamental ethical norms	4	2	0.00	0.00
Total	125	202	-0.10	-0.06

Reference portfolio

A key objective in the management of the fund is to achieve the highest possible return after costs within the scope of the investment mandate.

The total return on the fund is largely determined by the strategic benchmark index. The strategic benchmark index is based on standard, publicly available indices. These indices are designed to represent liquid investment alternatives for the typical broad equity or fixed-income investor. Since the fund has different characteristics than the average investor, following these indices in a mechanical manner may exclude investment opportunities available to the fund as a large, long-term, and cross-asset investor.

Through a series of adjustments of these publicly available indices, the reference portfolio is tailored to better fit the characteristics of the fund through improving diversification, gaining exposure to additional sources of systematic risk, reducing turnover and funding of the fund's real estate allocation. The reference portfolio serves as the starting point for our investments.

UNIVERSE EXPANSION

A number of markets are not part of the investment universe as defined by the strategic benchmark index. The rules governing the publicly available indices that make up the strategic benchmark index exclude parts of the market based on liquidity considerations and market access constraints, such as local regulations, quota systems or currency convertibility issues. Some of these accessibility constraints are not binding for long-term investors such as the fund.

The reference portfolio therefore contains a number of additional markets the fund considers investable. The largest additional country allocations in the fixed-income reference portfolio are Brazil, Indonesia and India. On the equity side, mainland China is a notable example. The strategic benchmark index excludes mainland Chinese equities because foreign investors need investment quotas to be able to invest in the local equity market. The fund has been able to invest in the local Chinese equity market since 2008.

In total, 17 additional equity markets and seven additional fixed-income markets are added to the reference portfolio. To the greatest extent possible, the internal reference portfolio adds markets and segments using the same weighting schemes as in the strategic benchmark index with market capitalisation for equities and GDP weights for government bonds. Both the strategic benchmark index and the reference portfolio adjust these market weights to take into account investability and market access.

The strategic benchmark index adjusts a company's market capitalisation for free float. Since free float factors vary over time, following a free float adjusted market cap based index imply higher turnover than following a full market cap based one. In the reference portfolio, we adjust for the changes in these free float factors to a smaller extent than what is implied by the strategic benchmark index.

SYSTEMATIC FACTORS
For equity, the reference portfolio contains strategic allocations to systematic factors such as value, quality and size. Exposure to these systematic factor premiums is obtained by setting security weights that deviate from market weights for the securities in the investment universe. For instance, value-based investment strategies aim to capture excess returns associated with value stocks relative to growth stocks.

The performance of risk factor strategies is highly time-varying, and there can be long periods of underperformance. Exposure to systematic factors may be a suitable investment strategy for a long-term investor such as the fund.

The management mandate from the Ministry of Finance contains requirements that are not specified in the benchmark index, such as fiscal strength considerations in the management of the government bond portfolio. We use the reference portfolio to reflect these strategic exposures and their corresponding funding.

COST EFFICIENT IMPLEMENTATION
The strategic benchmark index incorporates a set of explicit and implicit rebalancing rules to maintain its target exposures to equities, credit and currencies. To avoid excessive turnover resulting from the fixed target exposures, the reference portfolio allows significant drift before rebalancing back to the targets.

On the fixed-income side, the credit share and currency weights are rebalanced back to pre-determined weights on a monthly basis in the strategic benchmark index. Frequent rebalancing does not add meaningful returns and may be costly to implement, particularly in certain corporate bond segments and emerging market currencies. The reference portfolio therefore rebalances these exposures less often.

At the end of 2017 the fund had investments in 775 properties in the US, Europe and Asia.

FUNDING OF REAL ESTATE

We allocate to real estate to improve the overall risk-return profile of the fund. Real estate returns have had varying, and at times low, correlation to those of equities and fixed income. Therefore, the fund's total risk can be reduced by including real estate.

The benchmark index expresses the asset owner's market and currency risk preferences through the equity share and the currency composition. In addition to interest rate risk, these choices are of the most important determinants of the expected return and risk of a well-diversified equity and bond portfolio.

From January 2017, the allocation to real estate is no longer defined by the fund's benchmark index. It is delegated to Norges Bank to decide the allocation to real estate and how it should be funded.

Our strategy is to build a global, but concentrated, portfolio of unlisted real estate, investing in a limited number of major cities in key markets and in the global logistics market. At the end of 2017, we had unlisted real estate investments valued at 218.6 billion kroner spread across 14 countries.

We allocate to real estate to obtain a more diversified total portfolio. Allocation to real estate can add market and currency risk to the total portfolio. The additional systematic risk is controlled through balanced funding of this asset class, in order to maintain the fund's overall market and currency risk.

We obtain exposure to real estate through both unlisted and listed markets. Our real estate portfolio comprises approximately 25 percent listed securities in real estate companies and real estate investment trusts. Our strategy is to target investments in listed real estate companies with exposure to the best real estate in the most attractive cities and sectors globally that could be seen as natural part of the unlisted real estate portfolio. The listed real estate investments amounted to 72.6 billion kroner at the end of 2017. The unlisted and listed portfolios are funded with the same model, but adjustments for market risk and currency are tailored to each investment.

REFERENCE PORTFOLIO RETURN

The reference portfolio for equities has returned 12.5 percent per annum since 2013, which was in line with the return on the strategic benchmark index. Both the broad allocation to China and other emerging markets as well as the allocation to environment-related equities have made a positive contribution to the relative return.

The reference portfolio contains strategic allocations to additional systematic factors such as value, quality, and size, which together contributed positively to the relative return. It is important to note that the performance of such factor strategies is highly time-varying, and can go through long periods of underperformance. Exposure to systematic factors has overall contributed positively since 2013, but with significant variations in annual performance. The return-risk profile of these factor strategies should be evaluated over longer periods than some of the fund's other investment strategies.

The fund reduced its strategic allocation to European equities in 2013. The reference portfolio implemented this transition over a longer horizon than the strategic benchmark index in order to avoid unnecessary transactions in European equities. The longer implementation period resulted in a relative overweight in European stocks and this overweight contributed negatively to the relative return.

The reference portfolio for bonds has returned 2.7 percent per annum since 2013, which was 0.2 percentage point less per annum than the return on the strategic benchmark index.

Efforts to improve diversification involve expanding the universe by adding markets and segments, typically to broaden the geographical exposure. The additional markets in the reference portfolio made a negative contribution to the fund's relative return, with Russian bonds being a large contributor to this.

Chart 5 Adjustments due to systematic factors in the reference portfolio for equities. Over-weighted stocks. Percent of equity

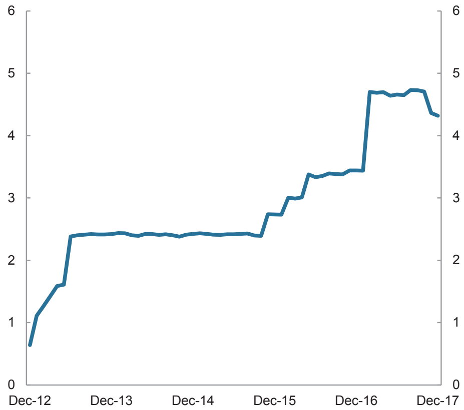


Chart 6 Adjustments due to the universe expansion and free float factors in the reference portfolio for equities. Over-weighted stocks. Percent of equity

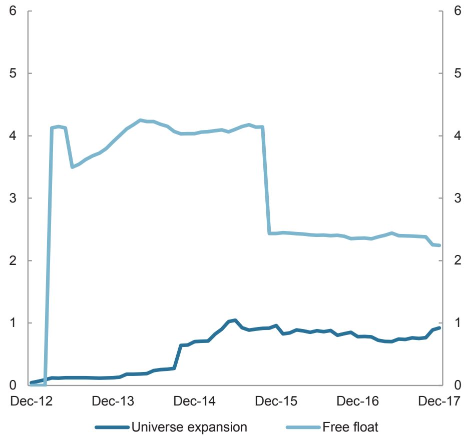


Chart 7 Adjustments due to the emerging markets factor in the reference portfolio for fixed income. Over-weighted bonds. Percent of fixed income

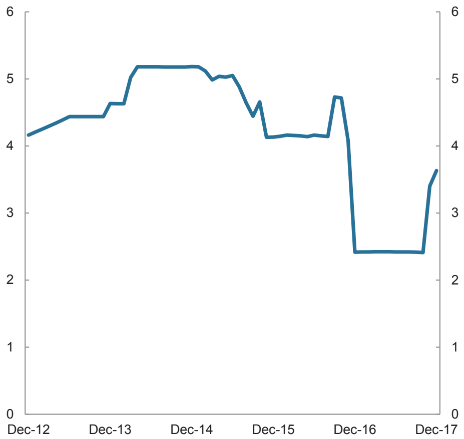
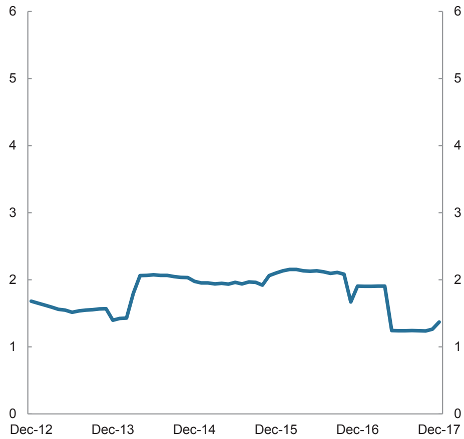


Chart 8 Adjustments due to the fiscal strength factor in the reference portfolio for fixed income. Under-weighted bonds. Percent of fixed income



Russian government bonds were included in the reference portfolio from December 2011. When included in the Ministry of Finance benchmark from April 2014, Russian government bonds were included with a lower weight than in the Barclays Index after advice from Norges Bank. The actual allocation in the reference portfolio was also higher than in the Ministry of Finance benchmark, generating a loss of 60 basis points in 2014, annualised to 12 basis points for the 2013-2017 period, relative to the adjusted Ministry of Finance fixed-income benchmark.

The reference portfolio attempts to make the interest rate sensitivity more similar between different issuers of government debt. This made a negative contribution to the relative return throughout the period.

The mandate from the Ministry of Finance requires Norges Bank to take fiscal strength into account in its bond investments. The reference portfolio therefore adjusts the weights assigned to countries in the government bond segment based on fiscal risk. This adjustment results in lower expected risk and return in this part of the reference portfolio. The fiscal strength adjustment has made a negative contribution to the relative return, as the spread, or difference in yield, between the most heavily indebted countries in the euro area and German government debt has narrowed substantially over the period.

Table 13 Contribution to relative return differences between the fund's reference portfolio and the benchmark index for 2013-2017. Percentage points

	Equity	Fixed income	Total
Systematic factors	0.02		0.02
Universe expansion	0.00	-0.05	-0.05
Mandate allocations	0.01	-0.02	0.00
Universe adjustments	-0.02	-0.02	-0.05
Reference portfolio versus the benchmark index	**0.01**	**-0.09**	**-0.08**

Chart 9 The equity reference portfolio versus the benchmark index. Contributions from adjustments due to systematic factors. Percentage points

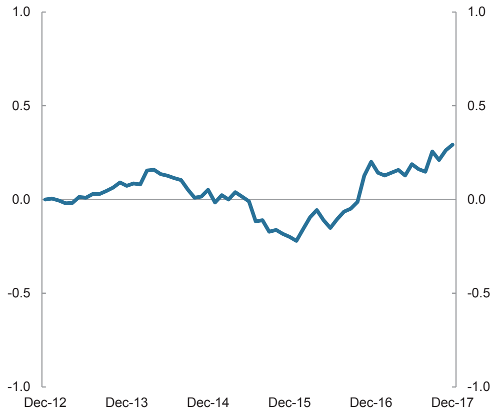


Chart 10 The equity reference portfolio versus the benchmark index. Contributions from adjustments due to universe expansion and free float. Percentage points

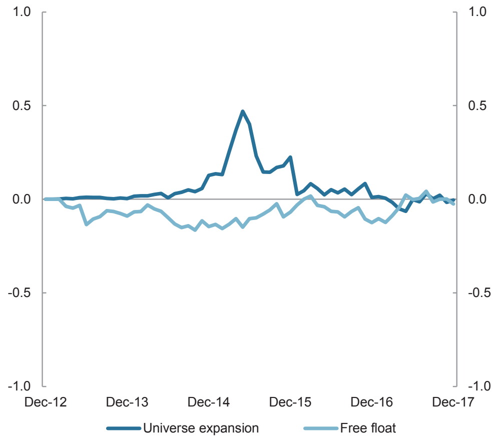
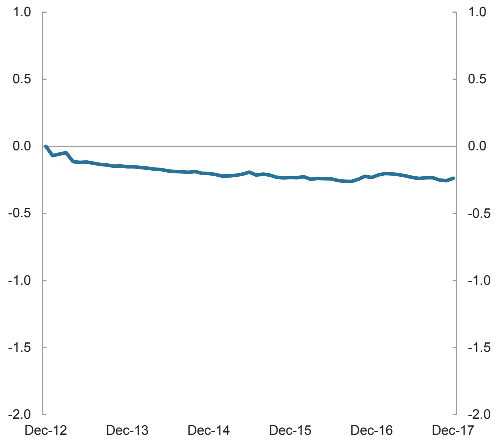


Chart 11 The fixed-income reference portfolio versus the benchmark index. Contributions from adjustments due to emerging markets. Percentage points

Chart 12 The fixed-income reference portfolio versus the benchmark index. Contributions from adjustments due to fiscal strength. Percentage points



Return

The fund's investment return was 13.66 percent in 2017 and has been 6.09 percent annualised since inception.

The fund's total market value grew 978 billion kroner to 8,488 billion kroner in 2017. The investment return for the year was 1,028 billion kroner. The krone weakened against the main currencies the fund invests in, increasing the fund's net asset value by 15 billion kroner. Withdrawals of capital amounted to 65 billion kroner.

The fund has received a total of 3,298 billion kroner, net of management costs and withdrawals, since the first inflow of capital in May 1996. The cumulative investment return since inception has been 4,151 billion kroner. Changes in the value of the krone against the currencies we invest in account for the remaining 1,040 billion kroner of the fund's market value.

FUND RETURN

In 2017, the fund returned 13.66 percent. The return on equity investments was 19.44 percent, while the fixed-income investments returned 3.31 percent and unlisted real estate investments 7.52 percent.

Over the last five years, the fund's annualised investment return has been 9.26 percent. Equity investments have returned 12.94 percent, fixed-income investments 2.96 percent and real estate investments 8.03 percent.

Since inception, the fund's annualised investment return has been 6.09 percent. The return on equity investments has been 6.15 percent and the return on fixed-income investments 4.76 percent.

The fund had positive annual returns in 16 out of 20 years since inception. Equity investments had positive returns in 14 out of 19 years, and fixed-income investments in 18 out of 20 years.

The return on unlisted real estate has been positive in six out of seven years.

BENCHMARK RETURN

The fund's equity benchmark returned 18.68 percent in 2017.

The Asian region performed well in 2017 with a 25.47 percent investment return. Europe with its greater weight in the benchmark, however, contributed the most to the benchmark's positive performance in 2017 with a return of 20.29 percent. North American stocks returned 14.49 percent.

Benchmark returns are shown in both the fund's currency basket and in local currency in order to show the impact of exchange rate movements on investment returns. While European stocks outperformed North American stocks in 2017, this was as a result of a strengthening of the euro currency against the US dollar, as their returns measured in local currency were opposite, with North American stocks outperforming European stocks.

Technology stocks performed the best in 2017 with a return of 32.57 percent. Technology has also been the best performing sector when measured over the last five years. The worst performing sector in 2017 was telecommunications at 3.61 percent.

The return on the fixed-income benchmark was 2.88 percent in 2017. Europe performed well with a regional return of 8.14 percent. While the local currency return was only 1.19 percent, the

Chart 13 The fund's quarterly and accumulated annualised return. Percent

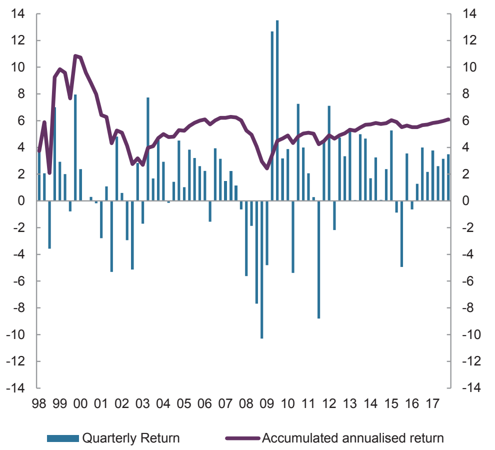
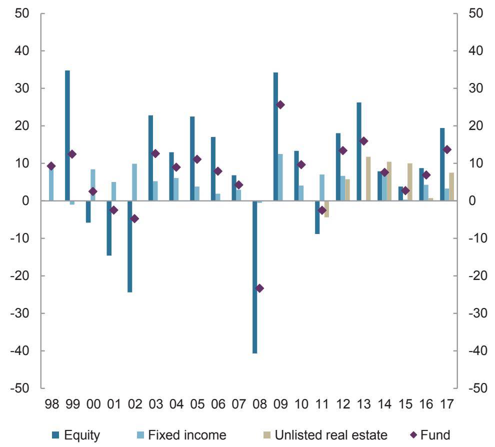


Chart 14 Annual return for equity, fixed income, unlisted real estate investments and the fund. Percent



The cumulative investment return since inception has been 4,151 billion kroner.

strengthening of the euro and most other European currencies in the benchmark against the fund's currency basket contributed materially to the regional outperformance. North American bonds, on the other hand, produced an overall negative return of -1.25 percent in 2017. The underperformance came as a result of a depreciating US dollar, with the return in local currency being positive at 3.71 percent. Poor performance of Japanese bonds weighed on Asia, which returned 1.48 percent in 2017.

Corporate bonds performed better than government bonds in 2017. The return on the benchmark's corporate bonds, including covered bonds, was 4.62 percent measured in local currency, while government bonds, including supranationals returned 1.68 percent in local currency. Corporate bonds have also outperformed government bonds over the most recent five-year period, by an annualised 0.86 percentage point over the last five years, measured in local currency.

Table 14 Absolute return per year, measured in the fund's currency basket. Percent

Year	Fund	Equity investments	Fixed-income investments	Unlisted real estate investments[1]
2017	13.66	19.44	3.31	7.52
2016	6.92	8.72	4.32	0.78
2015	2.74	3.83	0.33	9.99
2014	7.58	7.90	6.88	10.42
2013	15.95	26.28	0.10	11.79
2012	13.42	18.06	6.68	5.77
2011[2]	-2.54	-8.84	7.03	-4.37
2010	9.62	13.34	4.11	–
2009	25.62	34.27	12.49	–
2008	-23.31	-40.71	-0.54	–
2007	4.26	6.82	2.96	–
2006	7.92	17.04	1.93	–
2005	11.09	22.49	3.82	–
2004	8.94	13.00	6.10	–
2003	12.59	22.84	5.26	–
2002	-4.74	-24.39	9.90	–
2001	-2.47	-14.60	5.04	–
2000	2.49	-5.82	8.41	–
1999	12.44	34.81	-0.99	–
1998	9.26	–	9.31	–

[1] Includes listed real estate investments from 1 November 2014 to the end of 2016.
[2] Unlisted real estate investments from 31 March 2011.

Table 15 Absolute return key figures, measured in the fund's currency basket. Annualised. Percent

	Since 01.01.1998	Last 10 years	Last 5 years	2017
Return on equity investments[1]	6.15	5.96	12.94	19.44
Return on fixed-income investments	4.76	4.40	2.96	3.31
Return on unlisted real estate investments[2]			8.03	7.52
Return on fund	6.09	6.16	9.26	13.66

[1] Since 01.01.1999.
[2] Includes listed real estate investments from 1 November 2014 to the end of 2016.

Table 16 Absolute return, 5-year buckets, measured in the fund's currency basket. Annualised. Percent

	1998 – 2002	2003 – 2007	2008 – 2012	2013 – 2017
Return on equity investments[1]	-4.85	16.28	-0.59	12.94
Return on fixed-income investments	6.26	4.00	5.87	2.96
Return on unlisted real estate investments[2]	-	-	-	8.03
Return on fund	3.19	8.92	3.14	9.26

[1] Since 01.01.1999.
[2] Includes listed real estate investments from 1 November 2014 to the end of 2016.

Table 17 The fund's real return, measured in the fund's currency basket. Annualised. Percent

	Since 1998	Last 10 years	Last 5 years	2017
Fund return (nominal)	6.09	6.16	9.26	13.66
Annual inflation	1.77	1.65	1.30	1.83
Annual management fees	0.09	0.08	0.06	0.06
Real return	4.16	4.36	7.81	11.55

Table 18 Fund return, key figures, measured in various currencies. Annualised. Percent

	Since 01.01.1998	Last 10 years	Last 5 years	2017
US Dollar	6.45	4.85	7.26	19.92
Euro[1]	5.98	6.94	9.28	5.33
British Pound	7.54	8.98	11.27	9.54
Norwegian Krone	7.05	9.24	15.84	13.95
Currency basket	6.09	6.16	9.26	13.66

[1] Euro was introduced as currency on 01.01.1999. WM/Reuters' Euro rate is used as estimate for 31.12.1997.

Table 19 Fund return, 5-year buckets, measured in various currencies. Annualised. Percent

	1998 – 2002	2003 – 2007	2008 – 2012	2013 – 2017
US Dollar	3.27	13.09	2.50	7.26
Euro[1]	4.23	5.84	4.65	9.28
British Pound	3.87	8.39	6.74	11.27
Norwegian Krone	2.15	7.71	3.01	15.84
Currency basket	3.19	8.92	3.14	9.26

[1] Euro was introduced as currency on 01.01.1999. WM/Reuters' Euro rate is used as estimate for 31.12.1997.

Table 20 Equity benchmark return by region and country. Annualised. Percent

	The fund's currency basket		Local Currency	
	2017	5-Year	2017	5-Year
North America	14.49	16.76	20.32	14.97
United States	14.74	17.58	21.06	15.42
Canada	10.44	6.06	8.87	9.01
Europe	20.29	10.31	14.29	11.09
United Kingdom	17.09	8.08	12.83	10.07
Switzerland	18.58	11.73	19.95	11.06
Germany	23.73	11.82	14.66	11.84
France	22.98	12.41	13.97	12.43
Spain	19.87	7.77	11.08	7.79
Italy	25.84	9.20	16.62	9.21
Netherlands	25.97	13.66	16.74	13.68
Denmark	29.20	18.62	19.89	18.59
Belgium	13.28	12.65	4.98	12.66
Finland	16.40	14.49	7.87	14.50
Austria	42.10	10.17	31.68	10.19
Ireland	29.20	21.09	19.73	21.11
Portugal	23.23	4.35	14.19	4.36
Greece	28.90	-9.85	19.45	-9.83
Sweden	14.16	9.81	8.55	12.86
Russian Federation	-0.78	0.03	-0.77	9.42
Hungary	31.16	15.33	22.08	16.82
Czech Republic	26.08	1.88	10.39	2.24
Poland	45.50	3.85	27.78	4.33
Turkey	32.29	-3.20	50.44	10.48
Asia	25.47	11.56	26.85	12.61
Japan	19.67	14.22	21.95	18.21
China	35.86	11.03	44.51	9.17
Korea Republic of (South)	39.83	8.52	30.76	6.53
Taiwan	23.49	11.73	20.30	10.22
Hong Kong	27.88	10.14	35.97	8.29
Singapore	27.73	5.12	24.80	5.03
India	37.14	13.87	36.06	15.25
Thailand	22.10	7.42	17.23	6.73
Malaysia	22.55	0.77	16.64	4.62
Indonesia	14.31	3.86	21.45	9.18
Philippines	16.89	6.51	23.84	8.72
Pakistan	-25.74	11.08	-17.17	11.84
Oceania	14.70	6.20	12.32	10.25
Australia	14.52	5.95	11.85	10.06
New Zealand	18.65	13.76	22.73	15.04
Latin America	17.16	-1.77	22.20	5.38
Mexico	7.40	-2.54	7.61	3.85
Chile	37.21	1.78	32.91	5.04
Brazil	18.69	-1.13	27.62	6.89
Colombia	8.72	-9.78	14.03	-1.65
Peru	29.03	1.39	36.13	-0.31
Africa	26.65	5.71	21.18	12.26
South Africa	27.15	5.88	21.44	12.10
Egypt	8.88	1.38	12.65	21.75
Middle East	-7.48	6.80	-7.50	4.00
Israel	-4.66	4.55	-9.26	1.17
United Arab Emirates (UAE)	-3.80	18.10	1.50	15.93

Table 21 Equity benchmark return by sector. Annualised. Percent

	The fund's currency basket		Local Currency	
	2017	5-Year	2017	5-Year
Financials	18.36	12.05	18.46	12.46
Banks	17.74	9.55	16.60	10.47
Nonlife insurance	15.51	16.18	15.26	15.62
Life insurance	24.09	15.76	24.29	16.07
Real estate investment and services	26.98	8.75	27.78	9.24
Real estate investment trusts	8.29	10.47	10.40	10.01
Financial services	24.03	17.58	26.55	17.58
Consumer goods	21.26	13.19	20.10	13.33
Automobiles and parts	20.11	13.13	18.05	13.79
Beverages	20.95	11.67	19.95	12.29
Food producers	11.46	10.91	12.73	10.59
Household goods and home construction	15.03	15.58	15.75	15.70
Leisure goods	43.64	19.42	40.66	18.79
Personal goods	27.71	12.92	24.37	12.81
Industrials	21.66	13.74	21.48	13.91
Construction and materials	17.84	12.70	16.04	13.43
Aerospace and defense	16.78	13.14	16.98	12.98
General industrials	1.50	10.79	2.16	10.51
Electronic and electrical equipment	29.56	15.88	29.75	16.04
Industrial engineering	32.05	13.13	31.55	13.48
Industrial transportation	24.58	15.23	24.08	15.22
Support services	25.56	15.58	26.09	15.82
Consumer services	15.00	14.25	16.41	14.23
Food and drug retailers	2.30	7.99	2.24	7.97
General retailers	18.74	15.44	21.50	15.40
Media	10.25	14.60	10.33	14.36
Travel and leisure	21.55	15.69	23.33	15.91
Health care	15.70	15.64	16.85	14.98
Health care equipment and services	21.21	19.99	23.17	18.86
Pharmaceuticals and biotechnology	13.63	14.14	14.50	13.63
Technology	32.57	21.07	36.17	19.70
Software and computer services	33.48	22.01	37.68	20.53
Technology hardware and equipment	31.56	20.29	34.49	18.98
Oil and gas	4.29	3.35	4.22	3.69
Oil and gas producers	7.25	4.53	6.97	5.12
Oil equipment, services and distribution	-11.72	-3.52	-10.30	-4.27
Alternative energy	2.22	21.30	-1.33	20.22
Basic materials	25.48	6.94	22.88	7.49
Chemicals	24.57	12.28	21.75	12.17
Forestry and paper	27.92	19.05	24.82	20.11
Industrial metals and mining	27.28	3.72	26.15	4.68
Mining	24.87	-3.66	22.23	-1.62
Telecommunications	3.61	8.74	2.90	9.37
Fixed line telecommunications	-3.81	7.70	-3.87	7.62
Mobile telecommunications	12.48	9.60	10.95	10.98
Utilities	12.43	9.18	11.29	9.31
Electricity	10.94	10.33	10.77	10.17
Gas, water and multiutilities	14.27	7.69	11.92	8.21

Table 22 Fixed-income benchmark return by region and currency. Annualised. Percent

	The fund's currency basket		Local Currency	
	2017	5-Year	2017	5-Year
North America	**-1.25**	**3.63**	**3.71**	**2.10**
US Dollar	-1.49	4.01	3.93	2.10
Canadian Dollar	2.20	-0.71	0.74	2.05
Europe	**8.14**	**3.36**	**1.19**	**3.85**
Euro	8.57	3.44	0.61	3.46
British Pound	6.70	3.87	2.83	5.78
Swiss Franc	-1.28	2.31	-0.13	1.70
Swedish Krona	5.69	-0.44	0.50	2.34
Danish Krone	8.48	2.50	0.67	2.47
Polish Zloty	19.48	3.05	4.94	3.53
Czech Koruna	8.60	1.43	-4.91	1.80
Russian Ruble[1]	13.43	-	12.86	-
Asia	**1.48**	**0.25**	**0.82**	**2.52**
Japanese Yen	-1.69	-1.26	0.17	2.20
South Korean Won	6.60	5.20	-0.31	3.27
Hong Kong Dollar	-4.67	2.38	1.41	0.67
Singapore Dollar	6.75	1.60	4.18	1.54
Thai Baht	10.38	5.66	5.98	4.98
Malaysian Ringgit	10.63	-0.39	5.29	3.42
Oceania	**5.81**	**0.40**	**4.03**	**4.00**
Australian Dollar	6.14	0.05	3.67	3.94
New Zealand Dollar	3.10	3.26	6.65	4.42
Latin America	**6.40**	**-2.21**	**6.31**	**4.33**
Mexican Peso	6.20	-2.22	6.41	4.18
Chilean Peso	7.50	2.17	4.14	5.44
Africa	**-0.06**	**-2.50**	**4.79**	**5.17**
South African Rand	-0.06	-2.50	4.79	5.17
Middle East	**9.84**	**8.21**	**4.53**	**4.70**
Israeli Shekel	9.84	8.21	4.53	4.70

[1] Russian Ruble was introduced to the benchmark index on 1 April 2014.

Table 23 Fixed-income benchmark return by sector. Annualised. Percent

	The fund's currency basket		Local Currency	
	2017	5-Year	2017	5-Year
Government (including supranationals)	**2.44**	**2.36**	**1.68**	**2.72**
Treasuries	2.44	2.33	1.62	2.76
Inflation-linked bonds	2.10	2.56	2.43	2.41
Supranational	2.97	2.43	1.20	2.39
Corporate (including covered bonds)	**3.91**	**4.40**	**4.62**	**3.58**
Financials	3.67	4.73	4.97	3.90
Industrials	3.12	4.64	5.32	3.39
Utilities	5.10	5.05	5.46	4.45
Covered	6.91	2.49	0.79	2.63

Relative return

The overall return on the fund was 70 basis points higher than the return on the fund's benchmark in 2017 and has been 28 basis points higher since inception.

The management mandate issued by the Ministry of Finance was amended with effect from 1 January 2017. Investment returns on all of the fund's investments, including real estate investments, are now measured against a benchmark index, which comprises an equity index based on FTSE Group's Global All Cap stock index and a bond index based on various bond indices from Bloomberg Barclays Indices.

When we buy real estate, we sell bonds and equities in the same market to avoid currency risk. The relative return on real estate management is the difference between the return on the fund's unlisted and listed real estate investments and the return on the bonds and equities sold to buy them. Similarly, we report the relative return on equity and bond investments against benchmark indices that are adjusted for the funding of the fund's unlisted and listed real estate investments.

Table 24 Relative return. Percentage points

	2017
Fund	**0.70**
Equity investments	0.76
Equity management	0.79
Fixed-income investments	0.43
Fixed-income management	0.39

The overall return on the fund was 70 basis points higher than the return on the benchmark index in 2017. Since the fund's inception, the annualised return on the fund has been 28 basis points higher than the return on the fund's benchmark.

The fund has outperformed its benchmark index in 16 out of 20 years since 1 January 1998, equity management in 15 out of 19 years, and fixed-income management in 15 out of 20 years.

Equity management had a relative return of 79 basis points in 2017, measured against its actual funding. Since 1 January 1999, the annualised relative return for equity management has been 51 basis points. The relative return on the fixed-income management was 39 basis points, measured against its funding, and has been 15 basis points annualised since 1 January 1998. The real estate management returned 70 basis points more than its funding benchmark in 2017.

From 2017, all real estate investments are included in the fund's relative return. The total real estate investments returned 9.0 percent in 2017. The return on the equities and bonds sold to finance these real estate investments was 8.3 percent. A comparison with this funding shows a relative return for the fund's total real estate investments of 0.7 percentage point.

THE USE OF BENCHMARKS

Investment strategies and mandates are measured relative to performance benchmarks. This section provides an overview of the use of benchmarks in Norges Bank Investment Management, with an emphasis on the link between the Ministry of Finance benchmark, the internal reference portfolio, funding and performance benchmarks for particular investment mandates, and how they all fit together to produce the final investment portfolio.

Chart 15 The fund's quarterly and accumulated annualised relative return. Percentage points

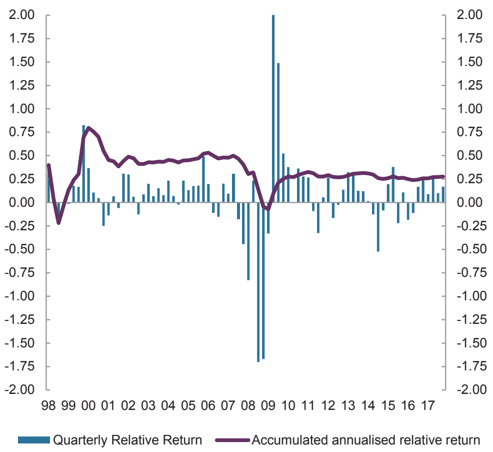
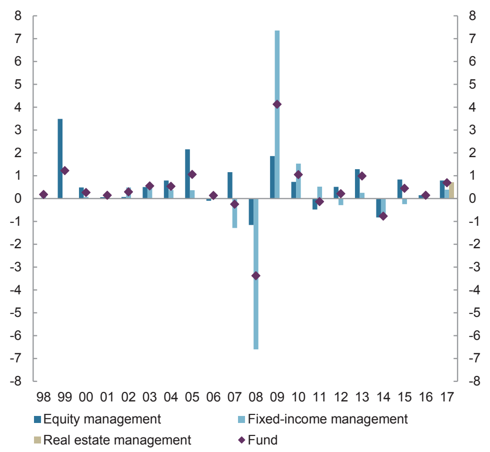


Chart 16 Annual relative return on the fund's asset management. Percentage points



Fund allocation aims to improve the fund's exposure to broad markets and sources of return, in both the medium and the long term. While the total return on the fund is largely determined by the Ministry of Finance benchmark, the internal reference portfolio is tailored to better fit the characteristics of the fund by improving geographical diversification, gaining exposure to additional sources of systematic risk, reducing turnover and funding the fund's real estate portfolios.

The reference portfolio is rule-based and serves as a starting point for the management of the fund. The rules governing the reference portfolio are based on a trade-off between ensuring appropriate aggregate exposures while keeping the complexity low. Implementing the reference portfolio in a strictly mechanical manner may result in excessively high transaction costs or undesirable exposures relative to the Ministry of Finance benchmark. We manage the risk arising from any such relative exposures through allocation decisions. The internal reference portfolio and allocation decisions combined make up fund allocation. The relative return on the Fund allocation strategy is measured versus the Ministry of Finance benchmark.

In addition to the internal reference portfolio, we use funding benchmarks and performance benchmarks to implement the fund's investment strategies. These two types of benchmarks serve different purposes in implementing and measuring the fund's investment strategies.

We need to sell assets to finance a given investment mandate, and funding benchmarks are used to express which assets we sell. The combination of funding assets is tailored to each investment mandate in order to maintain the fund's overall sector or country exposures. The mix of assets we sell therefore does not necessarily match the assets in the performance benchmark.

The mandates within security selection are highly specialised within a certain sector or market, and we therefore use tailored performance benchmarks to measure the relative performance of any given investment mandate. Performance benchmarks are designed to match the scope of each particular investment mandate in order to accurately measure the relative performance.

The asset management strategy implements the reference portfolio, and manages the funding of mandates of the security selection investment strategy. The asset management performance is measured relative to the reference portfolio after the funding of security selection is taken out.

Table 25 Return on real estate investments in 2017. Measured in the fund's currency basket. Percent

	2017
Return on unlisted real estate investments	7.5
Return on listed real estate investments	14.1
Return on real estate management	9.0
Funding benchmark for real estate management	8.3

Table 26 Relative return on the fund's asset management. Measured in the fund's currency basket. Percentage points

Year	Fund[1]	Equity management	Fixed-income management	Real estate management
2017[2]	0.70	0.79	0.39	0.70
2016	0.15	0.15	0.16	-
2015	0.45	0.83	-0.24	-
2014	-0.77	-0.82	-0.70	-
2013	0.99	1.28	0.25	-
2012	0.21	0.52	-0.29	-
2011	-0.13	-0.48	0.52	-
2010	1.06	0.73	1.53	-
2009	4.13	1.86	7.36	-
2008	-3.37	-1.15	-6.60	-
2007	-0.24	1.15	-1.29	-
2006	0.14	-0.09	0.25	-
2005	1.06	2.16	0.36	-
2004	0.54	0.79	0.37	-
2003	0.55	0.51	0.48	-
2002	0.30	0.07	0.49	-
2001	0.15	0.06	0.08	-
2000	0.27	0.49	0.07	-
1999	1.23	3.49	0.01	-
1998	0.18	-	0.21	-

[1] Includes real estate management from 01.01.2017. Relative return prior to 2017 is calculated on the equity and fixed-income management only.
[2] Measured against actual funding.

In combination this means that the security selection strategies are measured relative to performance benchmarks, while the asset management strategy is measured relative to the reference portfolio after taking out the effect of the corresponding funding benchmarks. The reference portfolio is measured relative to the Ministry of Finance benchmark, and the layered benchmark structure ensures that the fund allocation, combined security selection, and asset management relative performance equals the investment portfolio performance relative to the Ministry of Finance benchmark.

The fund's allocation to real estate is funded with a combination of equity and fixed income, which is tailored to the specific real estate investments. We adjust the funding to currency and market risk. The reference portfolio, as the starting point for our equity and fixed-income investments, reflects these funding adjustments. This allows accurate measurement of the relative return contributions from all other investment strategies.

Table 27 Relative return. Measured in the fund's currency basket. Annualised

	Since 01.01.1998	Last 10 years	Last 5 years	2017
Return on fund (percent)[1]	6.09	6.16	9.25	13.66
Return on fund benchmark (percent)[1]	5.81	6.01	8.96	12.96
Relative return on fund (percentage points)[1]	**0.28**	**0.15**	**0.29**	**0.70**
Return on equity management (percent)[2]	6.15	5.96	12.95	19.50
Return on benchmark for equity management (percent)[2]	5.65	5.76	12.52	18.70
Relative return on equity management (percentage points) [2]	**0.51**	**0.20**	**0.42**	**0.79**
Return on fixed-income management (percent)	4.76	4.40	2.96	3.31
Return on benchmark for fixed-income management (percent)	4.61	4.20	2.98	2.92
Relative return on fixed-income management (percentage points)	**0.15**	**0.20**	**-0.02**	**0.39**

[1] Includes real estate management from 01.01.2017. Relative return prior to 2017 is calculated on the equity and fixed-income management only.
[2] Equity management since 01.01.1999.

Table 28 Relative return, 5-year buckets. Measured in the fund's currency basket. Annualised

	1998 – 2002	2003 – 2007	2008 – 2012	2013 – 2017
Return on fund (percent)[1]	3.19	8.92	3.15	9.25
Return on fund benchmark (percent)[1]	2.78	8.52	3.14	8.96
Relative return on fund (percentage points)[1]	**0.41**	**0.40**	**0.01**	**0.29**
Return on equity management (percent)[2]	-4.85	16.28	-0.59	12.95
Return on benchmark for equity management (percent)[2]	-5.63	15.37	-0.59	12.52
Relative return on equity management (percentage points)[2]	**0.78**	**0.90**	**0.01**	**0.42**
Return on fixed-income investments (percent)	6.26	4.00	5.87	2.96
Return on benchmark for fixed-income management (percent)	6.09	3.97	5.44	2.98
Relative return on fixed-income management (percentage points)	**0.17**	**0.03**	**0.43**	**-0.02**

[1] Includes real estate management from 01.01.2017. Relative return prior to 2017 is calculated on the equity and fixed-income management only.
[2] Equity management since 01.01.1999.

INVESTMENT STRATEGIES LAST FIVE YEARS

The fund's annualised relative return of 29 basis points over the last five years can be divided into contributions from the main investment strategies employed for the management of the fund, as well as asset classes.

Fund allocation strategies have contributed -7 basis points, security selection strategies 14 basis points and asset management strategies 22 basis points, in annualised relative return for the fund as a whole over the last five years.

Fund allocation

Fund allocation aims to improve the fund's exposure to broad markets and sources of return. The three strategies it employs to achieve are the internal reference portfolio, the real estate strategy and allocation decisions.

Fund allocation had a negative contribution of 7 basis points to the fund's relative return for the five-year period from 2013 to 2017.

Internal reference portfolio

Through a series of adjustments to publicly available equity and fixed-income indices, the internal reference portfolio is tailored to better fit the characteristics of the fund through improved diversification, efficient exposure to additional sources of systematic risk, reduced turnover and funding of the fund's real estate allocation.

The internal reference portfolio made a negative contribution of 8 basis points to the fund's relative return in the period from 2013 to 2017. Adjustments to the fixed-income benchmark index contributed -9 basis points to the fund's relative return, while equity index adjustments contributed 1 basis point.

Real estate

Following the amendment of the management mandate from the Ministry of Finance effective January 2017, the fund's real estate investments are measured against the fund's benchmark index of global equity and bond indices. In the operational implementation of the fund's real estate strategy, the fund's unlisted and listed real estate investments are measured against internal funding benchmarks that consist of tailored equity and bond holdings in the same currency as the real estate investments.

In 2017, the real estate strategy contributed 3 basis points to the fund's relative return, which gives a total impact to the fund's relative return over the period 2013 to 2017 of 1 basis point.

In 2017, the listed real estate investments contributed with 1 basis point. The unlisted real estate investments contributed with 2 basis points, after the unlisted real estate investments returned 7.5 percent in 2017, against a 6.8 percent return for its funding benchmark.

A more detailed review of the factor adjustments made can be found under the section "Reference portfolio return" in chapter 1.3 Reference portfolio.

Allocation decisions
Allocation decisions involve rebalancing the reference portfolio's exposure to a number of return drivers, the fund's exposure to emerging markets and factor strategies. These adjustments include changes to the equity share, duration or currency composition.

Overall, allocation decisions have added 1 basis point to the relative return of the fund for the five-year period. Cross-asset allocation decisions have contributed positively by 3 basis points, while equity related decisions have contributed negatively by 2 basis points. Fixed-income related decisions in aggregate have had a negligible impact.

Security selection
Security selection strategies seek to generate excess return over carefully designed benchmarks.

Security selection strategies cover both internal and external selection strategies. The combined security selection strategies have contributed 14 basis points in annualised relative return for the fund since 2013.

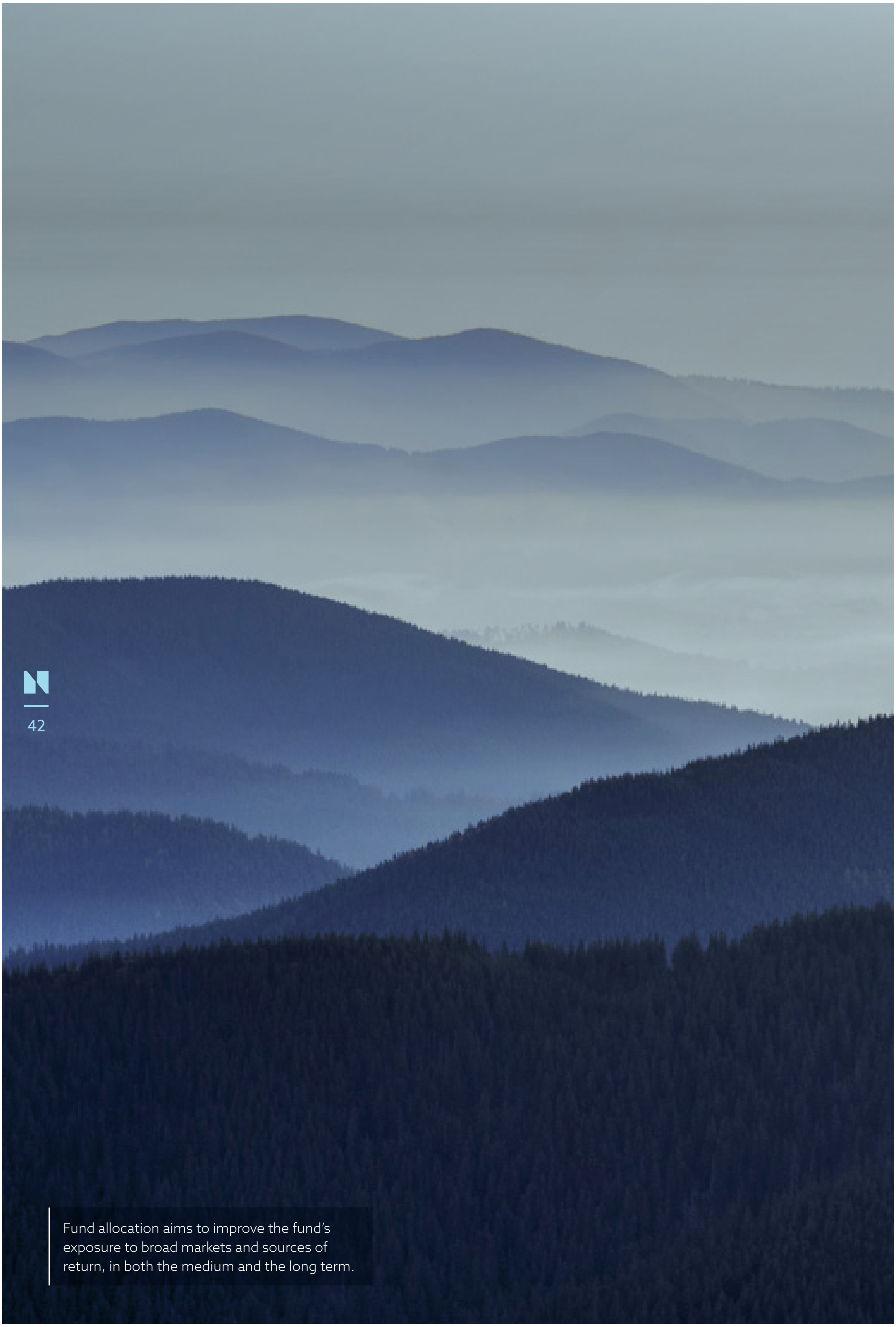
Internal security selection
The main activity within internal security selection is to identify and invest in companies that will generate better long-term investment returns than their competitors.

The internal security selection strategy has contributed 2 basis points to the fund's relative return over the last five years. The equity portfolios within internal security selection contributed 3 basis points to the fund's annual relative return, while the internal selection strategy have had an impact of negative 1 basis point.

The fund's investments within industry sectors change as a result of internal security selection. The impact of such changes to the fund's equity investments made an annual contribution of 3 basis points to the fund's relative return since 2013. The single largest positive impact came from changing the fund's investments within the basic resources subsector. This contributed 4 basis points to the fund's relative return. Insurance and financial services both contributed 2 basis points per year, while retail made a negative contribution of 4 basis points per year.

Although the main activity is to change the fund's investments within industries, internal security selection also has an impact on the fund's investments across industries. An increase in the fund's equity investments in financial services contributed 2 basis points to the fund's annual relative return, as financial services outperformed the market. Underweights in health care and technology each contributed -1 basis point. Overall, changes to the composition of the fund's equity investments across industries have made an immaterial impact on the fund's relative return.

As regards the impact of changing the fund's equity investments within countries, the single largest impact came from changing the investments within the US. This contributed 3 basis points to the fund's relative return. The contribution from changing the fund's investments in Switzerland contributed -3 basis points. The combined impact on the fund's relative return from changing the geographical distribution across regions was -1 basis point.



Fund allocation aims to improve the fund's exposure to broad markets and sources of return, in both the medium and the long term.

The fixed-income portfolios within internal security selection invest in corporate bonds. The contribution to the fund's relative return over the last five years has been -1 basis point.

External security selection
Norges Bank Investment Management utilises external equity managers with expertise in markets and segments where it is not expedient to build internal expertise, and where local knowledge is important to understand the inherent environmental, social and governance risks. External equity mandates invest in emerging markets, small capitalisation companies in developed markets, and environment-related investments. On average, around 4 percent of the fund was managed by external equity managers in the period.

The external security selection strategy has contributed 11 basis points to the fund's annualised relative return over the last five years.

Each of the mandates in emerging markets and small capitalisation developed markets is measured against a broad benchmark within its respective country or a benchmark having a market capitalisation composition corresponding to the mandate objective. Both the small capitalisation developed market mandates and the emerging market mandates have contributed positively to the relative return. Within emerging market mandates, all regions have contributed positively to the relative return, with a combined total of 10 basis points over the five-year period. The mandates in the Asian region have had the largest positive contributions with the China and India mandates as considerable positive contributors.

Asset management
Asset management encompasses a broad range of systematic strategies for both equities and fixed income. In the period from 2013 to 2017, the asset management strategy has contributed 22 basis points to the fund's annualised relative return.

Asset positioning
Asset positioning implements the targeted market exposures with an aim to enhance investment returns and lower transaction costs for the fund. In the five-year period, asset positioning has contributed 16 basis points to the annualised relative return of the fund.

The investment strategy's equity investments have contributed 8 basis points. Of this, integrated market exposure and relative value strategies accounted for 7 basis points. European equities contributed the most with just over half of the result, followed by Asian equities.

Broken into market segments, the largest contribution came from developed large capitalisation companies, followed by emerging market companies and developed small capitalisation companies.

In addition to the risk factors inherent in the reference portfolios, the asset positioning strategy has been positioned towards dynamically managed systematic factors. These factors have contributed 1 basis point annually to the fund's relative return over the five-year period. Adding this together with the systematic factors inherent in the reference portfolio, the factors have contributed 4 basis points in total, with positioning towards quality contributing the most.

Asset positioning's fixed-income investments have contributed 8 basis points. Several strategies are pursued, such as new issues, and relative value strategies across instruments, sectors, and issuers. In addition, there are positions that can be more large-scale, related to transition activity, and hence motivated by reduction of transaction costs.

Investments in government, government-related and covered bonds in developed markets have contributed 4 basis points. European bonds had the largest contribution with 2 basis points, while North-American bonds contributed 1 basis point.

Investments in corporate bonds have contributed 3 basis points to the fund's relative return. The contribution has been driven by strategies focusing on variation in issuer and sector spread curves, as well as new issue premiums. Investments in emerging market bonds have contributed 1 basis point to the fund's relative return over the five-year period. Balanced duration positions across countries have contributed most.

Securities lending

Securities lending is an integrated part of our asset management strategies. We use both direct internal lending and external agency lending through our custodian.

The fund's securities lending activities have contributed 6 basis points to the fund's relative return. Lending of equity investments contributed 5 basis points. The Asia and Oceania region has contributed 45 percent of the equity revenues, while Americas and Europe split the balance with 28 and 27 percent respectively. Bond lending has contributed 1 basis point to the fund's return over the five-year period.

Table 29 Contributions to fund relative return from investment strategies in 2017. Percentage points

	Equity management	Fixed-income management	Real estate management	Allocation	Total
Fund allocation	0.10	0.08	0.03	0.01	0.22
Internal reference portfolio	0.13	0.10		0.01	0.23
of which systematic factors	0.02				0.02
of which universe expansion	-0.01	0.08			0.08
Allocation decisions	-0.03	-0.02		0.00	-0.04
Real estate			0.03		0.03
Unlisted real estate			0.02		0.02
Listed real estate			0.01		0.01
Security selection	0.43	-0.03			0.40
Internal security selection	0.22	-0.03			0.19
External security selection	0.21				0.21
Asset management	-0.04	0.10		0.03	0.08
Asset positioning	-0.09	0.08		0.03	0.02
Securities lending	0.04	0.02			0.06
Total	0.49	0.14	0.03	0.04	0.70

Table 30 Contributions to fund relative return from investment strategies for 2013-2017. Annualised. Percentage points

	Equity management	Fixed-income management	Real estate management	Allocation	Total
Fund allocation	-0.01	-0.10	0.01	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	-0.05			-0.05
Allocation decisions	-0.02	0.00		0.03	0.01
Real estate			0.01		0.01
Unlisted real estate			0.00		0.00
Listed real estate			0.00		0.00
Security selection	0.14	-0.01			0.14
Internal security selection	0.03	-0.01			0.02
External security selection	0.11				0.11
Asset management	0.13	0.08		0.01	0.22
Asset positioning	0.08	0.08		0.01	0.16
Securities lending	0.05	0.01			0.06
Total	0.27	-0.02	0.01	0.04	0.29

Return and costs

Norges Bank maintains a high level of cost awareness in the management of the fund. Total management costs as a share of assets under management have been relatively stable over recent years, despite the inclusion of additional markets and currencies, increased capital managed externally and the build-up of a portfolio of unlisted real estate investments.

The overall goal is to seek the highest possible return after costs, and manage the fund in a cost-efficient manner.

The Ministry of Finance has delegated responsibility for the management of the fund to Norges Bank. The Ministry of Finance reimburses Norges Bank for costs incurred in connection with the management of the fund, in form of a management fee within an annual limit. Performance-based fees to external managers are reimbursed separately. Management costs are also incurred in subsidiaries of Norges Bank that have been established as part of the fund's investments in unlisted real estate. These costs are also measured against the annual limit, but they are not reimbursed or included in the management fee, since they are expensed directly in the investment portfolio.

MANAGEMENT COSTS BY STRATEGY

We pursue a variety of investment strategies in our management of the fund. These strategies complement and influence one another, and there are cost synergies between the strategies. For example, costs related to a specific system or data feed might be utilised in multiple strategies.

We allocate costs to the different strategies based on actual costs or allocation keys such as number of employees or volume. Costs related to salary, personnel, research, consultants and legal services are allocated to the relevant strategy based on actual costs. Costs related to office premises and IT infrastructure are allocated to the relevant strategy based on headcount. Specific system costs are allocated to each strategy based on actual costs.

Custody costs consist of safekeeping, transaction and performance measurement costs related to external managers. Safekeeping costs are allocated to the asset management strategy, while transaction costs are split between the relevant strategies based on transaction volumes. Performance measurement costs are allocated to the external security selection strategy, as well as base- and performance fee to external managers, and costs related to the internal team managing the external managers. Costs related to ownership strategies are allocated to internal security selection.

Chart 17 Total management costs versus total market value of fund. Costs reimbursed by the Ministry of Finance. Basis points

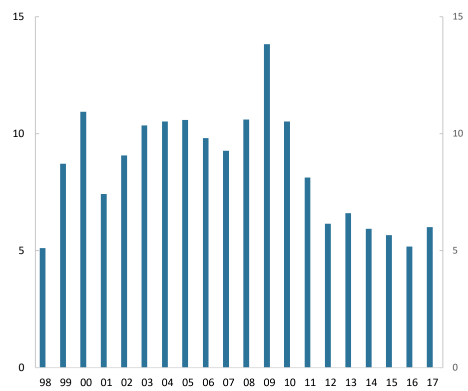


Table 31 Management costs per investment strategy in 2017. Costs reimbursed by the Ministry of Finance. Basis points

	Contribution to the fund's management costs	Management costs based on assets under management
Fund allocation	0.9	
of which unlisted real estate	0.6	23.3
Security selection	2.9	13.8
Internal	0.7	4.3
External[1]	2.2	46.6
Asset management	2.2	3.0
Total	6.0	

[1] Includes all externally managed capital.

Table 32 Management costs per investment strategy 2013-2017. Costs reimbursed by the Ministry of Finance. Basis points

	Contribution to the fund's management costs	Management costs based on assets under management
Fund allocation	0.4	
Security selection	2.7	17.4
Internal	0.7	6.3
External[1]	2.0	47.7
Asset management	2.4	3.0
Unlisted real estate[2]	0.5	25.3
Total	5.9	

[1] Includes all externally managed capital.
[2] Unlisted real estate is part of the fund allocation strategy from 2017.

Chart 18 Management costs per asset class. Costs reimbursed by the Ministry of Finance. Basis points

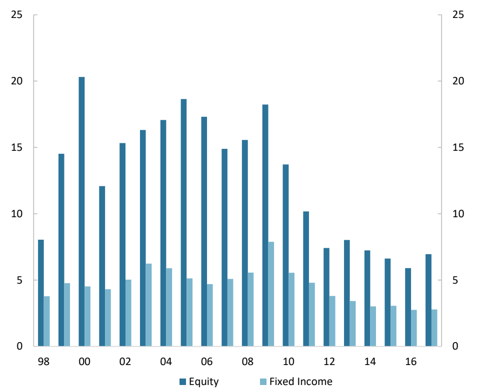
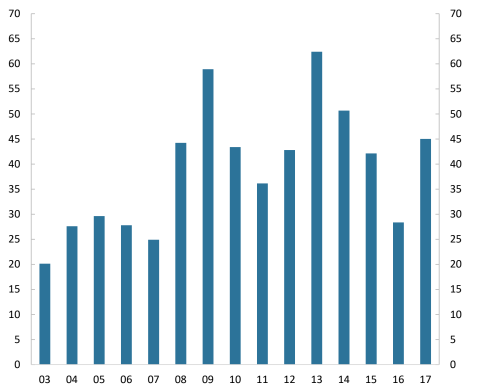


Chart 19 Fees to external equity managers. Basis points



COST-ADJUSTED RELATIVE RETURN

The fund's relative return after management costs can be compared with the investment performance that could theoretically be expected to be achieved with a passive index management strategy.

A passive investment strategy would aim at replicating a benchmark following set rules. The estimated relative return of a passive strategy is dependent on various estimated cost components. The return adjustments made are management costs of a passive strategy, revenues from securities lending, transaction costs related to replication of the benchmark index and transaction costs related to inflows and extraordinary benchmark changes.

Management costs of a passive strategy

The estimated management costs for a passive management strategy are based on the fund's actual management costs for each year, where costs related to both internal and external active management strategies have been subtracted.

Revenues from securities lending

Unlike a theoretical index, but similar to an actively managed portfolio, a passive index portfolio would also be expected to generate income from securities lending activities. In this analysis, actual revenues from securities lending have been used, consistent with the financial reporting for the fund.

Transaction costs related to replication of the benchmark index

Changes in the equity and bond indices, such as company inclusions and periodic index re-weightings, would trigger transactions in the portfolio and subsequent costs. These index replication costs are estimates based on models and not on realised costs, and are therefore uncertain in nature.

Transaction costs related to inflows and extraordinary benchmark changes

These costs are estimated costs related to the phasing-in of new capital into the fund, costs related to the set rules for rebalancing of the asset allocation in the benchmark, and transition costs related to rule changes for the benchmark. The broad benchmark indices for equity and fixed-income investments set by the Ministry of Finance are used as the underlying indices. The costs related to inflows, rebalancing and index transition costs are estimates based on standard market assumptions about trading costs and not actual realised costs, and are therefore uncertain in nature.

The estimated relative return of a passive strategy since inception is -7 basis points. Comparing the fund's relative return after management costs with the estimated relative return of a passive strategy, the estimated relative return difference since inception is 27 basis points. Measured over the last five years the difference is estimated at 25 basis points.

Table 33 The fund's relative return after management costs

	5 years	Since inception
The fund's relative return before management costs	29	28
The fund's management costs[1]	-6	-8
The fund's relative return after management costs	**24**	**19**

[1] The fund's management costs is excluding costs related to unlisted real estate prior to 2017

Table 34 Estimated relative return of a passive strategy

	5 years	Since inception
Management costs of a passive strategy	-3	-5
Revenues from securities lending	6	6
Transaction costs related to replication of the benchmark index	-3	-4
Transaction costs related to inflows and extraordinary benchmark changes	-1	-5
Estimated relative return of a passive strategy	**-1**	**-7**

Table 35 Cost-adjusted relative return comparison

	5 years	Since inception
The fund's relative return after management costs	24	19
Estimated relative return of a passive strategy	-1	-7
Estimated relative return difference	**25**	**27**

Risk

The fund's risk is primarily driven by its asset allocation. The expected volatility of the fund was 10.8 percent at the end of 2017.

Market risk is defined as the risk of a decrease in the market value of the portfolio as a result of changes in financial market variables such as equity prices, exchange rates, interest rates, credit spreads and real estate prices. As no single measure or analysis can fully capture the fund's overall market risk, Norges Bank Investment Management uses a variety of measures and analyses. The fund's market risk is measured along different dimensions, including absolute exposure, volatility and correlation risk, systematic factor risk and liquidity risk.

ASSET CLASS ALLOCATION

The strategic benchmark index in the management mandate laid down by the Ministry of Finance largely dictates the fund's asset class allocation, which is the main driver of the fund's overall risk. This can be demonstrated by plotting the returns of a hypothetical portfolio made up of a fixed allocation to equities and fixed income. A portfolio with a 62.5 percent allocation to equities would, since 1900, have suffered a maximum loss in a single year of around 32 percent. Changing the equity allocation to 70 percent would have resulted in a higher maximum loss of approximately 34 percent in a single year since 1900. The analysis shows that the majority of the return fluctuations in such a portfolio have been driven by equity returns. If the returns are viewed over periods of five and ten years, a large majority of these periods have had a positive return. However, this asset allocation also results in both five- and ten-year periods with negative returns.

Historical returns may not fully reflect future risks. In a stressed scenario with all asset classes falling together, losses in a single year could be higher than indicated in this analysis. The return time series is measured in US dollars but the fund value measured in Norwegian kroner fluctuates further due to exchange rate changes. If historical relationships between the Norwegian kroner and prices of bonds and equities change in the future, this could lead to losses of more than 40 percent in fund value in a single year measured in Norwegian kroner.

The management mandate requires the fund's equity portfolio to make up between 50 and 80 percent of the total investment portfolio. From 2007 to 2009, the fund's equity exposure increased gradually from 40 to 60 percent, mirroring the increase in the equity allocation in the strategic benchmark. Following the inclusion of unlisted real estate in the measurement of relative return in 2017, the equity allocation in

Chart 20 The fund's absolute equity exposure. Percent

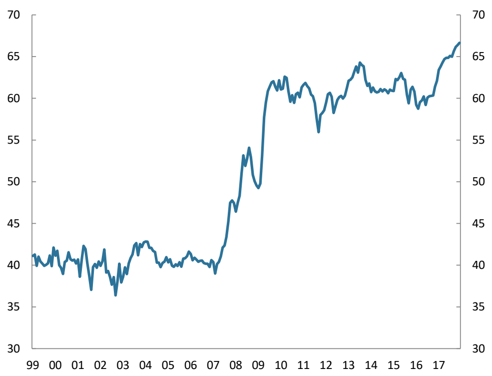
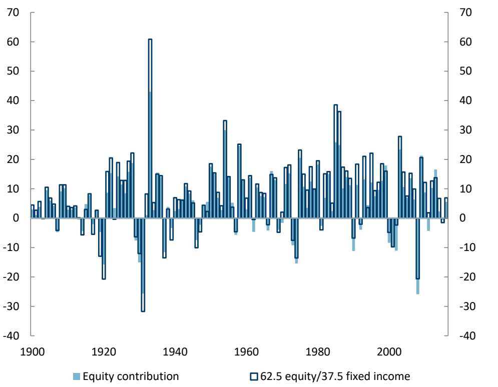
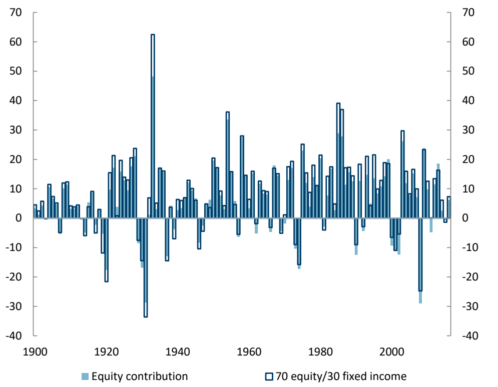


Chart 21 Annual return of 62.5 equity/37.5 fixed income. Measured in dollars. Percent



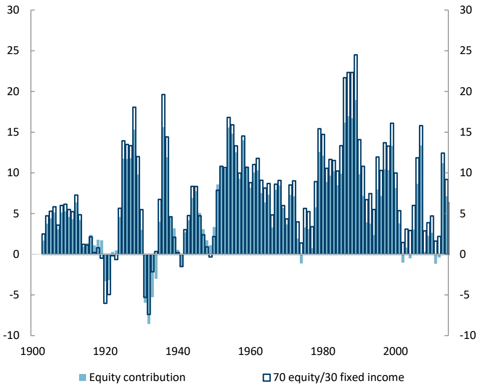
Source: Dimson-Marsh-Staunton Global Return Data

Chart 22 Annual return of 70 equity/30 fixed income. Measured in dollars. Percent



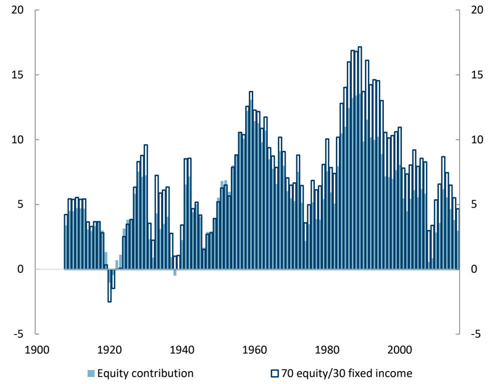
Source: Dimson-Marsh-Staunton Global Return Data

Chart 23 Annualised 5-year rolling return of 70 equity/30 fixed income. Measured in dollars. Percent



Source: Dimson-Marsh-Staunton Global Return Data

Chart 24 Annualised 10-year rolling return of 70 equity/30 fixed income. Measured in dollars. Percent



Source: Dimson-Marsh-Staunton Global Return Data the strategic benchmark increased to 62.5 percent. Actual equity exposure at the end of 2017 was 66.7 percent.

EXPECTED ABSOLUTE VOLATILITY

The fund's expected absolute volatility, calculated using the statistical measure of standard deviation, shows how much the annual return on the fund's investments can be expected to fluctuate and takes into account the correlations between different investments in the portfolio. Volatility is annualised using the square root of time rule, which assumes independence of returns over time and that return properties are consistent.

The method for calculating expected volatility, both absolute and relative, was revised in January 2011 to make it more appropriate for the fund's long-term investment horizon. Until the end of 2010, expected volatility had been calculated based on daily price observations, with recent days' data having greater weight than observations further back in time. This meant that short-term changes in market conditions had a rapid and marked effect on expected volatility. The current method calculates volatility on the basis of weekly prices using an equal-weighted three-year price history, making the measure less sensitive to short-term market turbulence and more a result of changes in the fund's investments.

At the end of 2017, expected absolute volatility was 10.8 percent using a three-year price history, an increase of 0.2 percentage point from the end of 2016. This means that annual value fluctuations of approximately 920 billion kroner can be expected for the portfolio. The expected absolute volatility of the equity investments was 13.6 percent at the end of 2017, compared to 14.0 percent at the end of 2016, while the volatility of the fixed-income investments was 9.4 percent, compared to 9.7 percent at the end of 2016. The increase in the

Chart 25 The fund's expected absolute volatility. Percent

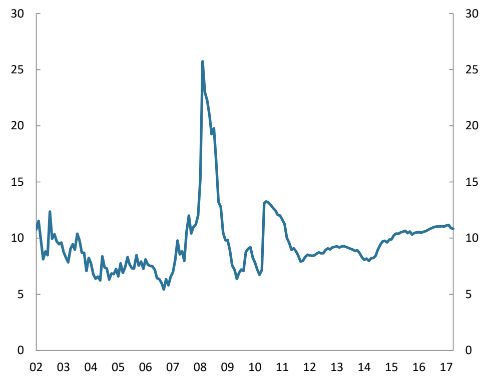
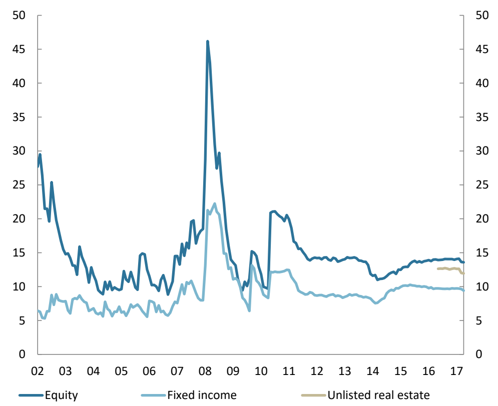


Chart 26 Expected absolute volatility per asset class. Percent



fund's expected volatility is primarily due to the increased share of equities in the portfolio.

The absolute volatility of the fund at the end of 2017 was higher than the average for the last 15 years, which was 9.6 percent at the fund level at year-end. The average absolute volatility for equity and fixed-income investments was 14.7 and 9.3 percent respectively.

Estimated by means of historical simulations of the current portfolio, expected volatility has been 11.4 percent using a ten-year sampling history. Within this ten-year period, the highest expected volatility of a consecutive three-year period was 14.3 percent and the lowest 8.1 percent.

BREAKDOWN OF EXPECTED ABSOLUTE VOLATILITY

The expected volatility of equity investments was 13.6 percent at the end of 2017. A decomposition of the portfolio by industry shows that investments in financials contributed the most to the volatility in the portfolio, with 3.6 percentage points. This was, however, also the largest sector, representing 24.5 percent of equity investments at the end of 2017. Measured in the fund's currency basket, the expected volatility of equity investments was 12.1 percent at the end of the year.

The expected volatility of the fund's fixed-income investments was 9.4 percent at the end of 2017. Government bonds constituted the largest sector and contributed 5.3 percentage points of the total volatility. Volatility of the fixed-income investments was mostly due to fluctuations in the value of the krone against the fund's currency basket. Measured in the fund's currency basket, the expected absolute volatility of fixed-income investments was 3.1 percent at the end of 2017.

Table 36 Risk contribution to equity investments as at 31 December 2017. Volatility measured in Norwegian kroner. Percent

Sector	Weight	Absolute volatility contribution
Financials	24.5	3.6
Industrials	14.3	1.9
Consumer goods	13.5	1.7
Technology	11.2	1.7
Consumer services	10.1	1.3
Health care	9.8	1.3
Basic materials	6.0	0.8
Oil and gas	5.6	0.8
Telecommunications	2.8	0.3
Utilities	2.6	0.3
Cash and derivatives	-0.5	0.0
Total equities	100.0	13.6

Table 37 Risk contribution to fixed-income investments as at 31 December 2017. Volatility measured in Norwegian kroner. Percent

Sector	Weight	Absolute volatility contribution
Government bonds	55.8	5.3
Government-related bonds	12.1	1.0
Inflation-linked bonds	5.0	0.5
Corporate bonds	24.2	2.4
Securitised bonds	5.1	0.4
Cash and derivatives	-2.1	-0.1
Total fixed income	100.0	9.4

Relative risk

Deviations from the benchmark are sources of relative risk. There are various approaches to measuring relative risk in the fund.

The composition of the fund differs from its benchmark index along several dimensions including currencies, sectors, countries, regions, individual stocks and bond issuers and having investments in unlisted real estate. These deviations from the benchmark are sources of relative risk.

The mandate issued by the Ministry of Finance was changed with effect from 1 January 2017. All the fund's investments, including unlisted real estate, are now included in the calculation of expected relative volatility and measured against the fund's benchmark index, which comprises global equity and bond indices. The scope for deviation from the benchmark is regulated by the Ministry of Finance and Norges Bank's Executive Board.

EXPECTED RELATIVE VOLATILITY

The limit for expected relative volatility, or tracking error, is a restriction on how much the return on the fund's investments can be expected to deviate from the return on the benchmark index. This restriction is set out in the management mandate laid down by the Ministry of Finance. A significant change in 2017 was to the treatment of unlisted real estate investments, which are now included in the measurement against the actual benchmark. The limit for expected relative volatility for the fund is still 1.25 percentage points. The expected relative volatility, using a three-year price history, was 33 basis points at the end of 2017. Estimated by historical simulations of the current portfolio, the expected relative volatility using a ten-year price history was 46 basis

Chart 27 The fund's expected relative volatility. Basis points

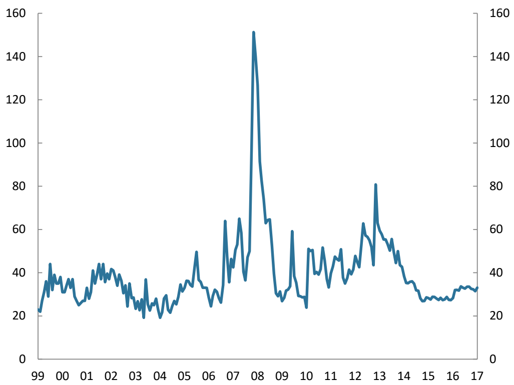


Chart 28 Expected relative volatility for the fixed-income and equity asset classes. Basis points

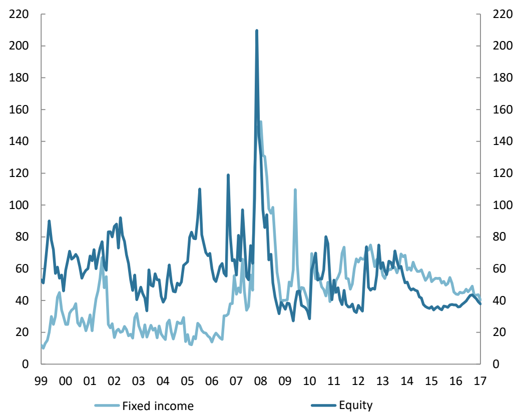


Table 38 Expected relative volatility of investment strategies as at 31 December 2017. Each strategy measured stand-alone with the other strategies positioned in-line with the benchmarks. All numbers measured at fund level. Basis points

	Equity management	Fixed-income management	Real estate management	Allocation	Total
Fund allocation	17	10	22	1	28
Internal reference portfolio	13	10		1	15
of which systematic factors[1]	8				8
of which universe expansion	12	9			14
Allocation decisions	6	2			6
Real estate			22		22
Unlisted real estate			16		16
Listed real estate			9		9
Security selection	13	1			13
Internal security selection	10	1			10
External security selection	6				6
Asset management	7	4			8
Asset positioning	7	4			8
Total	23	12	22	1	33

[1] A considerable part of the exposure against systematic factors will in 2018 be managed and reported in a separate substrategy.

Table 39 Relative risk contribution to equity management as at 31 December 2017. Basis points

Sector	Relative volatility contribution
Financials	9
Industrials	5
Consumer goods	5
Oil and gas	4
Basic materials	3
Health care	3
Consumer services	2
Telecommunications	2
Technology	1
Utilities	1
Other	0
Total equity management	35

Table 40 Relative risk contribution to fixed-income management as at 31 December 2017. Basis points

Sector	Relative volatility contribution
Government bonds	32
Government-related bonds	-11
Inflation-linked bonds	4
Corporate bonds	9
Securitised bonds	0
Cash and derivatives	2
Total fixed-income management	38

points. Within this ten-year period, the highest expected relative volatility of a consecutive three-year period was 67 basis points and the lowest 29 basis points. The actual average expected relative volatility of the fund over the last 15 years was 40 basis points.

Relative risk can be decomposed and calculated for the equity and fixed-income management of the fund. The expected relative volatility of portfolios under equity management was 35 basis points at the end of 2017, while that of portfolios under fixed-income management was 38 basis points.

Relative volatility can also be estimated for the fund's established investment strategies. These calculations are performed for one strategy at a time, assuming that the rest of the fund is invested in line with the respective benchmarks. The fund's expected relative volatility is lower than the sum of the relative volatilities of the investment strategies, reflecting diversification effects.

EXPECTED SHORTFALL

Expected relative volatility is an estimate of what happens under normal market conditions, but provides no information about the distribution and magnitude of less probable outcomes (tail risk). Expected shortfall, also called conditional value at risk, is a widely used tail risk measure. It shows the average expected loss in the worst q percent of observations, where q is the tail probability and equivalent to one minus the specified confidence level. The expected shortfall for the fund's portfolio at a 97.5 percent confidence level shows an expected annual negative deviation from the benchmark of 1.49 percentage points. The calculations are based on simulated relative returns in the currency basket over the last ten years. The Executive Board has set a limit for expected shortfall between the return on the fund and the benchmark index. With effect from 1 January 2017, investments in unlisted real estate have also been included in the calculations. The fund is to be managed in such a way that the expected negative relative return in extreme situations does not exceed 3.75 percentage points.

FISCAL STRENGTH AND ENVIRONMENT-RELATED MANDATES

The mandate from the Ministry of Finance requires Norges Bank to take fiscal strength into account in its government bond investments. The expected relative volatility of this requirement, measured at fund level, was estimated to be 1 basis point at the end of 2017, and 5 basis points when measured at fixed-income management level. The expected shortfall was estimated at year-end to be 8 basis points at fund level, and 27 basis points at fixed-income management level.

The mandate also requires Norges Bank to establish environment-related mandates with a market value that is normally in the range of 30-60 billion kroner. The expected relative volatility of this requirement was estimated to be 3 basis points at the end of 2017, when measured at fund level, and 4 basis points, measured at equity management level. The expected shortfall was estimated to be 10 basis points at fund level, and 16 basis points at equity management level.

BENCHMARK OVERLAP

Benchmark overlap is an alternative relative risk measure that shows how closely the portfolios match the benchmark index. In line with the management mandate from the Ministry of Finance, Norges Bank's Executive Board has set

Table 41 Expected relative volatility and expected shortfall versus benchmark indices as at 31 December 2017. Equity and fixed-income management measured versus their respective market values. Measured in the fund's currency basket. Basis points

	Expected relative volatility 3-years price history	Expected relative volatility 10-years price history	Expected shortfall 10-years price history
Fund	33	46	149
Equity management	35	35	88
Fixed-income management	38	44	125

Table 42 Expected relative volatility and expected shortfall relative to benchmark of investment strategies as at 31 December 2017. Each strategy measured stand-alone with the other strategies positioned in-line with the benchmarks. Measured in the fund's currency basket. Basis points

	Expected relative volatility 3-years price history	Expected relative volatility 10-years price history	Expected shortfall 10-years price history
Fund allocation	28	37	117
Internal reference portfolio	15	17	43
of which systematic factors	8	8	24
of which universe expansion	14	14	40
Allocation decisions	6	7	19
Real estate	22	32	107
Unlisted real estate	16	22	70
Listed real estate	9	17	54
Security selection	13	14	37
Internal security selection	10	12	30
External security selection	6	7	19
Asset management	8	13	44
Asset positioning	8	13	44
Total	33	46	149

a limit for minimum overlap between the equity and fixed-income asset classes and their corresponding benchmark indices of 60 percent. At the end of 2017, the benchmark overlap was 83.2 percent at security level for equities and 73.6 percent at issuer level for fixed income. Over the last ten years, the equity benchmark overlap has been relatively stable in the 80 to 90 percent range. The fixed-income overlap started at a low level before the financial crisis, but increased sharply after 2008 as a result of portfolio restructuring and new mandate requirements for minimum benchmark overlap. In recent years, it has been in the 70 to 80 percent range.

DISTRIBUTION OF REALISED RELATIVE RETURN

Another approach to relative risk is to analyse the characteristics of the distribution of the fund's realised relative returns. The standard deviation of the fund's realised monthly relative returns, measured in the fund's currency basket, has been 11 basis points over the last five years. This is less than over longer sample periods and particularly the previous five-year period, which included the financial crisis of 2008-2009. The fund's relative return has been less skewed over the last five years than in previous periods. Excess kurtosis has also been lower in the most recent five-year period, with fewer instances of very large monthly relative return figures than in previous periods.

Chart 29 The fund's benchmark overlap. Percent

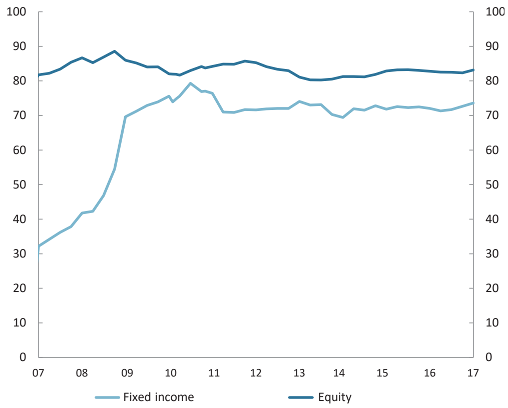


Chart 30 The fund's monthly relative return distribution. Percent

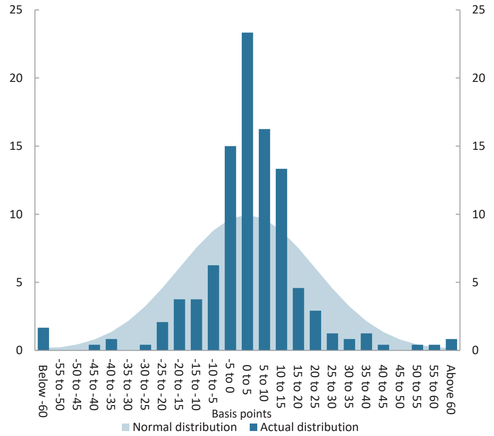


Table 43 Characteristics of the distribution for realised monthly relative return. Measured in the fund's currency basket

	Since 01.01.1998[1]	Last 10 years	Last 5 years	Last 3 years
Fund[2]				
Standard deviation relative return (percent)	0.20	0.26	0.11	0.10
Skewness relative return	-2.30	-2.11	-0.23	-0.73
Excess kurtosis relative return	17.40	12.00	0.75	1.22
Equity management				
Standard deviation relative return (percent)	0.22	0.19	0.13	0.12
Skewness relative return	-0.77	-3.69	-0.99	-1.19
Excess kurtosis relative return	10.04	25.24	1.54	2.83
Fixed-income management				
Standard deviation relative return (percent)	0.30	0.41	0.14	0.11
Skewness relative return	-0.58	-0.45	-0.07	-0.22
Excess kurtosis relative return	16.93	8.30	-0.12	-0.02

1 Equity management start in 1999.
2 Based on aggregated equity and fixed-income management until end of 2016.

Table 44 Characteristics of the distribution for realised monthly relative return. 5-year buckets. Measured in the fund's currency basket

	1998 - 2002[1]	2003 – 2007	2008 – 2012	2013 – 2017
Fund[2]				
Standard deviation relative return (percent)	0.12	0.12	0.35	0.11
Skewness relative return	0.79	-1.44	-1.68	-0.23
Excess kurtosis relative return	2.44	4.47	6.18	0.75
Equity management				
Standard deviation relative return (percent)	0.29	0.22	0.24	0.13
Skewness relative return	1.03	-0.23	-3.62	-0.99
Excess kurtosis relative return	3.10	0.54	20.37	1.54
Fixed-income management				
Standard deviation relative return (percent)	0.09	0.11	0.57	0.14
Skewness relative return	-0.55	-3.48	-0.45	-0.07
Excess kurtosis relative return	11.49	13.73	3.56	-0.12

1 Equity management start in 1999.
2 Based on aggregated equity and fixed-income management until end of 2016.

Risk adjustments

There are various risk-adjusted performance measures including factor-adjusted returns.

It is important to recognise that there are a number of guidelines and restrictions in the fund's investment mandate, which to a large extent govern the fund's exposure to risk and consequently the potential for higher returns. Risk-adjusted performance measures aim to standardise performance results by accounting for the risks taken when obtaining these returns. Even when using risk-adjusted performance measures to compare asset managers, the differences in their investment mandates should be kept in mind. Results are reported for the following measures: Information ratio, Jensen's alpha, appraisal ratio, and Sharpe ratio.

RELATIVE RISK ADJUSTMENTS

When performing relative risk adjustments, the fund's benchmark serves as a reference point. This is a natural approach given the central role of the benchmark in the investment mandate of the fund.

Information ratio

The information ratio divides the mean of the portfolio return relative to the benchmark by the standard deviation of the relative return (tracking error). The information ratio measures both return and risk in terms of deviations from the benchmark. Since inception, the fund has been constrained by an official tracking error limit versus its benchmark. By using tracking error as the risk measure, the information ratio therefore serves as a natural starting point for risk-adjusted return analysis.

The information ratio for fixed-income management has been lower than the information ratio for equity management and the overall fund in most periods. The mean relative returns show a similar pattern. The fixed-income information ratio was higher in the 2008-2012 period containing the financial crisis than the five-year periods before and after, as the large negative relative returns during 2008 were offset by strong performance in the time that followed. The opposite pattern holds for the equity investments with a lower information ratio in the period 2008-2012 than in 2003-2007 and 2013-2017. Further, the other risk-adjusted measures: Jensen's alpha, appraisal ratio and the Sharpe ratio difference do not show the same pattern for fixed-income management, as they indicate improved performance in the most recent five years.

Jensen's alpha

Under the assumptions of the Capital Asset Pricing Model (CAPM), all differences in expected return are explained by beta. Beta measures systematic risk and is estimated using a regression of the portfolio returns in excess of the risk-free rate on the benchmark's excess returns. Jensen's alpha is the residual average return after correcting for the portfolio's beta. Again, the benchmark is used for risk adjustment. Jensen's alpha assumes that the only relevant risk is the risk that cannot be diversified away, whereas the Sharpe ratio assumes that total risk is the relevant measure.

While the CAPM theoretically should be able to price all assets, it should be noted that it is most commonly applied to equities. Considering equity and fixed-income management separately, Jensen's alpha is positive for all

Table 45 Relative risk-adjusted measures. Before management costs. Annualised

	Since 01.01.1998[1]	Last 10 years	Last 5 years	Last 3 years
Fund[2]				
Information ratio	0.42	0.22	0.73	1.22
Jensen's alpha (percent)	0.08	-0.19	0.13	0.32
Appraisal ratio	0.14	-0.27	0.36	0.98
Sharpe ratio difference	0.01	-0.02	0.02	0.05
Equity management				
Information ratio	0.68	0.37	0.88	1.36
Jensen's alpha (percent)	0.42	0.09	0.14	0.38
Appraisal ratio	0.59	0.15	0.35	1.02
Sharpe ratio difference	0.03	0.01	0.01	0.04
Fixed-income management				
Information ratio	0.15	0.14	-0.06	0.24
Jensen's alpha (percent)	0.16	0.20	0.23	0.26
Appraisal ratio	0.15	0.14	0.59	0.79
Sharpe ratio difference	0.01	-0.03	0.08	0.09

[1] Equity management since 01.01.1999.
[2] Based on aggregated equity and fixed-income management until end of 2016.

Table 46 Relative risk-adjusted measures. Before management costs. Annualised

	1998 – 2002[1]	2003 – 2007	2008 – 2012	2013 – 2017
Fund[2]				
Information ratio	0.96	0.91	0.09	0.73
Jensen's alpha (percent)	0.43	0.16	-0.15	0.13
Appraisal ratio	1.03	0.41	-0.17	0.36
Sharpe ratio difference	0.07	0.03	-0.01	0.02
Equity management				
Information ratio	0.87	1.07	0.13	0.88
Jensen's alpha (percent)	1.03	0.53	0.09	0.14
Appraisal ratio	1.06	0.72	0.13	0.35
Sharpe ratio difference	0.06	0.05	0.00	0.01
Fixed-income management				
Information ratio	0.52	0.08	0.22	-0.06
Jensen's alpha (percent)	0.16	0.05	0.15	0.23
Appraisal ratio	0.52	0.13	0.08	0.59
Sharpe ratio difference	0.05	0.02	-0.11	0.08

[1] Equity management since 01.01.1999.
[2] Based on aggregated equity and fixed-income management until the end of 2016.

periods considered. For the fund, the sign of Jensen's alpha depends more on the evaluation period. The periods containing the financial crisis in 2008-2009 stand out in particular. The differences between the fund and the equity and fixed-income management viewed alone suggest a change in the degree of co-movement between the two markets in these periods.

Appraisal ratio

Whereas the Sharpe ratio measures the total risk/return trade-off, the appraisal ratio is computed after removing systematic risk. For the fund, this corresponds to adjusting risk and return for variability stemming from the benchmark. The appraisal ratio is estimated by dividing Jensen's alpha by the standard deviation of the residuals from the CAPM regression.

The sign of the appraisal ratio is naturally the same as the sign of Jensen's alpha. In the first periods, the appraisal ratio is higher for equity management than for fixed-income management, while the reverse is true for the most recent five-year period. However, as indicated above, care should be taken when evaluating risk using the CAPM for fixed-income investments.

Absolute risk adjustments

When performing absolute risk adjustments, the fund's benchmark and risk restrictions play no role. The performance measures are therefore reported separately for the portfolio and the benchmark, and the levels can then be compared.

Sharpe ratio

The Sharpe ratio is a widely used risk-adjusted performance measure. The Sharpe ratio is computed by dividing the average portfolio return in excess of the risk-free rate by the standard deviation of portfolio returns. A higher Sharpe ratio indicates a higher expected reward per unit of total risk. The Sharpe ratio measures absolute risk-adjusted performance and ranks portfolios based on the estimated trade-off between total risk and return. The Sharpe ratio difference reflects this ranking and captures the change in performance relative to the benchmark.

Across all periods, the Sharpe ratio for the fund is similar to the benchmark's Sharpe ratio. This is a consequence of the fund having limited scope to deviate from the benchmark. While the fund has had a higher volatility of returns than the benchmark, the average fund return has also tended to be higher, resulting in similar reward-to-variability ratios and consequently small differences in the Sharpe ratio.

Since periods that include the financial turmoil of 2008-2009 were characterised by both lower average returns and higher volatility of returns, the Sharpe ratios for both the fund and the benchmark in these periods were lower than for other periods. The negative Sharpe ratios in the period 1998-2002 reflect the relatively high risk-free rate compared to the average returns of the fund's investments and the benchmark index.

The equity management's Sharpe ratio is also close to the Sharpe ratio for the benchmark index for all periods, with both ratios displaying significant variation across time. For both equity management and the benchmark, the Sharpe ratios are lower than the ratios for the fund.

Although fixed-income management has often produced lower average returns than equity management, the returns are also less volatile resulting in higher Sharpe ratios in periods such as 2008-2012, which includes the financial crisis. Comparing fixed-income management with the benchmark, the relative performance depends on the evaluation period, although the Sharpe ratios tend to move closely together.

Table 47 Absolute risk-adjusted measures. Before management costs. Annualised

	Since 01.01.1998[1]	Last 10 years	Last 5 years	Last 3 years
Fund[2]				
Standard deviation of investments (percent)	7.35	9.05	6.00	6.33
Standard deviation of benchmark (percent)	6.95	8.48	5.89	6.25
Sharpe ratio of investments	0.59	0.68	1.48	1.15
Sharpe ratio of benchmark	0.58	0.70	1.46	1.10
Equity management				
Standard deviation of investments (percent)	14.26	15.04	9.26	9.99
Standard deviation of benchmark (percent)	13.93	14.66	9.06	9.80
Sharpe ratio of investments	0.37	0.44	1.35	1.02
Sharpe ratio of benchmark	0.34	0.44	1.33	0.98
Fixed-income management				
Standard deviation of investments (percent)	3.32	3.57	2.67	2.80
Standard deviation of benchmark (percent)	3.18	3.29	2.92	3.00
Sharpe ratio of investments	0.85	1.15	1.03	0.83
Sharpe ratio of benchmark	0.84	1.18	0.95	0.74

[1] Equity management since 01.01.1999.
[2] Based on aggregated equity and fixed-income management until the end of 2016.

Table 48 Absolute risk-adjusted measures. Before management costs. Annualised

	1998 – 2002[1]	2003 – 2007	2008 – 2012	2013 – 2017
Fund[2]				
Standard deviation of investments (percent)	6.13	3.82	11.31	6.00
Standard deviation of benchmark (percent)	6.02	3.66	10.46	5.89
Sharpe ratio of investments	-0.12	1.51	0.30	1.48
Sharpe ratio of benchmark	-0.19	1.47	0.31	1.46
Equity management				
Standard deviation of investments (percent)	16.88	9.24	19.11	9.26
Standard deviation of benchmark (percent)	16.55	9.00	18.60	9.06
Sharpe ratio of investments	-0.44	1.38	0.05	1.35
Sharpe ratio of benchmark	-0.50	1.32	0.04	1.33
Fixed-income management				
Standard deviation of investments (percent)	3.06	3.04	4.27	2.67
Standard deviation of benchmark (percent)	3.05	3.10	3.62	2.92
Sharpe ratio of investments	0.67	0.36	1.27	1.03
Sharpe ratio of benchmark	0.62	0.34	1.38	0.95

[1] Equity management since 01.01.1999.
[2] Based on aggregated equity and fixed-income management until the end of 2016.

FACTOR-ADJUSTED RETURN

The analyses introduced here involve multivariate regressions of relative returns against sets of historical factor return series. Estimated regression coefficients can be interpreted as exposures to systematic factors over the historical period. Regression intercepts can be interpreted as performance attributable to manager value creation over and above the exposure to the set of factors considered in the regression. All regressions are conducted using relative returns before management costs and with returns measured in dollars. The regressions for the fund's relative return are based on the aggregated equity and fixed-income management until the end of 2016. For 2017, real estate investments are also included. Additional information and regressions, including analyses based on relative return data after management costs, are available in the appendix published on our website www.nbim.no.

For equity management, the factor set used is the five-factor model of Fama and French (2017)[1] and factor return data are global research factors downloaded from Kenneth French's website. In these regressions, factors explain between 35 and 45 percent of the variability in the relative returns of equity management for the three periods: since inception, last ten years and last five years. The relative returns of equity management are estimated to have had positive active exposures to the market factor (MKT) and the small firm factor (SMB), and a negative active exposure to the investment factor (CMA) both for the full sample period and for the last ten-year period. In the last five-year period, only the market factor is significant at conventional statistical confidence levels.

For fixed-income management, the factor set is based on Fama and French (1993)[2], who use a default factor and a term factor. The factor return data have been calculated by Norges Bank Investment Management, based on Bloomberg Barclays Indices data. Both have been constructed as global factors, and the default factor has been adjusted to take duration differences in the credit and government segments of the fixed-income benchmark into account. The construction of global factors introduces sovereign risk into the term factor due to differences in currency composition between global long-maturity and global short-maturity indices. This is discussed in more detail in the appendix. In the fixed-income regressions, factors explain between 28 and 41 percent of the variability in the relative returns. The relative returns of fixed-income management are estimated to have had exposure to the default premium factor over the full sample period and the last ten-year period. Over the last five-year period, only the regression coefficient for the negative term premium is significant at conventional statistical confidence levels.

For the fund, the factor set is the combination of the factors used for each asset class. In these regressions, factors explain 55 to 65 percent of the variability in relative returns and the signs of the estimated exposures are qualitatively in line with the results for the asset classes. However, the profitability (RMW) coefficient is positive for the last five and ten years, and the value (HML) coefficient is positive since inception.

[1] Fama, E. and French, K. (2017): "International tests of a five-factor asset pricing model", Journal of Financial Economics 123(3), 441-463.
[2] Fama, E. and French, K. (1993): "Common risk factors in the returns on stocks and bonds", Journal of Financial Economics 33(1), 3-56.

Table 49 Equity management. Regression analysis of relative return in dollars before management costs

Sample period	Intercept, bps annualised	Regression coefficients: Market (MKT)	Small vs large (SMB)	Cheap vs expensive (HML)	Profitable vs unprofitable (RMW)	Conservative vs aggressive investment (CMA)	Variance explained in percent (R squared)
Since 01.01.1999	**37**	**0.02**	**0.05**	-0.01	0.01	**-0.02**	45
Last 10 years	24	**0.02**	**0.03**	0.00	-0.02	**-0.04**	45
Last 5 years	26	**0.02**	0.02	0.01	-0.02	-0.03	35

Source: Norges Bank Investment Management, Kenneth French. Bold indicates significant at 5 percent confidence level.
Note: After management cost regressions are available in the appendix.

Table 50 Fixed-income management. Regression analysis of relative return in dollars before management costs

Sample period	Intercept, bps annualised	Regression coefficients: Default (duration adjusted)	Term	Variance explained in percent (R squared)
Since 01.01.1998	11	**0.07**	-0.01	28
Last 10 years	3	**0.09**	-0.02	35
Last 5 years	17	0.00	**-0.05**	41

Source: Norges Bank Investment Management, Bloomberg Barclays Indices. Bold indicates significant at 5 percent confidence level.
Note: After management cost regressions are available in the appendix.

Table 51 The fund. Regression analysis of relative return in dollars before management costs

Sample period	Intercept, bps annualised	Regression coefficients: Market (MKT)	Small vs large (SMB)	Cheap vs expensive (HML)	Profitable vs unprofitable (RMW)	Conservative vs aggressive investment (CMA)	Default (duration adjusted)	Term	Variance explained in percent (R squared)
Since 01.01.1998	7	**0.02**	**0.03**	0.01	**0.02**	**-0.02**	**0.03**	-0.01	55
Last 10 years	-3	**0.02**	**0.04**	0.02	0.02	**-0.04**	**0.03**	-0.01	65
Last 5 years	18	**0.02**	**0.02**	0.00	0.01	0.02	0.01	**-0.04**	60

Source: Norges Bank Investment Management, Kenneth French, Bloomberg Barclays Indices. Bold indicates significant at 5 percent confidence level.
Note: After management cost regressions are available in the appendix.

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