NORGES BANK

Finansdepartementet
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Gjennomgang av Norges Banks forvaltning av Statens pensjonsfond utland

Vi viser til Norges Banks brev av 13. desember 2013 der vi oversendte fire rapporter og hvor banken redegjorde for

- Resultater og risiko i forvaltningen, med særlig vekt på de fem siste år;
- Erfaringene med forvaltningen av eiendomsporteføljen;
- Erfaringene med de miljørelaterte mandater;
- Evaluering sett i forhold til mål og strategier i strategiplanen for 2011-2013.

Rapportene er nå oppdatert med endelige resultater per 31. desember 2013 og følger vedlagt dette brevet.

Vi tar sikte på å offentliggjøre brevet av 13. desember 2013 og de vedlagte oppdaterte rapportene den 4. april 2014.

Med vennlig hilsen

Øystein Olsen

Yngve Slyngstad

Vedlegg

1. Government Pension Fund Global historical performance and risk review (NBIM 10 March 2014)
2. Experience with real estate investments (NBIM 10 March 2014)
3. Experience with environment-related mandates (NBIM 10 March 2014)
4. Strategy close out 2011-2013 (NBIM 10 March 2014)

GOVERNMENT PENSION FUND GLOBAL HISTORICAL PERFORMANCE AND RISK REVIEW

10 March 2014

Content

Scope

The scope of this document is to analyse the returns of the Government Pension Fund Global (GPFG) and its equity and fixed-income portfolios, with an emphasis on the performance of the active management of the fund. The analysis is performed on the whole history of the fund and multiple sub-periods with an emphasis on the last five years. Real estate is not part of the analysis. The analysis is based on NBIM's framework for calculating and reporting returns for the GPFG. The return time series is based on a time-weighted approach, and the relative return is the arithmetic difference between the return on the actual portfolio and the benchmark for the period.

Executive summary

- Both absolute and relative returns since 1 January 1998 have been positive for the GPFG. The annualised absolute return was 5.70 per cent at the end of 2013, and the annualised relative return was 0.31 percentage point.
- The absolute and relative returns have been positive for all main periods except for the period around the financial crisis.
- Adjusting the historical returns since 1 January 1998 for realised risk shows that the fund has improved the relationship between risk and return compared to the benchmark. The positive relative return has been achieved with only a small increase in the risk for the GPFG compared to the benchmark.
- Analysis of systematic factor risk exposures is addressed using two returns-based methodologies: the first uses a partial correlation approach, as in Ang et al. (2009), while the second uses a multivariate regression approach. Apart from potential biases introduced by the selection and construction of the factors included, both methods attempt to estimate a value for a constant exposure to a risk factor. This is problematic, as these exposures are time-varying for the GPFG.
- A multivariate regression analysis of the fund's relative returns performed over rolling five-year periods on systematic risk factors has an explanatory power (R^2) of 30-50 per cent for the period up to the financial crisis, with none of the credit factors being statistically significant. After 2008, the same regression has an explanatory power of 50-80 per cent, with credit being highly significant. The explanatory power falls back below 50 per cent when data from 2008 exits the rolling window.
- For all sub-periods investigated, both methods estimate a negative and statistically significant exposure to value companies (or a positive exposure to growth companies) in the equity portfolio. Both methods also estimate a negative and statistically significant exposure to low-volatility companies (or a positive exposure to high-volatility companies).
- Gross relative returns are a good measure of net value creation from active management.

1 Return and risk measures

1.1 The GPFG and asset class returns

The accumulated return for the GPFG, excluding real estate investments, was 143[1] per cent from 1 January 1998 to the end of the fourth quarter of 2013 measured in the *GPFG currency basket*. The equivalent return for the benchmark is 132 per cent. This corresponds to annualised returns of 5.70 and 5.39 per cent for the GPFG and the benchmark respectively. The excess return related to the active management of the fund has been 0.31 percentage point since 1 January 1998. The last five years, from 2009 to 2013, annualised excess returns were 1.16 percentage points.

Within the asset classes, equity[2] and fixed income have had annualised returns of 5.19 and 5.03 per cent respectively. The annualised excess returns have been 0.58 and 0.21 percentage point for equity and fixed income since 1 January 1999 and 1 January 1998 respectively. The annualised excess returns from 2009 to 2013 were 0.69 and 1.83 percentage points in equity and fixed income respectively.

Table 1 Portfolio returns measured in the fund's currency basket

Portfolio	Portfolio return			Active return		
	Since[2] 1.1.1998	Last ten years	Last five years	Since[2] 1.1.1998	Last ten years	Jan 2009 - Dec 2013
GPFG	5.70 %	6.31 %	12.04 %	0.31 %	0.24 %	1.16 %
Equity	5.19 %	7.81 %	15.64 %	0.58 %	0.49 %	0.69 %
Fixed Income	5.03 %	4.41 %	6.01 %	0.21 %	0.21 %	1.83 %

The GPFG has had an annualised return of 6.70 per cent since 1 January 1998 measured in *US dollars*. The excess return related to the active management of the fund has been 0.32 percentage point since 1 January 1998, and was 1.17 percentage points in the period from 2009 to Q4 2013. Within the asset classes, equity and fixed income have had annualised returns of 5.94 and 6.03 per cent since 1 January 1999 and 1 January 1998 respectively. Both asset classes have had positive annualised excess returns in the period: 0.58 and 0.22 percentage point respectively. The annualised excess returns from 2009 to 2013 were 0.69 and 1.84 percentage points respectively.

Table 2 Portfolio returns measured in US dollars

Portfolio	Portfolio return			Active return		
	Since[2] inception	Last ten years	Last five years	Since[2] inception	Last ten years	Last five years
GPFG	6.70 %	6.77 %	12.42 %	0.32 %	0.24 %	1.17 %
Equity	5.94 %	8.28 %	16.03 %	0.58 %	0.49 %	0.69 %
Fixed Income	6.03 %	4.85 %	6.36 %	0.22 %	0.21 %	1.84 %

The GPFG has had positive *returns*[3] in 12 out of the 16 *years* since 1 January 1998. Equity and fixed income have had positive returns in 10 out of 15 years and 14 out of 16 years respectively. The GPFG

[1] The performance analysis is based on return data from January 1998 to December 2013 for the GPFG. Fixed-income return data start from January 1998, and equity return data from January 1999. The return figures used in this analysis are expressed in GPFG, equity and fixed-income currency baskets. The return series in this analysis starts in January 1998 and the last observed return period is December 2013. The equity and fixed-income portfolios had asset-class-specific currency baskets up to and including December 2000. As of 2001, both asset classes have used the GPFG currency basket.

[2] The equity returns are based on data from 1 January 1999.

[3] In the GPFG currency basket.

has delivered positive returns in 66 per cent of *months* since 1 January 1998, while the equivalent share for equity and fixed income is 59 and 71 per cent respectively.

The GPFG has had positive *relative returns* in 13 out of the 16 *years* since 1 January 1998. Equity and fixed income have had positive relative returns in 12 out of 15 years and 13 out of 16 years respectively. The GPFG has delivered positive relative returns in 66 per cent of *months* since 1 January 1998, while the equivalent share for equity and fixed income is 65 and 63 per cent respectively.

Rolling five-year returns

Rolling five-year annualised returns on the GPFG have varied between -1.4 and 12.3 per cent. Rolling five-year returns have been positive throughout the period, with the exception of three months in 2009. The rolling returns went up to 9.7 per cent in the period leading up to the financial crisis and were significantly reduced during the financial crisis. The returns rebounded after the crisis, and the rolling five-year return is currently 6.3 percentage points above the GPFG's annualised return since 1 January 1998.

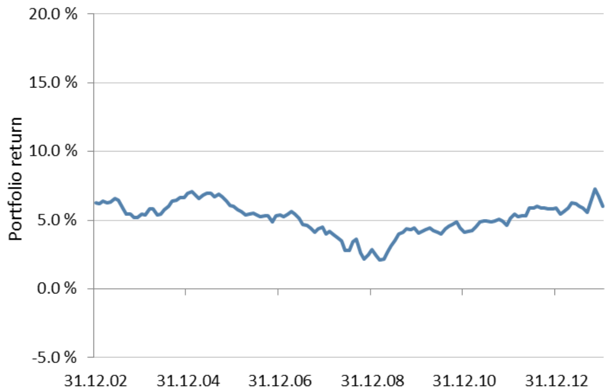
Figure 1 Rolling five-year annualised portfolio return, GPFG

Figure 2 Rolling five-year annualised portfolio return, equity

Five-year rolling returns on the equity portfolio were negative in the early 2000s as the markets were falling due to the collapse in the internet and related technology sectors. The rolling returns strengthened in the period up to the financial crisis and were at their highest level in September 2007 with an 18 per cent five-year rolling annualised return. The rolling five-year returns were negative during the financial crisis and in 2011 and 2012. They recovered after the financial crisis and are currently 15.6 per cent, 10.4 percentage points above the equity portfolio return since 1 January 1999.

Five-year rolling returns on the fixed income portfolio have been positive throughout the history of the fund. In the period prior to, and especially during, the financial crisis, the rolling five-year returns were significantly reduced, reaching 2.1 per cent in February 2009. In the following years, the rolling returns recovered, and they are currently 1.0 percentage points above the annualised return on the fixed-income portfolio since 1 January 1998.

Figure 1 Rolling five-year annualised portfolio return, fixed income

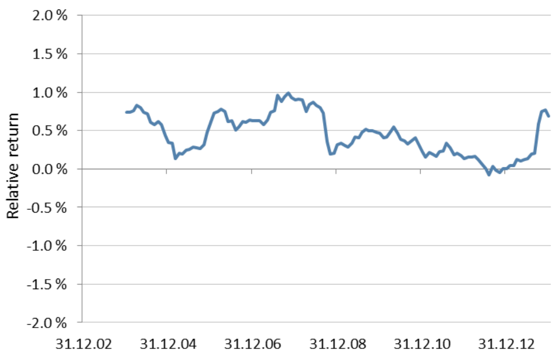


Rolling five-year relative returns

Since 1 January 1998, the GPFG has produced an accumulated annualised relative return of 0.31 percentage point, with five-year rolling relative returns varying between -0.7 and 1.18 percentage point in the period. The rolling relative five-year returns have been positive in about two-thirds of the period. The rolling relative returns on the GPFG were positive from 1 January 1998 up to August 2008, ranging between 0.1 and 0.6 percentage points. They dropped significantly during the financial crisis, reaching a low in March 2009 with a rolling five-year relative return of -0.7 percentage point, predominantly driven by fixed-income investments. From March 2010, the rolling relative returns were stable around zero until recovering in 2013, and they are currently 1.16 percentage point, 0.85 percentage points above the relative return on the fund since 1 January 1998.

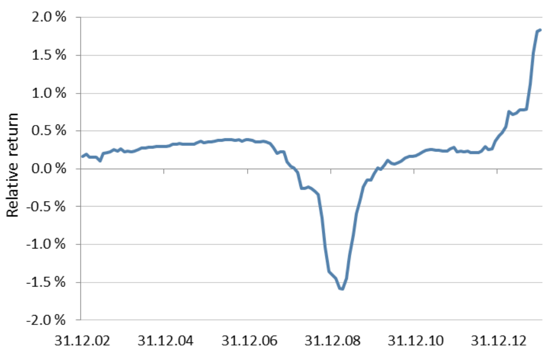
Figure 4 Rolling five-year annualised relative return, GPFG

Figure 5 Rolling five-year annualised relative return, equity



Five-year rolling relative returns on the equity portfolio have been positive over most of the period since 1 January 1999, ranging from -0.07 percentage point in July 2012 to 0.99 percentage point in October 2007. The current five-year rolling relative return is 0.69 percentage point, 0.11 percentage point higher than the relative return of 0.58 percentage point since 1 January 1999.

Figure 6 Rolling five-year annualised relative, fixed income

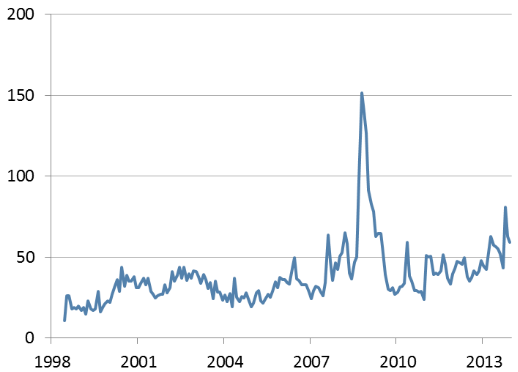


Five-year rolling relative returns on the fixed-income portfolio have been positive in about four-fifths of the investment period. Prior to the financial crisis, they ranged between 0.1 and 0.4 percentage point. Through 2008 the rolling returns dropped, and they were at their lowest in March 2009 at -1.6 percentage points. Ten months later, the rolling five-year relative returns turned positive, and they gradually increased in the period from 2010 to 2012. In 2013 they have risen sharply, and they are currently 1.83 percentage points, 1.62 percentage points higher than the relative fixed-income return since 1 January 1998.

1.2 Relative risk development

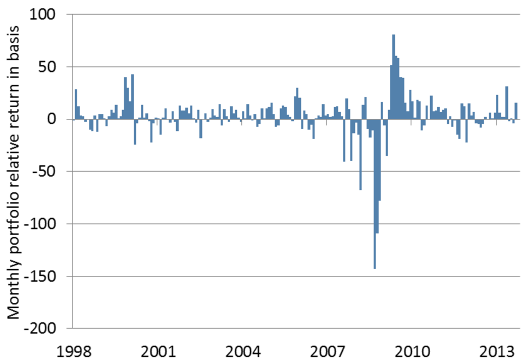
One approach used to measure the relative risk in GPFG is the expected tracking error, a measure applying statistical models and parameters to estimate the risk of the portfolio relative to a benchmark. This measure is of particular importance as the GPFG investment mandate states that the relative risk of the portfolio should be aimed at being below a specified tracking error level[4].

Figure 7 GPFG tracking error, basis points



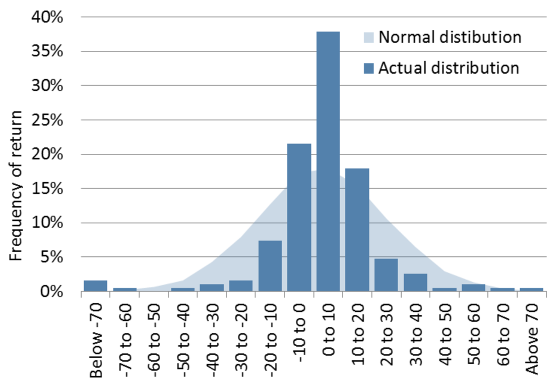
In the period prior to January 2008, the expected annualized tracking error of GPFG varied between 11 and 64 basis points. The estimated risk gradually increased through 2008 and reached 151 basis points at the end of October 2008. Nine months later the tracking error was below 60 basis points and has been ranging between 24 and 81 basis points up to December 2013[5]. The realised tracking error has been 75 basis points on an annualized basis since 1 January 1998.

Figure 8 GPFG monthly relative return, basis points



On a monthly basis the Pension Fund experienced the largest relative losses in 2007 and 2008; during the financial crisis. The historical relative return distribution of the GPFG has been more concentrated around zero and been somewhat more negatively skewed compared to a normally distributed return series.

Figure 9 GPFG monthly relative return distribution



In the period since 2009, the GPFG has been managed with no material leverage, limited usage of derivatives, no shorting of securities and a conservative securities lending programme.

[4] Prior to 2011 the tracking error limit was 150 basis points. Since 2011 the tracking error "limit" has been 100 basis points.

[5] Prior to 2011 the tracking error was calculated using the latest months of market data when estimating the volatility and correlation of risk factors. From 2011 the last three years of market data has been used when estimating volatility and correlation of risk factors.

1.3 Risk-adjusted return

The active management of the fund has had an impact on the fund's risk profile. The GPFG has deviated from its benchmark to a varying degree throughout the investment period. Tracking error[6] has been 0.75 percentage points since 1 January 1998 for the GPFG and was 0.68 percentage point in the period from 2009 to 2013.

To analyse whether the trade-off between expected return and risk in the GPFG has improved with active management, the returns have to be adjusted for the impact of active management on the risk profile of the portfolio. In this section, different risk-adjusted measures will be used to capture the different dimensions of the relative risk.

Table 3 Annualised standard deviation of returns, portfolio and benchmarks

	Since[7] 1.1.1998	Jan 2009 - Dec 2013
GPFG Portfolio standard deviation	7.7 %	9.0 %
GPFG Benchmark standard deviation	7.2 %	8.6 %
GPFG ex post tracking error (in basis points)	75	68
Equity Portfolio standard deviation	15.3 %	15.0 %
Equity Benchmark standard deviation	15.0 %	14.8 %
Equity ex post tracking error (in basis points)	84	41
Fixed Income Portfolio standard deviation	3.5 %	3.4 %
Fixed Income Benchmark standard deviation	3.3 %	3.0 %
Fixed Income ex post tracking error (in basis points)	113	136

Information ratio

The GPFG has had an information ratio[8] of 0.42 since 1 January 1998, and 1.70 from 2009 to 2013.

The rolling five-year information ratio has fluctuated over time and was above 1 in most of the period prior to the financial crisis. During the financial crisis, the information ratio dropped to -0.68 in March 2009 before recovering to the current level of 1.70.

Table 4 Information ratio

Portfolio	Since[7] 1.1.1998	Last five years
GPFG	0.42	1.70
Equity	0.69	1.68
Fixed Income	0.19	1.35

The equity portfolio information ratio has been 0.69 in the period since 1 January 1999 and was 1.68 in the period from 2009 to 2013. The equivalent figures for fixed income are 0.19 and 1.35.

Sharpe ratios

Since 1 January 1998, the GPFG's Sharpe ratio has been 0.46, while the benchmark has had a Sharpe ratio of 0.44. Hence, the GPFG has had a higher positive Sharpe ratio than the benchmark. From 2009 to 2013, the GPFG and the benchmark had Sharpe ratios of 1.33 and 1.26 respectively. Hence, the GPFG had a higher positive Sharpe ratio than the benchmark in this period.

Table 5 Sharpe ratio

Portfolio	Since[7] 1.1.1998	Last five years
GPFG	0.46	1.33
Equity	0.21	1.04
Fixed Income	0.81	1.74

[6] Ex post tracking error, calculated based on monthly observations of actual excess returns in the relevant period.

[7] Note that the tracking error limit is measured against *ex ante* tracking error. *Ex post* tracking error is calculated using actual excess returns, while ex ante tracking error applies current positions and estimated future volatility and correlations when estimating risk.

[8] Portfolio relative return divided by the standard deviation of the relative return.

Within the asset classes, the Sharpe ratios since 1 January 1999 and 1 January 1998 have been a positive 0.21 and 0.81 for equity and fixed income respectively. The equivalent figures for the benchmarks are 0.17 and 0.80.

Table 6 Sharpe ratio difference (portfolio minus benchmark)

Portfolio	Since[10] 1.1.1998	Last five years
GPFG	0.01	0.07
Equity	0.03	0.03
Fixed Income	0.01	0.39

From 2009 to Q4 2013, the Sharpe ratios were a positive 1.04 and 1.74 for equity and fixed income respectively. The equivalent figures for the benchmarks are 1.01 and 1.35.

The Sharpe ratio is an appropriate risk-adjusted performance measure for comparing returns with other portfolios or benchmarks when the returns are normally distributed. However, as the Sharpe ratio only captures the average risk of a portfolio, it does not account for any asymmetric risk profile (skewness in returns). The *adjusted Sharpe ratio*[9] seeks to capture these risk characteristics, as it punishes portfolios with excess downside risk.

The GPFG's adjusted Sharpe ratio since 1 January 1998 is 0.42, at the same level as the benchmark. The adjusted Sharpe ratio for the equity portfolio since 1 January 1999 is 0.20, while the equivalent for the benchmark is 0.17. The fixed-income portfolio has an adjusted Sharpe ratio of 0.81, compared to the benchmark's 0.85.

Table 7 Adjusted Sharpe ratio

Portfolio	Since[10] 1.1.1998	Last five years
GPFG	0.42	1.58
Equity	0.20	1.12
Fixed Income	0.81	2.31

The GPFG's adjusted Sharpe ratio in the period from 2009 to 2013 is 1.58, while the equivalent for the benchmark is 1.47. The adjusted Sharpe ratio for the equity portfolio is 1.12 during this period, compared to 1.09 for the benchmark. The fixed-income portfolio has an adjusted Sharpe ratio of 2.31 in the period from 2009 to 2013, while the equivalent for the benchmark is 1.49.

Table 8 Adjusted Sharpe ratio difference

Portfolio	Since[10] 1.1.1998	Last five years
GPFG	0.00	0.11
Equity	0.03	0.04
Fixed Income	-0.04	0.82

[9] Alexandra Wiesinger (2010): *Risk-Adjusted Performance Measurement – State of the Art Adjusted Sharpe Ratio*, bachelor's thesis, University of St. Gallen School of Business Administration.

[10] The equity performance indicators are calculated based on data from 1 January 1999.

1.4 Risk-adjusted returns in sub-periods

The variations in fund returns and the risk characteristics have fluctuated throughout the investment period. In this section, the analysis is broken down into multiple periods to gain insight into the performance characteristics of the fund under different market environments. It also gives information on how sensitive the risk-adjusted return measures are to the period analysed.

In addition to the periods presented in previous sections, the following sub-periods are assessed:

- Pre financial crisis (January 1998 - April 2007)
- Financial crisis and main recovery (May 2007 - December 2009)
- Post financial crisis (January 2010 - December 2013)

The fund return has been positive over the period as a whole and in all sub-periods except during the financial crisis period. The analysis shows that the portfolio returns and the level of volatility change significantly over time. When looking at the period since 1 January 1998, the GPFG annualised standard deviation is 7.7 per cent, but varying between 5.2 and 13.0 per cent in the various sub-periods. For the relative return, the ex post tracking error has been 0.75 percentage point since 1 January 1998, varying between 0.37 and 1.65 percentage points in the sub-periods.

The different performance indicators give different results when looking at the various sub-periods. In the pre and post financial crisis periods, all performance measures show a positive contribution from the active management of the fund. During the financial crisis, the benchmark performed better than the fund. The key return and performance indicators used throughout this analysis are shown in the table below.

Table 9 Returns, risk and risk-adjusted performance indicators, GPFG

	Since 1.1.1998	Jan 1998-Apr 2007	May 2007-Dec 2009	Jan 2010-Dec 2013	Last five years
Portfolio return (annualized)	5.70 %	6.34 %	-1.01 %	8.88 %	12.04 %
Portfolio standard deviation	7.67 %	5.21 %	12.99 %	7.82 %	9.01 %
Benchmark standard deviation	7.22 %	5.10 %	11.68 %	7.63 %	8.60 %
Excess return	0.31 %	0.49 %	-0.52 %	0.51 %	1.16 %
Ex. Post Tracking Error (in basis points)	75	37	165	37	68
Information ratio	0.42	1.31	-0.32	1.37	1.70
Portfolio Sharpe ratio	0.46	0.58	-0.19	1.13	1.33
Portfolio Sharpe ratio vs. Benchmark	0.01	0.08	-0.02	0.04	0.07
Portfolio Adjusted Sharpe ratio	0.42	0.57	-0.19	1.25	1.58
Portfolio Adjusted Sharpe ratio vs. Benchm	0.00	0.08	-0.02	0.05	0.11

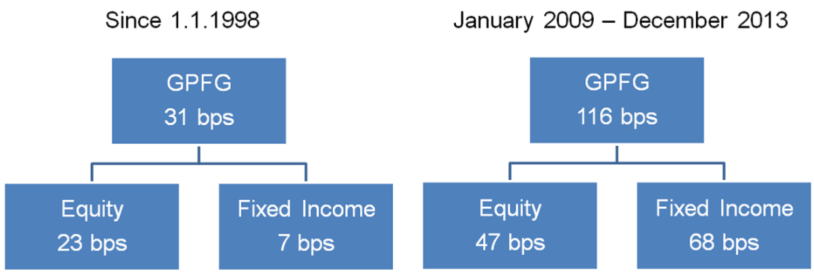
1.5 Excess return contribution from asset classes and strategies

The GPFG has returned 31 basis points in excess of the benchmark since 1 January 1998, and 116 basis points from 2009 to 2013. This section presents the asset class contributions to the GPFG's excess return and the return contributions from the different strategies to the equity and fixed-income asset class returns.

Asset class contributions to GPFG return

The equity and fixed-income contributions to the GPFG's excess return since 1 January 1999 and 1 January 1998 are 23 and 7 basis points respectively. In the period from 2009 to 2013, equity and fixed income contributed 47 and 68 basis points respectively to the GPFG's excess return.

Figure 10 Asset class contribution to GPFG excess return[11]



The excess returns in the asset classes are mainly a result of the active management of the portfolios and the related strategies. The contribution from the various strategies will be presented in the next section. In addition to these strategies, the GPFG has earned positive returns through its securities lending programmes. Securities lending amounts to 4 and 8 basis points of the equity contribution to the GPFG's excess return from 1 January 1998 and the period from 2009 to 2013 respectively. In the fixed-income portfolio, securities lending has contributed 1 basis point in the period since 1 January 1998 and was marginally positive in the period from 2009 to 2013.

Strategy contributions to equity excess return

The equity portfolio has produced an annualised excess return over its benchmark of 58 basis points since 1 January 1999, and 69 basis points from 2009 to Q4 2013. The excess return originates from three main investment strategies: enhanced indexing (internal), active management (internal) and external management.

Through the *enhanced indexing* portfolio, the GPFG aims to enhance performance through a flexible approach in emulating the composition of the benchmark portfolio. The enhanced indexing strategy has contributed 12 basis points of the equity excess return since 1 January 1999, and 20 basis points from 2009 to Q4 2013. Revenues from security lending within equity asset class are mainly incorporated into this strategy.

[11] The equity returns are calculated based on data from 1 January 1999.

Figure 11 Contribution to asset class returns since 1 January 1999 and 1 January 1998, equity and fixed income[12]

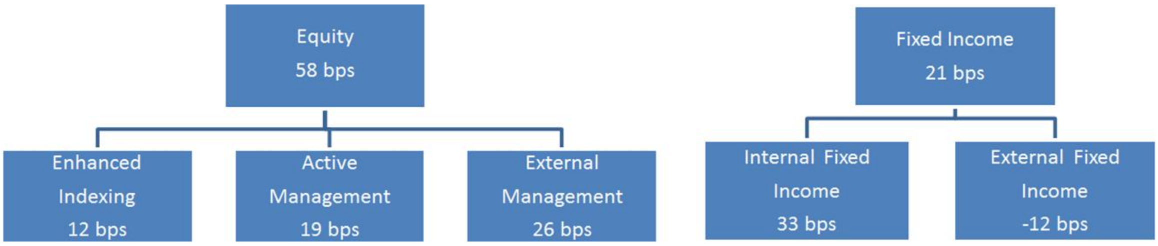
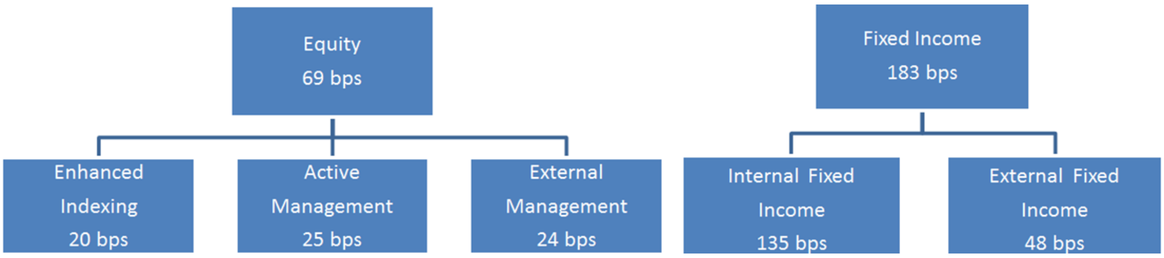


Figure 12 Contribution to asset class returns, January 2009 – December 2013



Since 1 January 1999, the active management strategy within equities has contributed 19 basis points of the equity asset class excess return of 58 basis points. From 2009 to 2013, it contributed 25 basis points to the equity excess return.

The external management strategy has contributed 26 basis points of the equity excess return since 1 January 1998, and 24 basis points in the period from 2009 to 2013.

1.5.1.1 Fixed income

The fixed-income portfolio has produced an annualised excess return over its benchmark of 21 basis points since 1 January 1998, and 183 basis points during the period from 2009 to 2013. Securities lending of fixed income securities are included in the excess return for the fixed income portfolio.

The internal fixed-income portfolio has contributed 33 basis points of the fixed-income excess return since 1 January 1998, and 135 basis points from 2009 to 2013.

The contribution to the asset class excess return from the external fixed income strategy is a negative 12 basis points since 1 January 1998, and a positive 48 basis points from 2009 to 2013.

During the financial crisis, a significant portion of the externally managed mandates were transferred to the internal fixed income portfolio for termination. Hence, during this period the excess returns from both the internal fixed income and external fixed income strategies were impacted by the approach used when transitioning the external mandates into the internal fixed income portfolio.

[12] The contribution figures from the various strategies are not calculated in line with the GIPS standard.

2 Analysis of systematic risk factor exposures

In this part, we analyse how much of the variability of the return of the fund can be explained by active positions, and how the relative returns co-move with systematic risk factors. The analysis is performed on the return for both the total fund and the equity and fixed-income portfolios. The first sections (variance contribution, risk factor correlations) follow the methodology used in Ang et al. (2009). In the final section, we present the results based on an analysis that uses global, tradable systematic risk factors in a multivariate regression setting.

2.1 Variability of total returns attributed to active returns

As expected, given the tight tracking error limits in the GPFG mandate, Table 10 shows that the variation in the monthly total portfolio returns is mostly driven by the choice of benchmark. For equities and fixed income, the variance attributed to active returns is expressed as a percentage of the asset-specific portfolios.

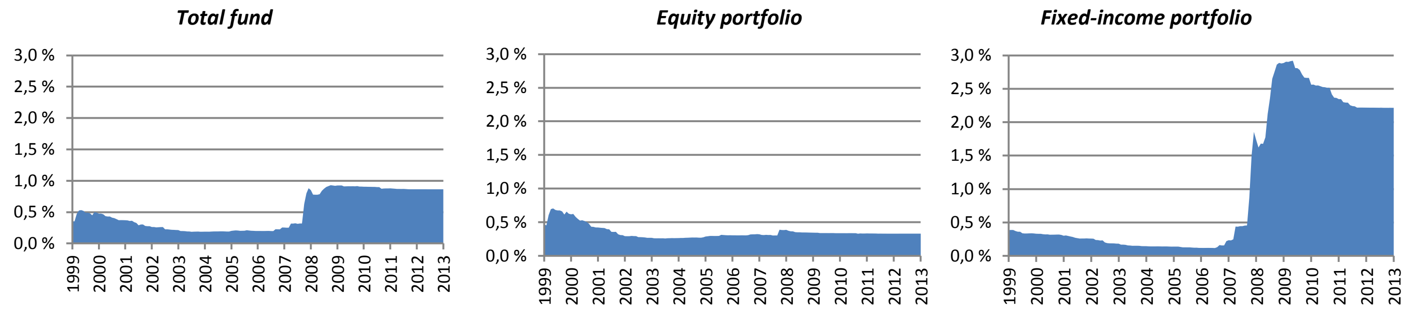
Table 10 Variance attribution

	Total Fund			*Equity*			*Fixed Income*		
	Since inception	Inception – Apr 2007	Jan 2009 – Dec 2013	Since inception	Inception – Apr 2007	Jan 2009 – Dec 2013	Since inception	Inception – Apr 2007	Jan 2009 – Dec 2013
Benchmark	99.1%	99.8%	99.2%	99.7%	99.7%	99.9%	97.8%	99.9%	97.3%
Active	0.9%	0.2%	0.8%	0.3%	0.3%	0.1%	2.2%	0.1%	2.7%

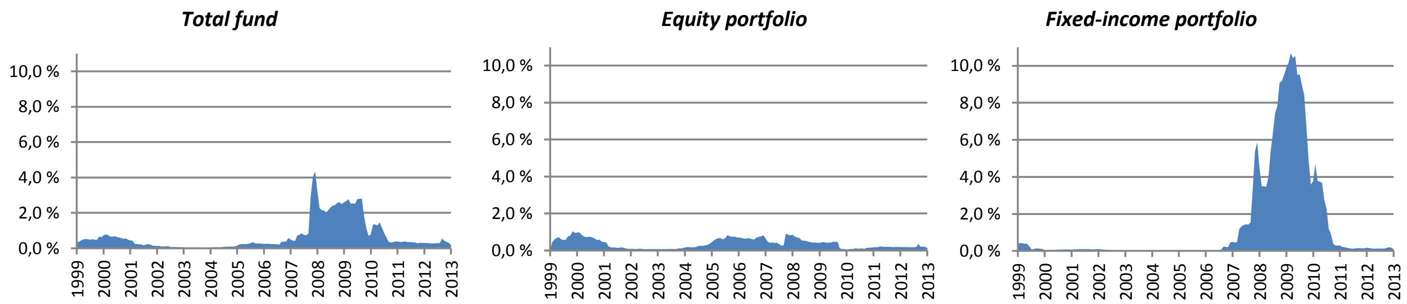
The results from such analyses are sensitive to the time period chosen. In Figure 12, we demonstrate that the variance contribution from active returns is time-varying and highest in periods of increased market volatility; for fixed income, the rolling-time-window chart shows that the period from 2007 to 2010 is responsible for the increase in the attributed active return visible in the since-inception/expanding-time-window chart.

Figure 13 Variance attribution of active returns

Expanding time window



24-month rolling time window



2.2 Active returns' co-movement with systematic risk factors

Several quantitative methods can be used to assess the degree to which active returns of a portfolio co-move with systematic risk factors. In this section, we update the correlation analysis in Ang et al. (2009). All correlation figures are between active returns and systematic risk factor returns, calculated on a stand-alone basis. The partial correlations can be regarded as marginal correlations between the fund active returns and factor returns on each factor after taking into account and subtracting the effects from the other factors.

The factors evaluated in this analysis are:

- *Term:* Difference in returns on the total return Barclays US Treasury 20+ year index and the total return Barclays US Treasury Bill 1-3 month index
- *Credit Aa:* Difference in returns on the total return Barclays US Corporate Aa Long Maturity index and the total return Barclays US Aggregate Long Government Treasury index
- *Credit Baa:* Difference in returns on the total return Barclays US Corporate Baa Long Maturity index and the total return Barclays US Corporate Aa Long Maturity index
- *Credit High Yield:* Difference in returns on the total return Barclays US Corporate High Yield Caa index and the total return Barclays US Corporate Baa Long Maturity Baa index

- *FX Carry*[13]*:* Difference in returns between currency returns on the top three G10 currencies with the highest short-term yields and the bottom three G10 currencies with the lowest short-term yields
- *Illiquidity*[14]*:* The negative of changes in the on-the-run/off-the-run spread on 10-year US Treasury bonds
- *Value/Growth:* Difference in returns between global "value" stocks and global "growth" stocks computed using MSCI world indices
- *Small/Large:* Difference in returns between global small-cap stocks and global large-cap stocks computed using MSCI all-country indices
- *Momentum*[15]*:* Difference in returns between US stocks with past high returns and US stocks with past low returns
- *Volatility*[16]*:* Returns on a variance swap between implied and realised volatility on the S&P500 in excess of LIBOR

All returns are translated to NOK. The US-centric nature of this factor selection is a potential weakness, as is the choice of including non-tradable/hard-to-replicate factors such as the liquidity and volatility factors. Finally, the original AGS study does not indicate whether the fixed-income credit factors are duration-matched; in our study we assume they are not, and take the data series directly from Barclays Capital without adjustments, which means that the credit factors will have term effects embedded.

Figures 13 and 14 illustrate the different return dynamics for two bond indices with the same credit quality, but different maturities. We see that, even for the same credit quality, the maturity (and thus the exposure to yield curve movement) of the constituents will determine almost all the return variability of the index, as the credit spread component moves almost in sync. To circumvent this issue, one might attempt to construct indices using only bonds with perfectly matched maturities for different credit qualities. The resulting benchmark portfolios would, however, contain fewer bonds and would yield more unstable estimates due to their higher issuer-specific risk. On average, higher-credit-grade bond indices will have constituents with longer maturities.

The duration-matching issue serves as a good illustration of a typical problem in a study like this: the factor portfolios constructed to mimic a certain factor return might not capture perfectly the risk signal they are intended to represent.

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[13] Source: Bloomberg.

[14] Off-the-run curve obtained from http://www.federalreserve.gov/pubs/feds/2006/200628/200628abs.html.

[15] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ftp/F-F_Momentum_Factor.zip.

[16] Spliced series: Merrill Lynch Equity Volatility Arbitrage Index up to October 2012, the CBOE S&P 500 VARB-X thereafter.

Figure 14 Option-adjusted spread (in basis points) for two bond indices with different maturity buckets

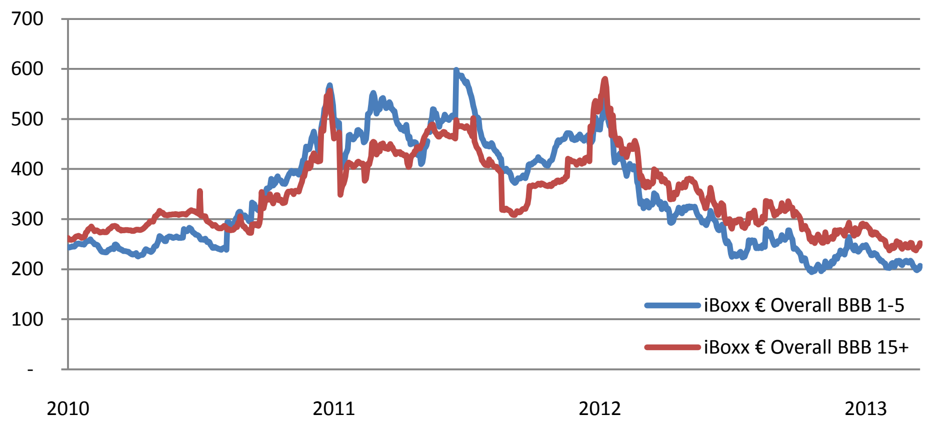
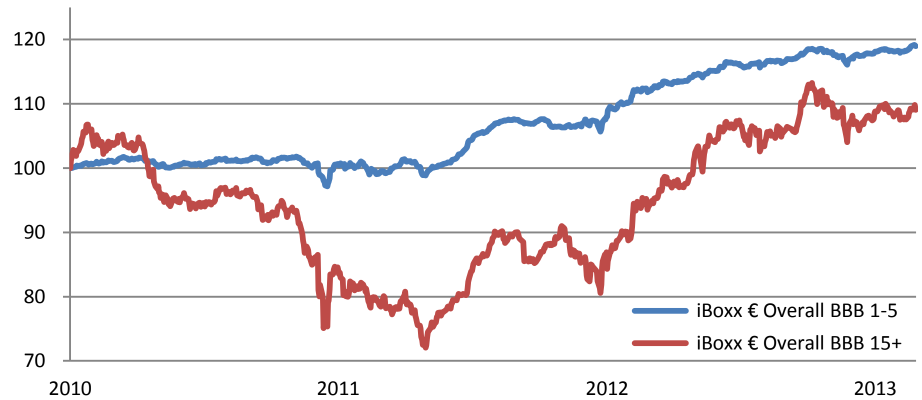


Figure 15 Cumulative returns for the same two bond indices



Another risk factor that could have been included in the analysis is foreign exchange. The base currency in which active and factor portfolio returns are expressed will introduce differences in correlations due to fluctuations in exchange rates relative to the base currency. In active returns relative to a benchmark and in long-short portfolios, as the factors in this analysis are designed, currency effects will be marginal, but they could be relevant during periods of high exchange rate volatility and correlation of exchange rates to the factors. Care should be taken in the design of the factor portfolios and the application of the appropriate currency conversion methodology, as long-only and long-short portfolios will be affected differently by currency returns.

Table 11 shows the co-movement between the factors from the fund's inception. The high degree of correlation between the factors justifies the use of partial correlations to interpret systematic risk factor exposures. These co-movements between factors can also vary over time.

Table 11 Correlation matrix between monthly factor returns

	Term	*Credit Aa*	*Credit Baa*	*Credit High Yield*	*FX Carry*	*Illiquidity*	*Value/Growth*	*Small/Large*	*Momentum*
Volatility	-0.18	0.42	0.70	0.39	0.49	0.46	-0.07	0.27	-0.19
Momentum	0.12	-0.28	-0.30	-0.33	-0.11	-0.21	-0.37	-0.04	
Small/Large	-0.07	0.24	0.31	0.27	0.24	0.13	0.04		
Value/Growth	0.05	0.00	-0.04	0.05	0.05	0.09			
Illiquidity	-0.21	-0.05	-0.33	-0.15	-0.45				
FX Carry	-0.11	0.45	0.43	0.28					
Cr. High Yield	-0.68	0.46	0.57						
Credit Baa	-0.45	0.55							
Credit Aa	-0.51								

The results on correlations and partial correlations for the GPFG and its equity and fixed-income portfolios are provided below. The analysis does not take particular account of timing decisions on the benchmark, such as the increase in the equity allocation from 40 to 60 per cent. New active decisions on allocation to systematic risk factors (value, size) are not yet reflected in these factor exposures due to the short time they have been in place and the time-series nature of this calculation.

Table 12 Correlations and partial correlations of active returns with systematic factor returns (p-values in parentheses). Significant partial correlation coefficients in bold type

GPFG	*Since inception*		*Inception – Apr 2007*		*Jan 2009 – Dec 2013*	
	Corr	Partial corr	Corr	Partial corr	Corr	Partial corr
Term	-0.21 (.00)	0.07 (.37)	-0.07 (.51)	-0.07 (.36)	-0.32 (.01)	**0.37** (.00)
Credit Aa	0.53 (.00)	**0.32** (.00)	0.16 (.09)	0.11 (.39)	0.58 (.00)	**0.50** (.00)
Credit Baa	0.52 (.00)	-0.08 (.23)	0.26 (.01)	0.09 (.49)	0.41 (.00)	0.16 (.22)
Cr. High Yield	0.41 (.00)	0.13 (.08)	0.16 (.08)	-0.02 (.86)	0.55 (.00)	**0.37** (.00)
FX Carry	0.45 (.00)	0.05 (.51)	0.02 (.82)	-0.13 (.14)	0.28 (.03)	0.00 (.96)
Illiquidity	0.33 (.00)	0.11 (.12)	0.16 (.10)	**0.35** (.00)	-0.05 (.72)	-0.09 (.45)
Value/Growth	-0.19 (.00)	**-0.27** (.00)	-0.43 (.00)	**-0.50** (.00)	0.26 (.05)	0.04 (.81)
Small/Large	0.42 (.00)	**0.30** (.00)	0.46 (.00)	**0.52** (.00)	0.51 (.00)	**0.26** (.05)
Momentum	-0.14 (.05)	-0.01 (.89)	0.25 (.01)	**0.22** (.01)	-0.45 (.00)	0.10 (.44)
Volatility	0.63 (.00)	**0.35** (.00)	0.23 (.01)	0.15 (.09)	0.39 (.00)	-0.17 (.20)

Equity portfolio	*Since inception*		*Inception – Apr 2007*		*Jan 2009 – Dec 2013*	
	Corr	Partial corr	Corr	Partial corr	Corr	Partial corr
Value/Growth	-0.39 (.00)	**-0.40** (.00)	-0.45 (.00)	**-0.45** (.00)	-0.10 (.46)	**-0.26** (.05)
Small/Large	0.41 (.00)	**0.40** (.00)	0.37 (.00)	**0.43** (.00)	0.63 (.00)	**0.46** (.00)
Momentum	0.12 (.11)	0.05 (.50)	0.30 (.00)	0.15 (.13)	-0.30 (.02)	-0.18 (.17)
Volatility	0.37 (.00)	**0.29** (.00)	0.23 (.02)	**0.24** (.01)	0.51 (.00)	**0.38** (.00)

Fixed-income portfolio	*Since inception*		*Inception – Apr 2007*		*Jan 2009 – Dec 2013*	
	Corr	Partial corr	Corr	Partial corr	Corr	Partial corr
Term	-0.18 (.02)	**0.17** (.00)	-0.04 (.67)	-0.01 (.86)	-0.14 (.39)	**0.51** (.00)
Credit Aa	0.48 (.00)	**0.28** (.00)	0.10 (.27)	0.13 (.16)	0.44 (.00)	**0.48** (.00)
Credit Baa	0.48 (.00)	**-0.02** (.01)	0.06 (.50)	0.05 (.66)	0.28 (.03)	0.20 (.25)
Cr. High Yield	0.39 (.00)	**0.21** (.00)	0.00 (.98)	-0.07 (.43)	0.37 (.00)	**0.48** (.00)
FX Carry	0.39 (.00)	0.01 (.38)	-0.10 (.30)	-0.16 (.09)	0.18 (.15)	-0.02 (.51)
Illiquidity	0.28 (.00)	0.00 (.37)	0.03 (.78)	0.06 (.52)	-0.01 (.86)	-0.08 (.64)
Volatility	0.59 (.00)	**0.34** (.00)	0.05 (.62)	-0.02 (.82)	0.23 (.08)	-0.20 (.14)

The results presented above are in line with those presented in Ang et al. (2009), although not identical, as the report alone does not contain enough technical details to recreate the analysis exactly. As in Ang et al. (2009), the main factor tilts identified are, in simple terms, a positive tilt to small companies, volatile companies and credit Aa, and a negative tilt to credit Baa and value companies (positive tilt to growth stocks). These results are generally also in line with the results observed from other methodological approaches.

Nevertheless, the numbers should be regarded with caution, knowing the model uncertainty inherent in every statistical analysis. Partial correlations in particular measure only the average linear dependence between the factors and active returns over the whole period of the study, so different co-movement with the factors could be observed in active returns during different market periods. Correlations might change dynamically over time, and they tend to increase during recessions and periods of high factor volatility. In addition, partial correlations depend on the full set of factors specified to attribute the variability of returns. If, for instance, more factors were added to the set, some marginal correlations would decrease whenever some of the marginal effect from a factor was shared with the other newly added factors.

2.3 Multivariate factor regressions

In addition to (partial) correlation analyses, NBIM monitors factor exposures in the GPFG from other perspectives and uses several internal and third-party models. In this section, we will present the results from a time-series multifactor regression of active portfolio returns on returns from investable, global factor portfolios, as a complementary, direct method. The equity factor portfolios used in this section are constructed as long-short portfolios from a global universe of stocks. In this way, specific asset returns will be diversified, and the performance of the portfolio will presumably proxy a global systematic risk factor. The returns are all considered in US dollars, as a large part of the portfolio is traded in this currency. Using NOK as a base currency would introduce exchange rate volatility which might make the interpretation of the results more difficult.

The factors considered in this analysis are as follows:

Equity portfolio:

- *Emerging:* Return on MSCI World Emerging minus return on MSCI World Developed.
- *Value/Growth:* Return on the stocks in the top 30th percentile by book-to-market (value stocks) minus the return on the stocks in the bottom 30th percentile (growth stocks) in the FTSE World Developed universe, equally weighted portfolios.
- *Small/Large:* Return on the stocks in the bottom 30th percentile by market capitalisation (small-cap stocks) minus the return on the stocks in the top 30th percentile (large-caps) in the FTSE World Developed universe, equally weighted portfolios.
- *Low Volatility:* Return on the stocks in the bottom 30th percentile by past 250-day volatility (low-volatility stocks) minus the return on the stocks in the top 30th percentile (high-volatility stocks) in the FTSE World Developed universe, equally weighted portfolios.

Fixed-income portfolio:

- *Term:* Return on US ten-year Treasury futures index minus return on US two-year Treasury futures index.

- *Credit Aa:* Return on Aa-rated bonds minus the return on Treasury bonds (global aggregates).
- *Credit Baa:* Return on Baa-rated bonds minus the return on Aa-rated bonds (global aggregates).
- *Credit Caa:* Return on Caa-rated bonds minus the return on Baa-rated bonds (global aggregates).

Table 13 shows that, over the full period, for the total GPFG, the factor regression explains 37 per cent of the variability in active returns. Volatility, Credit Aa and Credit Baa are significant in this regression. Looking only at the last five years, Credit Aa is significant in explaining the total GPFG, although Growth and Volatility are also significant in explaining the equity portfolio. The full multifactor regression explains 45 per cent of the active returns over this period.

Table 13 Multifactor regression coefficients (t-statistics in parentheses). Significant coefficients in bold type

GPFG	*Since inception*	*Inception – Apr 2007*	*Jan 2009 – Dec 2013*
Term	0.00 (-0.4)	-0.01 (-0.9)	0.00 (-0.1)
Credit Aa	**0.05** (3.3)	-0.01 (-0.9)	**0.07** (2.5)
Credit Baa	**0.05** (3.9)	-0.02 (-0.9)	0.02 (0.6)
Credit Caa	-0.01 (-1.4)	**0.00** (2.0)	-0.02 (-1.6)
Emerging	0.00 (0.8)	**-0.01** (2.6)	0.00 (-0.1)
Value/Growth	-0.01 (-1.0)	**-0.03** (-5.7)	0.01 (0.5)
Small/Large	0.01 (1.2)	**0.02** (2.5)	0.01 (0.4)
Low Volatility	**-0.02** (-4.1)	**-0.01** (-3.0)	-0.01 (-1.5)
% variability explained (R^2)	37%	38%	49%

Equity portfolio	*Since inception*	*Inception – Apr 2007*	*Jan 2009 – Dec 2013*
Emerging	0.01 (1.7)	**0.02** (2.6)	-0.01 (-1.8)
Value/Growth	**-0.04** (-4.3)	**-0.07** (-5.8)	**-0.02** (-2.6)
Small/Large	0.02 (1.3)	0.02 (1.2)	0.02 (1.8)
Low Volatility	**-0.03** (-6.7)	**-0.02** (-3.5)	**-0.02** (-5.7)
% variability explained (R^2)	29%	34%	57%

Fixed-income portfolio	*Since inception*	*Inception – Apr 2007*	*Jan 2009 – Dec 2013*
Term	-0.02 (-1.0)	-0.01 (-1.2)	0.02 (0.5)
Credit Aa	**0.09** (3.8)	-0.01 (-1.4)	**0.18** (3.4)
Credit Baa	**0.12** (5.8)	0.00 (0.5)	0.08 (1.4)
Credit Caa	-0.01 (-1.5)	0.00 (-0.3)	-0.04 (-1.4)
% variability explained (R^2)	26%	3%	28%

Apart from the global systematic risk factors considered here, active management might involve decisions on changing allocations to regions, industries, countries or even asset classes (market timing) over time. These types of active investment decisions may carry some implicit exposure to the style risk factors considered here. This dynamic positioning combined with the time-varying nature of risk premiums themselves (see e.g. NBIM 2011), will give rise to systematic exposures that vary over time. In Figures 15, 16 and 17, this is illustrated by showing rolling five-year exposures (active return betas) for the total fund, the equity portfolio and the fixed-income portfolio. The credit exposure that becomes apparent in August 2008 seems to be responsible for a large rise in what a regression model will show as explained variability.

Figure 16 Five-year rolling betas vs variability explained (R^2), GPFG

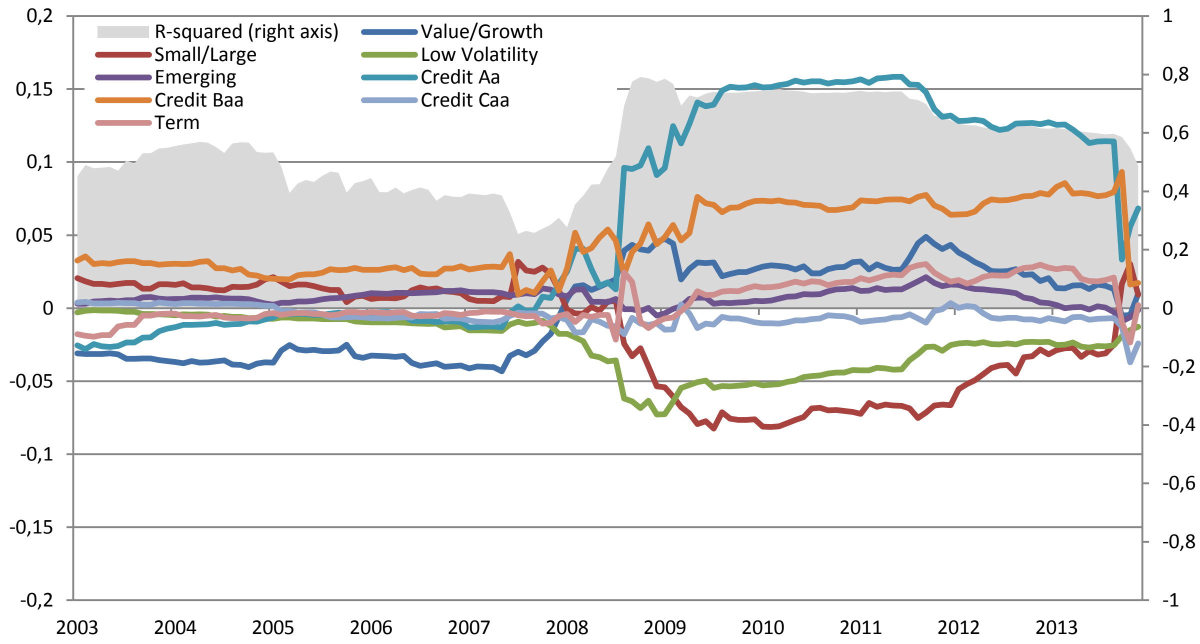


Figure 17 Five-year rolling betas vs variability explained (R^2), equity portfolio

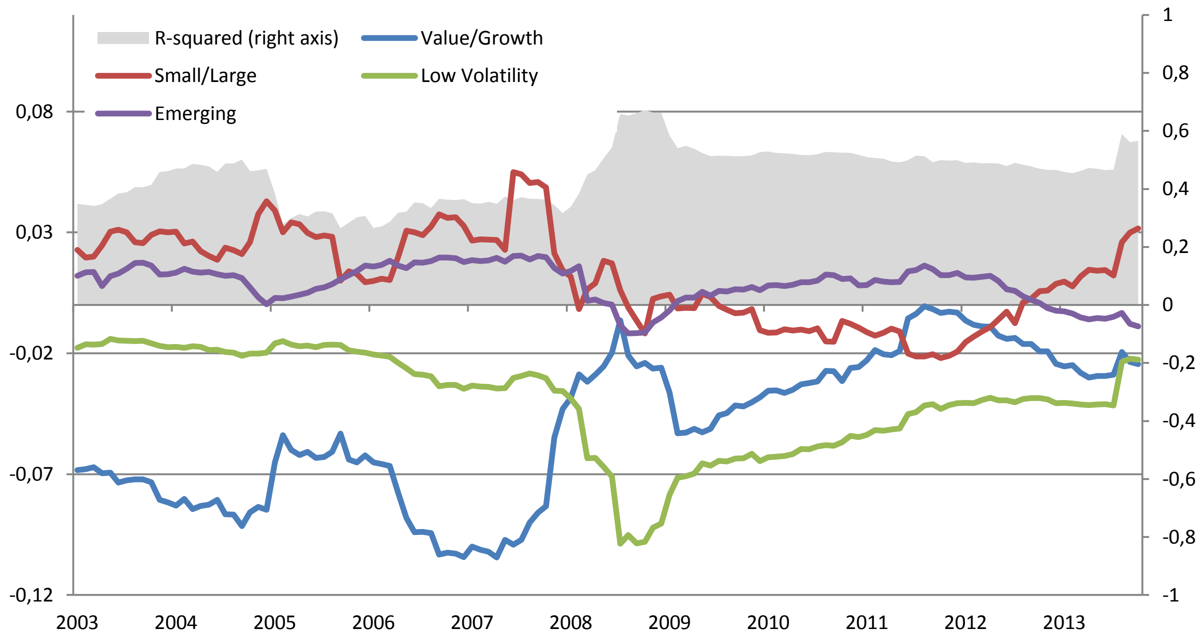
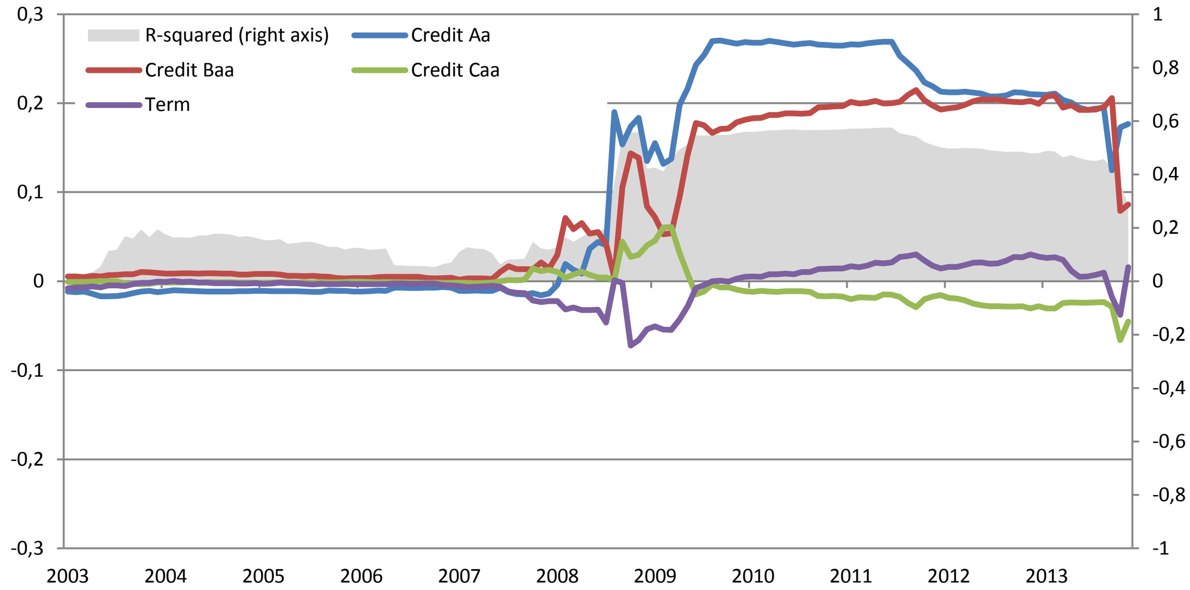


Figure 18 Five-year rolling betas vs variability explained (R^2), fixed-income portfolio



The same weaknesses described in the previous section on partial correlations also apply to this analysis based on linear regressions. This portfolio-return-based model implicitly assumes that the factor sensitivity measures are constant during the period of analysis. Moreover, they measure linear relations only, as is also the case in partial correlations. Apart from noise introduced during the practical factor portfolio construction, correlations between the theoretical market risk factors may also bias the estimated factor sensitivities, since the model assumes that these are independent from each other, which is not the case empirically.

3 Gross excess return vs net value creation

Net value creation is defined as the difference between the fund's actual results with active management and the results that could theoretically have been achieved with passive index management. Passive index management would aim at replicating an index that follows set rules. Making actual investments identical to such an index will result in a variety of costs. The key elements in the analysis are:

- **Gross excess return:** NBIM's actual return calculated according to the principles laid down in the NBIM Policy for Performance Measurement[17] and GIPS[18]. This is the gross excess return for the equity and fixed-income portfolios versus the aggregated benchmark index for equities and bonds. Real estate is not part of the measurement of value-added. The performance of the equity benchmark is adjusted for the GPFG's tax position. Revenues from security lending are included the gross return for the fund and the respective asset classes.
- **Inflows, rebalancing and benchmark index transition costs:** These costs are estimated costs related to phasing new capital into the fund, costs related to set rules for rebalancing of the asset allocation in the benchmark, and transition costs related to rule changes for the benchmark. During the last five years, the Ministry of Finance has decided new rule sets for both the equity benchmark index and the bond benchmark index, with associated transition phases from the old to the new benchmarks. The costs related to inflows, rebalancing and index transition costs are estimated based on market-standard assumptions about trading costs, not actual realised costs, and are therefore uncertain in nature.
- **Cost of passive strategy:** Changes in the equity and bond indices, such as company inclusions and periodic index re-weightings trigger transactions in the portfolio and subsequent costs. These costs are estimated based on models and not on realised costs, and are therefore uncertain in nature.
- **Management costs:** Management costs will be incurred for both active and passive management strategies, but will be higher for active management. The management costs here incorporate all GPFG management costs, including external managers' performance-related fees.
- **Management cost of a passive strategy:** Estimated management costs for a passive management strategy based on actual GPFG management costs for each year, where costs related to both internal and external active management strategies are subtracted.
- **Revenues from securities lending:** Unlike a theoretical index, a passive index portfolio will be able to generate income from securities lending. It is open to question to what extent securities lending revenues would be compatible with a passive investment mandate. This income is neither risk-free nor cost-free. In this analysis, actual revenues from securities lending are used, consistent with the financial reporting for the GPFG.

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[17] Published on www.nbim.no.

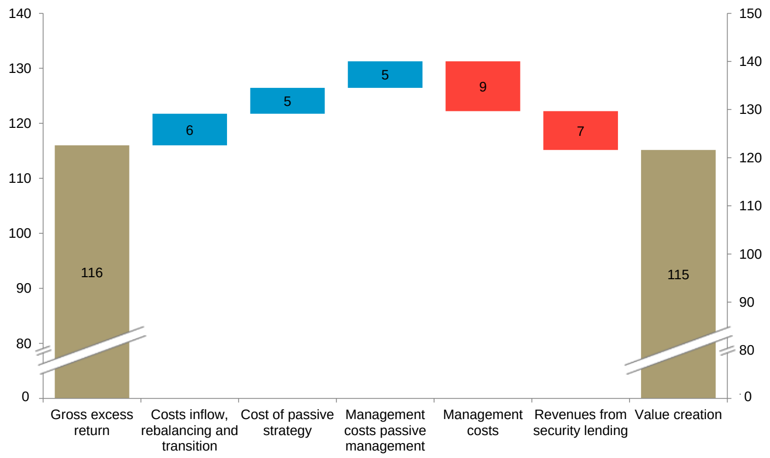
[18] Global Investment Performance Standard. Annual GIPS reports are published on www.nbim.no.

3.1 Net value creation from active management 1998-2013

Below is an indication of added value from active management of the GPFG for the years 1998-2013. With the adjustments detailed in the above analysis, estimated net value creation from active management for the period 1998-2013 has been in line with the calculated gross excess return. Also for the recent period 2009-2013 the value creation has been in line gross excess return.

Figure 19 Estimated value creation 1998-2013. Figures in basis points, annualised

Figure 20 Estimated value creation last 5 years. Figures in basis points, annualised



4 References

Ang et al. (2009): *Evaluation of Active Management of the Norwegian Government Pension Fund – Global*.

NBIM (2011): "On risk premium variation", NBIM Discussion Note 1-2011.

EXPERIENCE WITH REAL ESTATE INVESTMENTS

10 March 2014

Executive summary

In March 2010 the Ministry of Finance expanded the Government Pension Fund Global (GPFG) mandate to include an allocation of up to 5 per cent in real estate, and in April 2011 NBIM made its first unlisted real estate investment. As at 31 December 2013, real estate investments amounted to 51.8 billion kroner, corresponding to 1.0 per cent of the GPFG, and comprised investments in five currencies on two continents in the office, retail and industrial sectors.

Investments in unlisted real estate differ significantly from other GPFG investments, and a key objective in the initial stages was to build an organisation with a well-functioning team and a solid infrastructure platform capable of handling a large portfolio of international real estate investments.

The explicit strategy in the initial phase was to invest in core markets in Europe and subsequently in the US. It was a stated strategy to invest through joint ventures with partners that possess local market knowledge and strong asset management capabilities, and with whom NBIM could align its interests through joint investments. With the exception of one investment, all of NBIM's real estate investments were in the form of joint ventures.

NBIM relied on a measured, deliberate and focused approach to invest within its real estate mandate. The effort has been marked by a methodical build-up of resources, systems and a framework to start investing in an orderly manner with no critical incidents.

1. Real estate portfolio

1.1. Initial investment strategy

The Ministry of Finance decided in 2010 that up to 5 per cent of the GPFG should be invested in real estate. Since then, the objective of the fund has been to build a portfolio of private, unlisted real estate assets that may deliver a sustainable long-term return. The 5 per cent maximum allocation corresponded to about 150 billion kroner in 2010, 250 billion kroner at the end of 2013, and may reach approximately 365 billion kroner in 2020. When fulfilled, this allocation will make NBIM one of the world's largest real estate investors.

Investments in private markets differ significantly from the GPFG's other investments. Unlike securities that trade on exchanges, investments in private market real estate offer little or no publicly available information on pricing, and different requirements exist when it comes to the execution of investment decisions, the management framework, oversight and control. Before making the fund's first investment, careful assessments of different markets were undertaken. It was an explicit strategy to focus on the large European, mature and transparent markets. With close proximity to the UK market through NBIM's regional offices in London, the fund's investments in London and Paris in 2011 marked the beginning of the GPFG's exposure to private market investments.

It was on the back of an established European portfolio that NBIM in 2013 made its first investment in unlisted real estate in the US. This investment included office properties in Boston, New York and Washington DC. The US is the world's largest economy and has the world's largest real estate market, so being present there is a necessity when building a global real estate portfolio. Strategically, the fund's entry into the US real estate market was carried out similarly to the fund's European investments by starting in core, transparent markets in traditional property types.

NBIM's initial strategy directed investments to traditional property types, in particular the office and retail sectors, but also logistics facilities. With no short-term liquidity needs and a long-term investment horizon, NBIM can tolerate a certain degree of volatility in the real estate market and can invest in situations where short-term prospects can seem challenging due to market-specific events. NBIM was able to pursue large lot-size transactions without having to rely on third-party financing, and became an investor of choice where liquidity is limited.

Because of the local nature of the business and the typically labour-intensive nature of the day-to-day management of real estate assets, the stated strategy of the real estate investment programme was to invest with partners. By having invested in joint venture, the fund benefitted from the local market knowledge and asset management capabilities of its partner. This allowed NBIM to focus on investment decisions and be less involved in day-to-day operating matters. Alignment of interest ensured such joint ventures functioned properly. Partners invested significant permanent capital alongside NBIM with a focus on creating value through the investment, and not through fees. Aligning NBIM with local expertise was an integral part of the strategy. With the exception of the acquisition of Credit Suisse's Uetlihof office complex in Zurich in a sale-leaseback transaction, all of NBIM's investments were in the form of joint ventures. The exception was driven by the limited asset management work required in that particular asset.

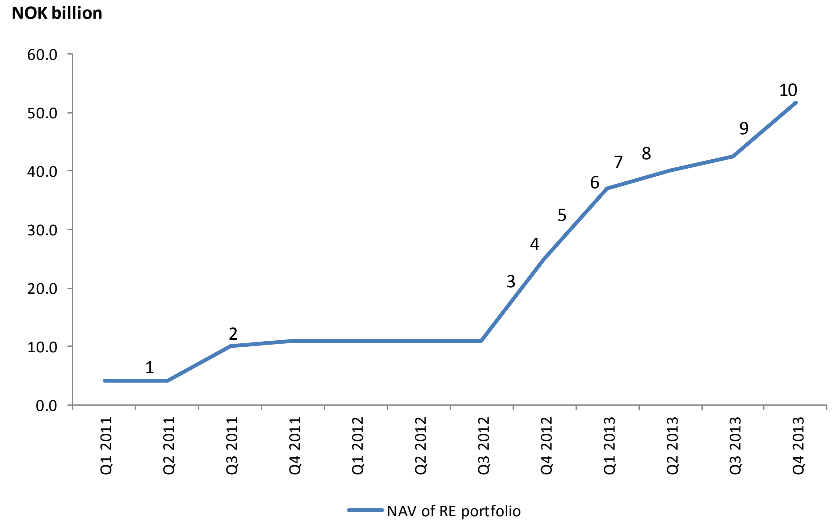
Unlike equities and fixed-income securities, real estate transactions typically take months to complete. As an example, the acquisition of a 25% stake in Regent Street started with a letter of intent in August 2010, a closed auction during September to November of the same year, selection of NBIM as preferred bidder in November, signing of contracts in January 2011, and completion of the transaction in April 2011. Also, transaction costs typically amount to 1-5 per cent of the acquisition price. While it is difficult to minimise the cost per transaction, long hold periods will avoid frictional costs of trading that are typical of a high-turnover portfolio. All investments were considered in light of NBIM's intention to hold the investments for long periods.

1.2. Investments

NBIM entered into its first unlisted real estate investment in the spring of 2011 when it acquired a 150-year lease on a 25 per cent stake in The Crown Estate's Regent Street portfolio in London. Subsequently, investments were made in five more European and three US investment structures (The Appendix provides a brief description of each investment).

The chart below provides an overview of the value of the real estate portfolio since inception.

Net asset value of real estate portfolio



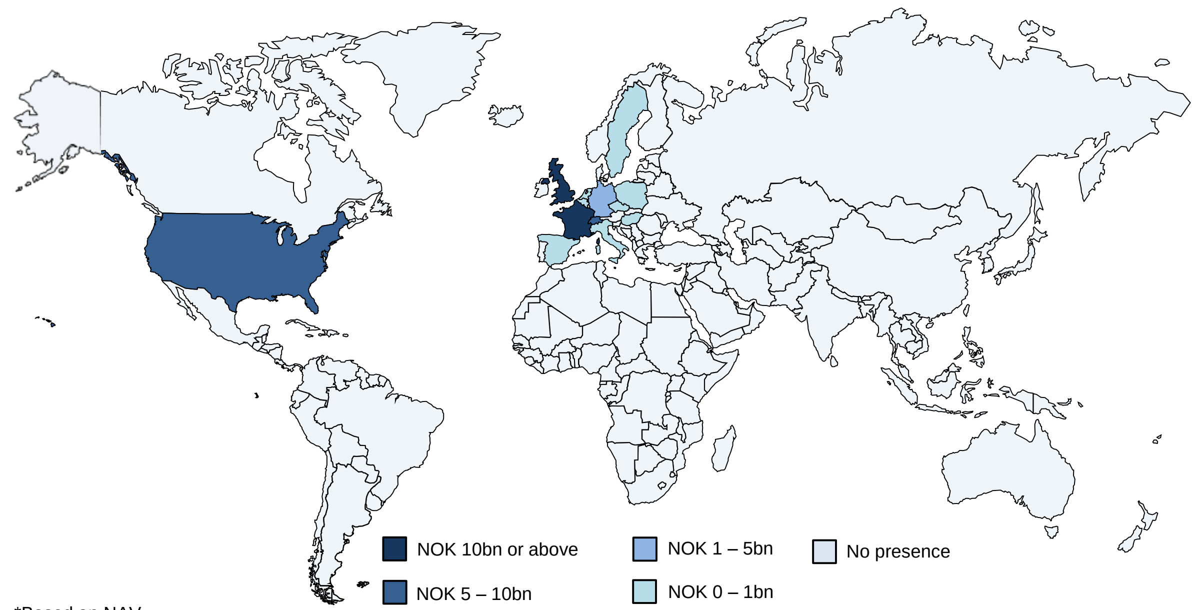
	Location	Partner
1	London	The Crown Estate
2	Paris	AXA
3	Paris	Generali
4	Sheffield	British Land
5	Zurich	-
6	Various Germany	AXA
7	US - East Coast	TIAA-CREF
8	Various Europe	Prologis
9	New York	Boston Properties
10	Boston	Met Life

As at Q4 2013, the net asset value (NAV) of the GPFG's real estate investments was 51.8 billion kroner and constituted 1.0 per cent of the GPFG's total assets. This comprised investments in five currencies in the office, retail and industrial sectors in 13 countries. The property-level gross asset value (GAV) of the portfolio was 57.2 billion kroner[1].

[1] The property-level GAV is based on formal third-party property valuations and shows the value of the real estate assets regardless of how they are financed. The difference between the 57.2 billion kroner GAV and the 51.8 billion kroner NAV principally relates to the collateralised debt on the investments with Prologis, British Land and Met Life. The NAV balance would also typically include other net assets which are not included in the property-level GAV.

The map below outlines the global presence of NBIM's real estate portfolio. The colour code represents the value of NBIM's investments.

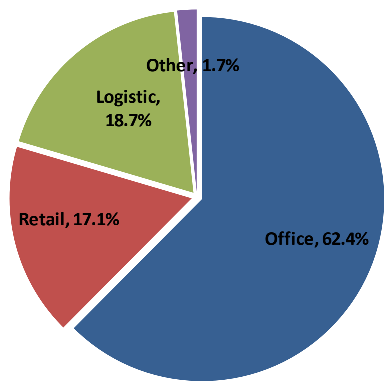
Real estate portfolio - Global presence *



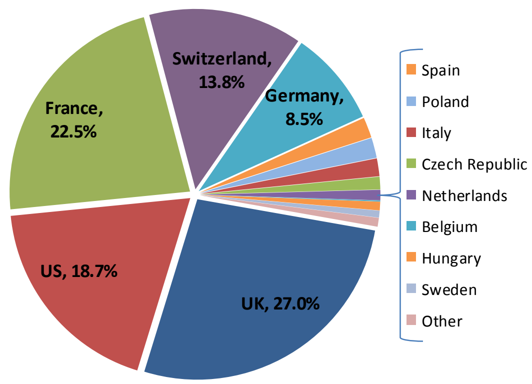
*Based on NAV

Offices accounted for 62.4 per cent of the total real estate portfolio, followed by Logistics at 18.7 per cent and retail at 17.1 per cent. The largest regional exposure was to the UK (27.0 per cent), followed by France (22.5 per cent) and the US (18.7 per cent).

Real estate portfolio - Sector breakdown



Real estate portfolio - Country breakdown



*Charts are based on NAV

As at Q4 2013, the real estate portfolio comprised investments in five currencies with a 39.2 per cent exposure to euros, followed by GB pounds at 27.0 per cent and US dollars at 18.7 per cent. Exposure to Swiss francs and Swedish kronor was 13.8 per cent and 0.6 per cent respectively. The largest exposure to a single tenant, measured by NBIM's share of contracted rent, was to Credit Suisse (9.8 per cent). The top 5 tenants in the portfolio constituted 16.6 per cent of the portfolio's overall contracted rent.

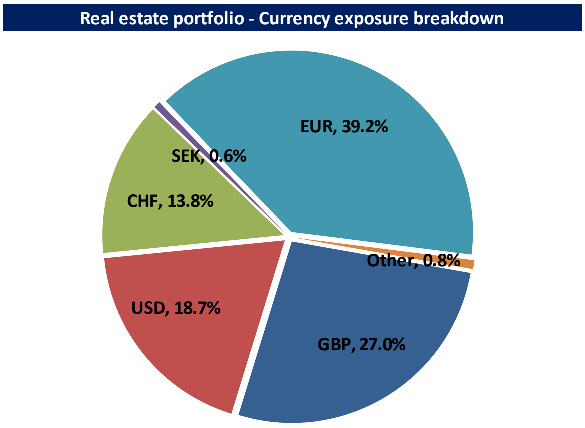
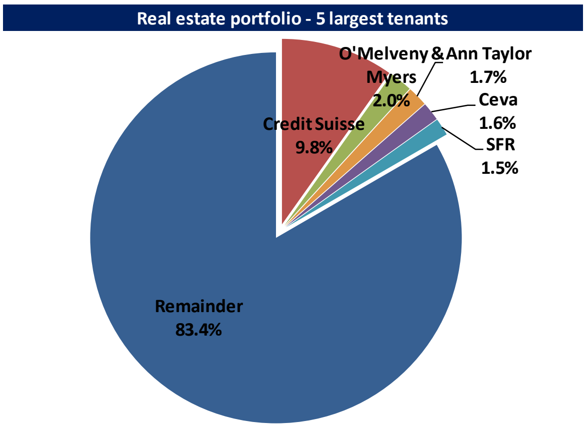


*Chart based on NAV
**Other refer to net unallocated balance sheet items



* Chart based on NBIM's share of contracted rent

With the exception of one investment, the acquisition of Credit Suisse's Uetlihof office complex in Zurich in a sale-leaseback deal, all of the fund's investments to date were in joint venture. Due to the triple net[2] nature and 25-year term of the lease, it was considered that a joint venture partner was not required.

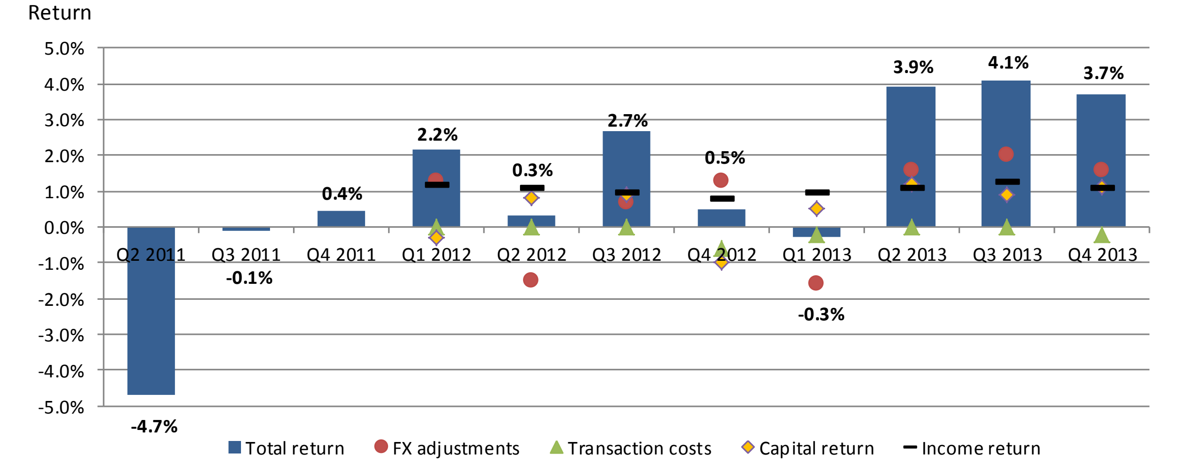
The performance of real estate investments is largely determined by rental income and changes in property values. Unlike bonds and listed equity investments, real estate investments often have significant one-off transaction costs. These typically include fees to advisors (e.g. lawyers and valuation experts) and transaction taxes. The transaction costs are either (i) expensed on recognition and classified as expenses or (ii) presented as fair value changes. Transaction costs typically lead to a negative return in the first quarter after an investment is made. The impact of transaction costs on returns is diminishing as the portfolio and holding periods grow. NBIM's real estate assets are valued on a quarterly basis by external appraisers.

The chart below provides an overview of quarterly returns on the GPFG's real estate investments measured in the fund's currency basket (CCY). Total return figures comprise income return, change in capital values, transaction costs and foreign exchange adjustments. The income return remained stable quarter-on-quarter at approximately 1.0 per cent, while capital return figures were more volatile. The strong performance in 2013 was largely driven by foreign exchange adjustments. Applying a time-weighted rate of return (TWR)[3] methodology, the annualised total return for the real estate portfolio was 4.6 per cent over the period (inception to Q4 2013) measured in CCY.

[2] A triple net lease is a lease agreement that designates the tenant as being solely responsible for all of the expenses related to the asset, including property tax, insurance and maintenance.

[3] The time-weighted return measures the compounded rate of return over a period of time and determines rates of return without considering the amount of investment made in each period. This methodology is normally used when the manager of the portfolio does not control the timing of capital allocation. The time-weighted return gives equal weight to each time period return disregarding the amount of capital invested. The IRR is the discount rate at which the net present value of an investment equals zero (or where the present value of inflows equals the present value of outflows). The IRR considers the amount allocated.

Total return of real estate portfolio (TWR) *



* Breakdown of attribution for 2011 is not available

Applying a money-weighted internal rate of return (IRR) methodology over the same period, the annualised return for the real estate portfolio was 8.8 per cent measured in CCY and 13.3 per cent measured in kroner.

The table below provides an overview of key return metrics for the real estate portfolio.

Returns

Total return TWR (CCY)	Total return IRR (CCY)	Cash multiple (CCY)	Total return IRR (NOK)	Cash multiple (NOK)	Cash-on-cash yield (NOK)	Cash-on-value yield (NOK)
4.6%	8.8%	1.11 x	13.3%	1.17 x	5.1%	4.4%

A total of 44.2 billion kroner of equity had been invested in real estate as at Q4 2013. The net asset value of the portfolio was 51.8 billion kroner. For 2014, the real estate portfolio is expected to generate an operating cash flow of 2.3 billion kroner (based on the Q4 2013 portfolio composition).

2. Investment process

Investment decisions were taken under a delegated authorisation structure. There were two advisory bodies that were involved at different stages in the investment process for real estate.

2.1. Real Estate Advisory Board

The Real Estate Advisory Board (REAB) acted as an advisory forum for NBIM's Chief Investment Officer Real Estate (CIO Real Estate) with respect to unlisted real estate investments. REAB advised the CIO Real Estate on a range of real-estate-related issues from a commercial investment perspective, including:

- Considering compliance with the strategic plan for real estate investments
- Confirming that there were no apparent conflicts with external regulations
- Considering the investment case, including the financial analysis and legal, reputation and any other risks identified relating to the proposed investment
- Approving the due diligence outline as proposed by NBIM Real Estate
- Reviewing any major risks and considerations which were brought to the REAB's attention over and above those identified in the investment case memorandum

Besides the CIO Real Estate, the REAB consisted of externally appointed advisors with wide industry expertise and experience. In addition, the Chief Executive Officer (CEO) and the Chief Risk Officer (CRO) of NBIM attend REAB meetings when major investments are considered.

2.2. Real Estate Committee

The Real Estate Committee (REC) acted as an advisory forum for the CEO with respect to proposed unlisted real estate investments. The purpose of the committee was to advise the CEO on a range of issues related to NBIM's real estate investments. As the commercial rationale for making the investment was usually discussed in the REAB, the main focus of the REC was to assess the investment opportunity in a broader context. This included advice on:

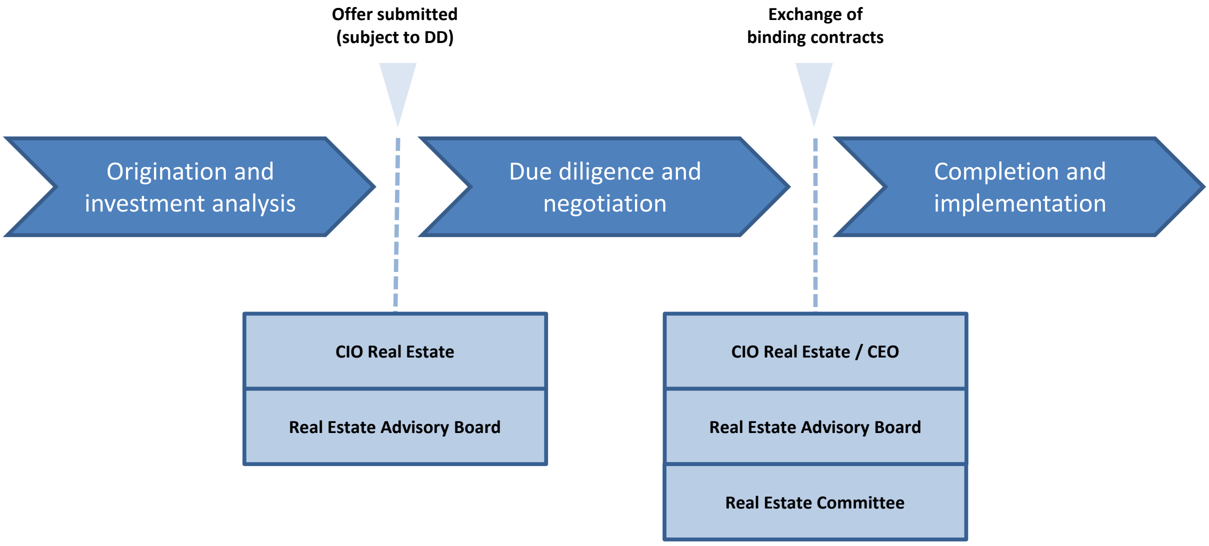
- Development of NBIM's governance framework associated with subsidiaries and investment entities established to support real estate investments
- Appointment of directors to the boards of subsidiaries and investment entities established as part of structures to support real estate investments.
- Approval of new private real estate investments, where such investments exceeded the level of authority delegated through the investment mandate to the CIO Real Estate, or as requested by the CEO
- Issues on risks relating to the real estate investment process, such as new markets, company structures and partners, at the request of the CEO

When evaluating matters referred to the REC, the CEO took into consideration the views and recommendations of the other members of the committee. In addition to the CEO, the REC comprised senior NBIM executives.

The REC ensured that all relevant areas of NBIM provided necessary input into the assessment of an investment. The REC did not have any external members, and the CEO was the ultimate decision maker in the REC.

2.3. Investment stages

The figure below illustrates the three broad stages of a typical investment process:



The first phase involves origination and investment analysis. NBIM Real Estate identifies the investment opportunity and performs an initial assessment, including financial analysis, based on publicly available information and, where available, information provided by the vendor. Investments are typically analysed over a 10-year holding period under various scenarios. Assumptions are made with regard to the expected cash flow of the asset, including forecasted rental growth, exit yields, void periods, rent-free periods and capital expenditure requirements. If NBIM Real Estate decides to proceed with the transaction after the initial analysis, the investment opportunity is presented to the REAB, where the CIO Real Estate decides whether NBIM should proceed with the investment opportunity or not. Advice from the REAB is sought prior to due diligence and prior to incurring material transaction costs.

In the second phase, NBIM Real Estate, with support from external advisors, undertakes a thorough due diligence of the asset(s) and NBIM's counterparties in the transaction. The due diligence usually covers financial, legal, tax and structuring, operational, technical and insurance aspects. Environmental due diligence is also undertaken with particular emphasis attached to energy efficiency and to water and waste management. Besides undertaking the due diligence exercise, NBIM Real Estate negotiates the transaction documentation with the partner/vendor. The formal decision to make an investment and the execution of the actual transaction are made through the relevant body within NBIM and through the boards of the relevant subsidiaries.

The third and final phase involves the closing and implementation of the transaction. NBIM's partners have a contractual responsibility to manage the assets post acquisition.

2.4. Environmental considerations

NBIM established a procedure to assess, manage and report environmental aspects of real estate investments. The procedure outlines how sustainability considerations are integrated throughout the decision-making process, through operational processes, risk management and reporting.

Environmental and sustainability due diligence was performed as an integral part of the investment process. The aim was to identify risks and potential environmental liabilities posed by inefficient use of energy and water, existing pollution or asbestos, or unsustainable environmental management practices. The identification of any meaningful risks induced NBIM to identify risk mitigation measures and make price adjustments, but have not resulted in aborting a transaction.

Post acquisitions NBIM has been assessing whether its real estate assets were sustainably and efficiently managed by collecting relevant data and information from all its real estate assets. The aim was to ensure that the manager of a given asset optimises energy and water usage and minimises waste streams in a manner that protects and enhances the financial value of the asset. NBIM did not uncover unsatisfactory management practices or performance results.

NBIM has been a member of the Global Real Estate Sustainability Benchmark (GRESB) since 2012. GRESB is an industry-driven organisation committed to assessing the sustainability performance of real estate portfolios (public, private and direct) around the globe. The organisation collects information on performance indicators, such as energy and water consumption, greenhouse gas emissions and waste reduction, but the survey also covers broader sustainability issues, such as climate change risk assessments, performance improvement programmes and engagement with employees, tenants and suppliers. The dynamic benchmark is used by institutional investors and real estate investment managers to engage with their investments with the aim of improving the sustainability performance of their investment portfolio and the global property sector at large.

NBIM participated in the GRESB survey for the first time in 2012 by providing sustainability information to GRESB for approximately 26 billion kroner worth of real estate assets. The results provided an important overview of the sustainability performance of NBIM’s joint venture partners and their ability to deliver on environmental, social and governance (ESG) principles. NBIM’s real estate assets and partners achieved an overall score above the benchmark.

3. Investment structure

3.1. Governance

The oversight and control structure for real estate investments has multiple components. Investments in real estate are covered by NBIM's overall governance structure in the same way as investments in fixed income and listed equities. The oversight model is based on governing documents issued by the Executive Board. Building on these, NBIM has established an internal framework for real estate activities.

NBIM's unlisted real estate investments are in general held through corporate structures including investment and holding entities. The entities are directly or indirectly wholly owned by Norges Bank or jointly owned with co-investors. That means governance takes place on multiple levels. The REAB and REC are involved in investment decisions on behalf of GPFG, although a delegation of authority cascades through holding structures. The legal entities have their own boards to which NBIM normally appoints or nominates directors. Delegated authorities are designed with the objective of promoting transparency and placing authority and accountability at appropriate levels. The structures also ensure sound governance, operational efficiency and sufficient segregation of duties to mitigate risks, and to ensure compliance with the investment mandate.

The following measures were implemented to achieve sufficient influence and consistency across the subsidiaries:

- NBIM board representation for part-owned entities
- NBIM and master holding company representation on boards of wholly-owned entities
- Appropriate board composition and decision-making requirements
- Rights for NBIM/shareholders to immediately replace board members
- Appropriate shareholder-reserved matters and veto rights (in particular in relation to acquisitions, disposals, additional capital requirements and distributions)
- Constitutional documents which incorporate shareholder safeguards
- Advisory arrangements between Norges Bank (or master holding company) and special-purpose entities in order to ensure that group-wide considerations and NBIM analysis and expertise are available to special-purpose entity
- Shareholder approval required for external debt in subsidiary entities
- Requirement for special-purpose entities to request funding (directly or indirectly) from Norges Bank to implement investment decisions

Norges Bank only provided funding for investments which were aligned with Norges Bank's interests. For master holding companies, the board-approved strategy plan and budget, including organisation, were subject to shareholder (i.e. NBIM) ratification. Significant changes to strategy plans and budgets followed the same procedure. Further, cash in the structures were up streamed to Norges Bank as soon as practical.

Company policies for special-purpose entities were created to ensure appropriate corporate governance across the Norges Bank group and to facilitate necessary information and reporting flow to the ultimate parent, Norges Bank. Reporting requirements for each investment structure were developed to ensure consistent accounting practices, compliance with all relevant laws and regulations, and that NBIM could conduct risk assessments across its investments. Reporting procedures also captured the requirements of NBIM's audit bodies.

3.2. Holding structures

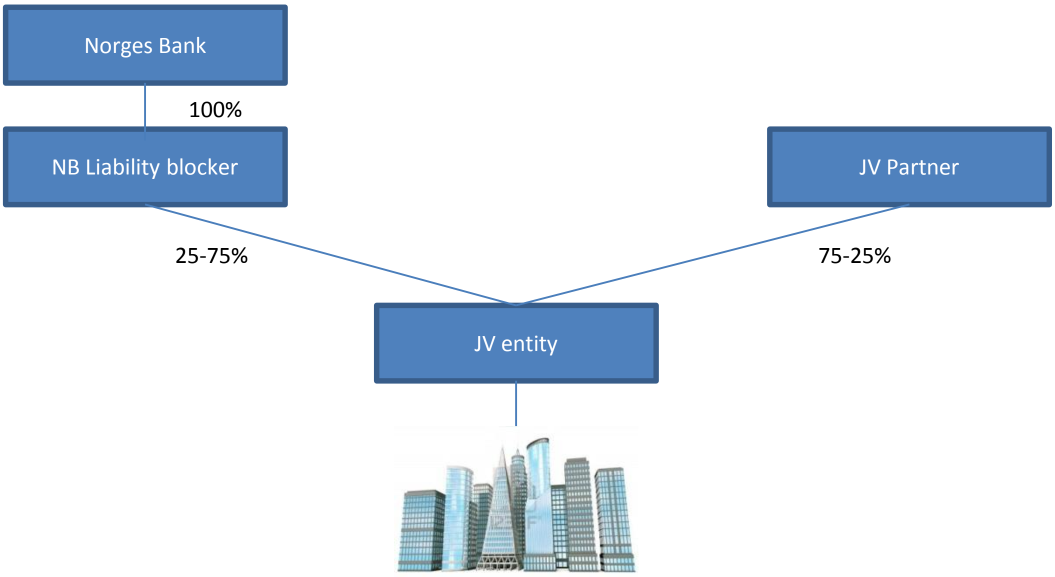
NBIM's activities and risks related to private real estate investments differ significantly from those related to fixed-income instruments or to publically listed equities. While the investment risks associated with bonds and listed equities are normally limited to the sum invested, and the bond- or shareholders do not assume liability for the acts or omissions of the issuer, this is not necessarily the case for a real asset. An owner of real estate assets may be held liable for amounts exceeding the endowment capital as a result of, for example, disputes with tenants or neighbours or damage to property. Real estate is inherently a contract based business through the purchase or sale of property, the signing of a lease, the development of a property, etc. Each contract needs to have a contracting party and using Norges Bank directly would trigger an inefficient and burdensome investment process within the bank.

To shield Norges Bank from liabilities and potential law suits, protect its balance sheet, facilitate governance and signing authorities, and provide flexibility in the capital structure, all unlisted real estate investments were made through subsidiaries, as is considered good investment discipline and is standard practice in the real estate industry. The structures ensured that existing assets were protected and that Norges Bank's and the State of Norway's sovereign immunity from jurisdiction, enforcement and taxation were maintained.

NBIM Real Estate reviewed suitable operational platforms for real estate investments prior to making the first investment. The strategic decision was to invest alongside investment partners with whom the GPFG would have aligned interests, and who could provide the necessary asset management capabilities required for a given asset.

In the choice of structures NBIM focused on: (i) limitation of liability and protection of the central bank's assets against claims arising as a consequence of investments in real estate (both on an ongoing basis and in a transaction), (ii) an appropriate and robust oversight and control structure, (iii) cost-effectiveness, including administration and tax costs, and (iv) efficient operational management. Furthermore, it was of importance that the structuring would fit well with potential investment partners in the various jurisdictions where the fund would be investing.

The chart below provides a simplified illustration of the investment structures.



The corporate structure varied from investment to investment and from country to country. In selecting a structure, importance was attached to oversight and control, tax costs, complexity and operational factors. Entities giving sufficient liability protection could be found in most jurisdictions; however, operationally it was an advantage to have entities domiciled in as few jurisdictions as possible. When considering different options, the key factor was to safeguard the interests of Norges Bank and the GPFG.

3.3. Audits

NBIM is subject to supervision and audit by three different bodies. The real estate area was a main focus area for all of these three bodies in the first three years.

Norges Bank's Internal Audit (IA) unit audited the real estate area four times. The focus was on the governance and internal control environment related to the investment process. Real estate was also a focus area for IA in 2013.

The Supervisory Council (SC) concerned themselves significantly with the establishment of real estate as a new investable asset class. In 2012, the SC, together with Deloitte, conducted an assurance review of the investment risk, governance and control framework of the real estate area. In 2013, the SC and Deloitte conducted another assurance assignment on the design and implementation of NBIM's current governance framework.

As part of the regular annual financial audit and quarterly financial reviews, the real estate area met the external auditor, currently Deloitte, more often than quarterly. Based on a risk assessment and real estate being a new asset class to the GPFG, Deloitte established a separate team that focused on the real estate area of the GPFG. The real estate team and Deloitte also had a separate process related to the coordination and communication of the appointment of auditors and the ongoing audits in all real estate subsidiaries.

There have been no significant adverse findings in any of the audits, which further suggest the establishment of the real estate area has been performed in a measured, controlled and deliberate manner over the past 3 years.

4. <u>Organisation</u>

As an asset class, real estate has a number of characteristics that distinguishes it from investments in bonds and listed equities. These typically include illiquidity, high transaction costs, large lot sizes, lack of standardisation in ownership and transaction execution, lack of publicly available information, and required management attention. Further, investments in unlisted real estate markets differ significantly from investments in bonds and listed equities as properties are bought and sold outside regulated exchanges and therefore subject to less transparency in pricing. While the investment risk associated with bonds and listed equities is normally limited to the sum invested, the owner of real estate assets risks being held liable for amounts exceeding the invested capital. As a result of these differences, real estate investments typically have different requirements when it comes to execution of investments, management framework, oversight and control. These requirements were drivers in the build-up and hiring of the team.

The strategy to invest with partners allowed NBIM to leverage its partners' local expertise and asset management capabilities. By investing alongside a joint venture partner with a management team responsible for driving the business plan of each asset, NBIM focused on investment decisions and was less involved in the day-to-day operation of each asset. NBIM is establishing a real estate *investment* organisation much in line with the rest of NBIM, rather than becoming an *administrator* managing external mandates.

At the time of NBIM's first investment, three people were employed in the NBIM Real Estate team. As the real estate portfolio grew, the headcount increased accordingly. As at 31 December 2013, 37 people from 15 different countries were employed directly in NBIM Real Estate.

The real estate team recruited skilled personnel externally, but also benefited from transfers from various departments within NBIM. Besides recruiting dedicated resources NBIM developed a solid infrastructure around the team to handle a large-scale real estate portfolio. Support functions for real estate investments operate within a thorough risk and governance framework and through the development of transparent reporting structures and solid cash transfer processes. The platform needed to be robust and scalable with systems and databases that track the investments in an efficient manner.

5. Conclusion

Over the past three years, real estate within NBIM has developed from a project to a business. The growth in the team, the organisation and the portfolio has been done responsibly, deliberately, methodically and according to the plan outlined in 2010. The initial focus on core markets in Europe, then a broadening to the USA, as well as the focus on joint venture type investments were planned and stated from the beginning.

The pace of investment was initially slow but increased as the team grew and new markets offered new opportunities. The challenge remained to build a portfolio, team and organisation with effective governance and decision-making structures in parallel and in an orderly manner. The reviews, audits, and experience of the team suggest that was achieved.

Appendix

Individual investments

1. London, The Crown Estate

Overview: The 390,000 square metres Regent Street portfolio comprises 106 properties and is situated in the heart of London's West End. The portfolio includes material asset management and redevelopment opportunities, and work is currently under way on five developments on the street. Since inception, NBIM has purchased six buildings, or parts of buildings, together with or from The Crown Estate that the partnership did not previously own directly. With a street frontage of two kilometres and over 10,000 people employed there, Regent Street receives more than 7.5 million tourist visits each year.

Key facts

Type	Joint venture (started Q2 2011)
NBIM ownership	25 per cent
Partner	The Crown Estate
Location	London
Size (square metres)	390,000
Total investment (LCY million) (NBIM share)	£629

Partner: The Crown Estate is one of the UK's largest property owners, with 8.3 billion pounds of assets under management. It is the owner of, among other assets, some 750,000 square metres of real estate in Regent Street and St James's in London. The Crown Estate's ownership of Regent Street dates back to the 16th century.

2. Paris, AXA

Overview: The 190,000 square metre portfolio consists of ten properties which are spread across the Paris region. The original transaction saw NBIM acquire a 50 per cent interest in seven properties owned entirely by AXA. A further three properties were acquired from a third party at a later stage in partnership with AXA. The portfolio now comprises ten properties, of which one building is under redevelopment.

Key facts

Type	Joint venture (started Q3 2011)
NBIM ownership	50 per cent
Partner	AXA
Location	Paris region
Size (square metres)	190,000
Total investment (LCY million) (NBIM share)	€872

Partner: AXA SA is one of the world's largest multi-line insurance companies; it has approx. 160,000 employees in 57 countries and an annual turnover of 90.0 billion euros. The asset management division, AXA Investment Managers, has 523.0 billion euros of assets under management (of which 45.2 billion euros in real estate).

3. Paris, Generali

Overview: The 44,000 square metre portfolio comprises six properties, of which five are located in the central business district of Paris and one in the 12th arrondissement.

Key facts

Type	Joint venture (started Q4 2012)
NBIM ownership	50 per cent
Partner	Generali
Location	Paris
Size (square metres)	44,000
Total investment (LCY million) (NBIM share)	€324

Partner: Generali is one of the world's largest multi-line insurance companies; it has over 80,000 employees in 66 countries and 491.0 billion euros of assets under management. Through its subsidiary Generali Real Estate, the company has 29.0 billion euros of real estate assets under management. Generali Real Estate employs more than 550 dedicated resources in 11 countries.

4. Sheffield, British Land

Overview: The 141,000 square metre shopping centre is located in Sheffield and is one of the largest shopping centres in the UK. The Meadowhall Shopping Centre has 303 units and comprises 209 standard shops, ten large stores, 53 kiosks, 30 catering units and an 11-screen cinema. The ownership also includes two petrol filling stations, a 12-unit distribution centre, a 103-bedroom hotel, a standalone restaurant and 74 acres (300,000 square metres) of undeveloped brownfield land. Meadowhall dominates its catchment area and has the lowest level of competing town centre floor space relative to other UK super-regional shopping centres. The shopping centre attracts an annual footfall of 25m people for an estimated annual spend of 1.1 billion pounds.

Key facts		
	**Type**	Joint venture (started Q4 2012)
	NBIM ownership	50 per cent
	Partner	British Land
	Location	Sheffield
	Size (square metres)	141,000
	Total investment (LCY million) (NBIM share)	£355

Partner: British Land is the second-largest REIT in the UK with a gross asset value of 11.2 billion pounds (17.1 billion pounds of assets under management). British Land owns a diversified real estate portfolio, but the emphasis is on central London offices (mainly in the City) and retail warehouses. British Land employs more than 200 people.

5. Zurich, NBIM wholly-owned

Overview: The 174,000 square metre office campus is situated approximately 3km southwest of Zurich city centre and is the global administrative centre of Credit Suisse.

Key facts		
	**Type**	Wholly owned (acquired Q4 2012)
	NBIM ownership	100 per cent
	Partner	n/a
	Location	Zurich
	Size (square metres)	174,000
	Total investment (LCY million) (NBIM share)	CHF 1,002

Partner: In this acquisition the need for local expertise was non-existent, and with a triple net lease there are no maintenance or other day-to-day management burdens on NBIM.

6. Frankfurt/Munich/Berlin, AXA

Overview: The 216,000 square metre portfolio comprises one property in Frankfurt, one in Munich and one in Berlin. The acquisition was carried out through the existing 50/50 joint venture with AXA, whereby the joint venture bought the two assets from a third party.

Key facts		
	Type	Joint venture (started Q1 2013)
	NBIM ownership	50 per cent
	Partner	AXA
	Location	Frankfurt, Munich, Berlin
	Size (square metres)	216,000
	Total investment (LCY million) (NBIM share)	€479

Partner: See section 2 above.

7. New York/Boston/Washington DC, TIAA-CREF

Overview: The 165,000 square metre portfolio consists of five buildings. Two are located in New York City, two in Washington DC, and one in Boston. The acquisition marked the fund's first private-market real estate investment in the US.

Key facts		
	Type	Joint venture (started Q1 2013)
	NBIM ownership	49.9 per cent
	Partner	TIAA-CREF
	Location	New York, Boston, Washington DC
	Size (square metres)	165,000
	Total investment (LCY million) (NBIM share)	$622

Partner: TIAA-CREF is an American insurance company with more than 8,000 employees in more than 80 offices primarily located in the US. TIAA-CREF currently has 523.0 billion dollars of assets under management, including 40.5 billion dollars in real estate investments.

8. Various Europe, Prologis

Overview: The 4,700,000 square metre portfolio comprises 211 logistic properties in 11 European countries. Most of the properties are located in close proximity to major transportation gateways and hubs that serve large population centres.

Key facts

Type	Joint venture (started Q1 2013)
NBIM ownership	50 per cent
Partner	Prologis
Location	Various Europe
Size (square metres)	4,700,000
Total investment (LCY million) (NBIM share)	€1,137

Partner: Prologis is a leading owner, operator and developer of industrial real estate, focused on global and regional markets across the Americas, Europe and Asia with 46.0 billion dollars of assets under management. The company leases its operating portfolio of approx. 3,000 distribution facilities in 21 countries across four continents to more than 4,500 customers, including manufacturers, retailers, transportation companies, third-party logistics providers and other enterprises with large-scale distribution needs. Prologis employs 1,400 people worldwide.

9. New York, Boston Properties

Overview: The 115,000 square metre building is located in New York, just south of Times Square. The building was developed in 2004 and is 47 stories high.

Key facts	
Type	Joint venture (started Q4 2013)
NBIM ownership	45 per cent
Partner	Boston Properties
Location	New York
Size (square metres)	115,000
Total investment (LCY million) (NBIM share)	$686

Partner: Boston Properties is an American REIT that owns and manages a portfolio of office buildings in cities such as New York City, Boston, Washington DC and San Francisco. Boston Properties' portfolio consists primarily of first-class office space, with 4.2 million square metres of space owned across 157 properties. Boston Properties has 29.5 billion dollars of real estate assets under management and employs approximately 700 people.

10. Boston, Met Life

Overview: The 120,000 square metre building is located in the financial district of Boston. The building, named One Financial Centre, is 46 stories high.

Key facts	
Type	Joint venture (started Q4 2013)
NBIM ownership	47.5 per cent
Partner	Met Life
Location	Boston
Size (square meter)	121,000
Total investment (LCY million) (NBIM share)	$238

Partner: Met Life is a global provider of insurance, annuities and employee benefit programs, serving 90 million customers worldwide. Met Life has approximately $490 billion of assets under management of which approximately $55 billion in real estate. The company provides a significant team with over 140 dedicated real estate professionals.

EXPERIENCE WITH ENVIRONMENT-RELATED MANDATES

10 March 2014

Contents

Executive summary

The Ministry of Finance decided to establish a separate programme for environment-related mandates following the evaluation the ethical guidelines for the Government Pension Fund Global (GPFG) in 2008-2009[1]. NBIM made the first investments within the programme at the end of 2009. This report reviews NBIM's experiences with the environment-related mandates over the four years the programme has existed.

At the inception of the programme, the potential to make investments in environment-related mandates in various asset classes was considered. Unlisted companies and infrastructure have remained outside the GPFG's investment universe. NBIM has chosen not to engage in the immature market for green bonds. The investments made under the programme for environment-related mandates have therefore been made in equity securities of listed companies.

The environment-related investment universe is complex with no clear-cut definition. It is complex as companies that can be considered environment-friendly are found in a number of industries. Each of these industries might have very different characteristics. Furthermore, there is no clear-cut definition, as some of the major companies in the environmental space are part of large, industrial conglomerates. It is a matter of judgement whether the environmental part of a corporation is, or will become, large enough to justify an investment within the programme for environment-related mandates.

In addition, this segment of the market in particular is faced with an ever-changing opportunity set with disruptive technologies, new market entrants and unpredictable policy framework. It is an investment segment that is heavily influenced by government subsidies, and the time period since the launch of the environment-related mandates in 2009 has coincided with a global financial crisis that resulted in policy instability which increased the volatility of this segment and affected investors' risk appetite.

The shares of environment-friendly companies performed very strongly in the five years prior to the financial crisis of 2007 and 2008. Unfortunately, as a group, these companies have performed poorly since the end of 2009, with a small positive return on average. In comparison, equity markets overall have increased more than 50 per cent in the same time period.

The environment-related mandates were worth 31.4 billion kroner at end 2013. Since inception, the return on the investments has been 3.0 per cent on an annualised basis measured in the GPFG's currency basket. This is slightly better than the return of a comparative benchmark.

[1] Report No. 20 (2008-2009) to the Storting: On the management of the Government Pension Fund in 2008.

1. The mandate

The Ministry of Finance reviewed the GPFG's ethical guidelines in 2008. The final evaluation was presented in Report No. 20 (2008-2009) to the Storting. As a result of the evaluation, the Ministry proposed a number of initiatives. One of these was to establish a separate programme for environment-related mandates. The proposal was discussed by the Storting on 8 June 2009.

In its white paper, the Ministry stated:

> *In contrast to ear-marking money for a particular fund, the Ministry intends the new investment programme to run across asset classes and that the scope of the investment will vary according to the opportunities at any given time.*

In a letter dated 25 August 2009, the Ministry of Finance asked for Norges Bank's assessment of the various investment opportunities within the proposed programme for environment-related mandates. Norges Bank discussed opportunities within the current investment universe (i.e. listed equities and bonds) in a letter dated 18 September 2009. An analysis of opportunities outside the current investment universe (i.e. private equity and infrastructure) was provided in a letter dated 6 July 2010.

In the letter dated 18 September 2009, Norges Bank discussed listed equities and bonds within a separate programme for environment-related mandates. The bank recommended actively managed equity investments within this programme. The bank noted that the market for environment-friendly bonds ("green bonds") at the time was immature.

The Ministry requested further details on the implementation of the proposed investment strategy in a letter dated 24 November 2009. Norges Bank responded on 3 February 2010, pointing out that it would be advantageous to manage environment-related mandates within the same framework as the rest of the GPFG. Furthermore, the investments should be spread across several internal and external investment mandates in order to utilise specialist knowledge of different segments of the environment-related universe. The Ministry concurred with these assessments in Report No. 10 (2009-2010) to the Storting.

The new mandate for the GPFG that became effective 1 January 2011 provided a requirement for NBIM to give an account of the environment-related mandates in the annual report. The amended mandate effective 27 June 2012 required NBIM to establish environment-related mandates that should normally be in the range of 20-30 billion kroner.

Section 2-4 of the management mandate for the GPFG currently reads:

> *The Bank shall establish environment-related mandates within the limits defined in section 3-5. The market value of the environment-related investments shall normally be in the range of 20-30 billion kroner.*

As such, there is no requirement in the mandate to allocate the environment-related mandates between asset classes in a specific manner.

Norges Bank reviewed the basis for unlisted investments focusing on the environment and sustainable growth in the letter dated 6 July 2010. The report built on a previous assessment from 2006 that recommended that the fund's investment universe should be expanded to include private equity and infrastructure. In the letter dated 6 July 2010, Norges Bank warned against investing only in narrowly defined segments when commencing investments in new asset classes. Instead, new asset classes should be made available on a broad basis, and any unlisted investments focusing on the environment and sustainable growth should be made within the context of the overall mandate.

Private equity and unlisted infrastructure have since then remained outside the investment universe. NBIM has accordingly not made any investments in these asset classes.

As mentioned, Norges Bank noted in the letter dated 18 September 2009 that the market for environment-friendly bonds ("green bonds") at the time was immature. The market was launched in 2008 by the World Bank. Funds that are raised by issuing a green bond can only be used to finance projects that meet certain environmental criteria. Most of the bonds that have been issued with the green bond label have been issued by multilateral development banks. Currently, about 10 billion dollars has been issued under these types of programmes.

The proceeds of a bond can be used for environment-friendly purposes without carrying the green bond label. The Climate Bonds Initiative has calculated that the outstanding amount of so-called climate-themed bonds is 346 billion dollars[2]. Issuance related to rail transport dominates, standing at 263 billion dollars. About half of the remaining 83 billion dollars has been issued either in non-benchmark currencies or by unrated or non-investment-grade entities.

The market for green bonds remains small and immature. NBIM evaluates the return and risk characteristics of green bonds on the same criteria as other bonds from the same issuer. So far, NBIM has not invested in green bonds, but continues to monitor the market. As regards bonds that do not carry the green bond label but still could be considered environment-related, the market remains small outside rail transport. NBIM holds such bonds as part of its regular management of the bond portfolio. In the future, NBIM may consider a separate mandate for environment-related bonds.

As a consequence of the above, NBIM has invested the funds within the separate programme for environment-related mandates in the equity securities of listed companies.

[2] Source: http://www.climatebonds.net/files/Bonds_Climate_Change_2013_A4.pdf.

2. The environment-related investment universe

The environment-related investment universe is complex with no clear-cut definition. There are two reasons for this. First, companies that could be considered environment-friendly are found in a number of industries. This increases complexity as the various industries might be very different from each other. Second, a number of the major companies in these industries are part of larger conglomerates. It is only possible to buy shares in the whole conglomerate and not just the part which is environment-related. How large the environment-related part of the conglomerate needs to be before an investment is justified is a matter of subjective judgement.

In a recent OECD review of the concepts and definitions related to "green" investments that are currently used in the market place[3], the authors state:

> *Green investment policies in use vary across asset classes. Sustainable investing has advanced most in equities. An analysis of equity indices reveals a great variety of "green" methodologies applied across the market place. Different approaches to selecting green investments have evolved over the years, in particular (negative or positive) screening, green thematic investing and engagement with companies. In effect, some favour investment in specialist green companies, while others are designed to filter out the best companies within a sector, exclude certain "dirty" companies or to persuade "heavy polluters" to change.*
>
> *[…]*
>
> *Green investment is a very wide term, and it is being referred to at all levels: the investment in underlying technology and projects but also to green companies and financial products that invest in those, or even to entire asset classes. Green investment can be stand-alone, a sub-set of a broader investment theme or closely related to other investment approaches such as RI/SRI (socially responsible investing), ESG (environmental, social and governance investing), sustainable, long-term investing and others.*

FTSE, an index provider that calculates the equity index for the overall GPFG, has an index series for environment-related investments that is called FTSE Environmental Markets. The index series consists of companies that are deemed environment-friendly. There are currently almost 500 companies in the FTSE Environmental Markets index series. Each company is classified into a specific environmental sector and subsector. The sectors and their definitions are shown in Table 1.

[3] Inderst, G., C. Kaminker and F. Stewart (2012): "Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations", OECD Working Papers on Finance, Insurance and Private Pensions, No. 24, OECD Publishing. http://dx.doi.org/10.1787/5k9312twnn44-en.

Renewable & Alternative Energy	Companies that provide products and services along the renewable and alternative energy value chain.
Energy Efficiency	Companies that provide products and services enabling more efficient methods of energy usage.
Water Infrastructure & Technologies	Companies that provide or operate technologies, infrastructure and services for the supply, management and treatment of water for industrial, residential, utility and agricultural users.
Pollution Control	Companies that provide technologies to reduce and monitor the contamination of air and soil to address global, regional and local environmental problems.
Waste Management & Technologies	Companies that provide and/or operate technologies, systems and services for waste management, reuse and recycling.
Environmental Support Services	Companies that provide environmental support services through consultancy, or trading services in environmental assets and securities. Diversified environmental companies are also included.
Food, Agriculture & Forestry	Companies that improve yield and productivity in agriculture, silviculture, aquaculture and food production or distribution, whilst minimising negative environmental impacts.

Source: FTSE

The five first sectors cover the areas described by the Ministry of Finance as areas appropriate for the environment-related mandates. These are also the areas that NBIM has concentrated on.

FTSE Environmental Markets is divided into two index families. FTSE Environmental Technology consists of companies with a single business focus. At least 50 per cent of a company's business needs to be derived from environment-related activities to be considered for inclusion in this index. Many of the companies that are included have in fact more or less all their business in environment-related activities.

The other index family in FTSE Environmental Markets is FTSE Environmental Opportunities. This index family consists of companies that have at least 20 per cent of their business in environment-related activities[4]. This means that the index family is a mix of companies with a single business focus and conglomerates.

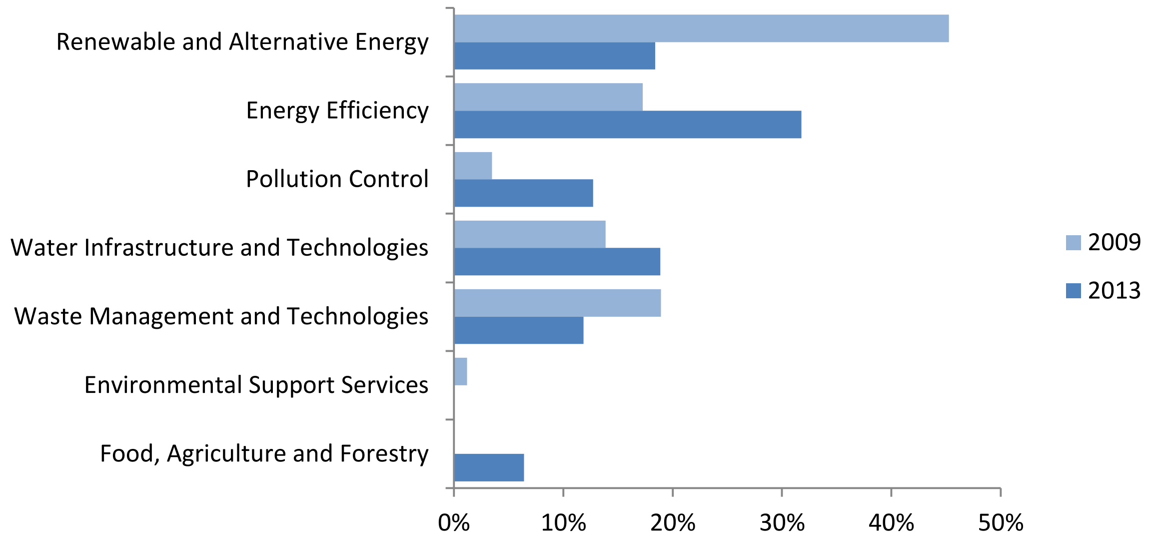
As is common practice, companies in FTSE Environmental Markets are weighted by their market capitalisation, with an adjustment for so-called free float. Since conglomerates tend to be larger companies than companies with a single business focus, a large part of FTSE Environmental Opportunities consists of companies where as much as 80 per cent of the business is derived from activities that are not environment-related. In fact, in terms of weight, companies with a single business focus make up little more than 10 per cent of FTSE Environmental Opportunities. In NBIM's

[4] FTSE works together with Impax, an asset manager, in determining the amount of business a company derives from environment-related activities. Making this determination is to a certain extent subjective, especially for conglomerates, and there is potential for conflicts of interest. As described in the next section, NBIM uses tailor-made benchmarks in the day-to-day operational management of the GPFG.

opinion, the index family that consists only of companies with a single business focus, i.e. FTSE Environmental Technology, best reflects the exposure sought after by the mandate for environment-related investments.

There are challenges to investing in companies with a single business focus, however. When the separate programme for environment-related mandates was initiated at the end of 2009, environmental companies with a single business focus were dominated by companies in the renewable and alternative energy business. As Figure 1 shows, almost half of the FTSE Environmental Technology 50 index by market capitalisation belonged to this sector. At the end of 2013, the index was much more evenly distributed.

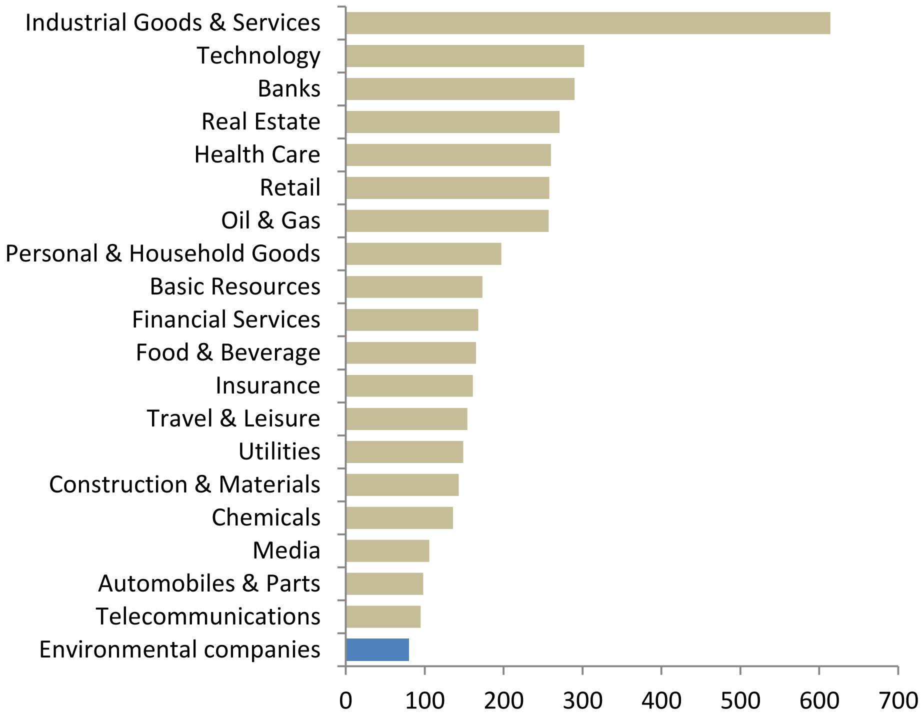
Figure 1: Sector weights in the pure-play FTSE Environmental Technology 50 index



Source: FTSE, NBIM calculations

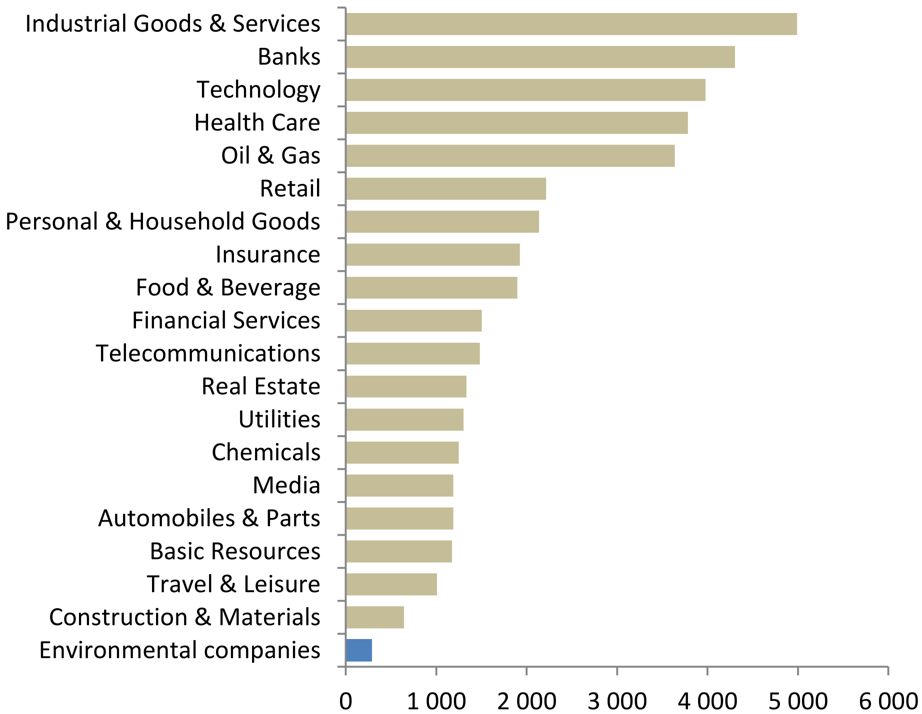
Another challenge is the limited investment universe. There are not many environment-related companies with a single business focus. Throughout the last four years there have been less than 100 environment-related companies with a single business focus with a market capitalisation above 1 billion dollars, and there are currently 80. In Figure 2, this is compared to the corresponding number of companies in conventional sectors. Furthermore, environment-related companies with a single business focus tend to be fairly small. Together, these two characteristics mean that the investable market capitalisation of environment-related companies with a single business focus as a group is small. Currently, it is somewhat less than 300 billion dollars. In Figure 3, this is compared to the investable market capitalisation of conventional sectors. Partly because of the limited investment universe, NBIM has made some environment-related investments in companies that are part of larger conglomerates.

Figure 2: Number of companies with an investable market capitalisation above 1 billion dollars



Source: FTSE

Figure 3: Investable market capitalisation (billion dollars)

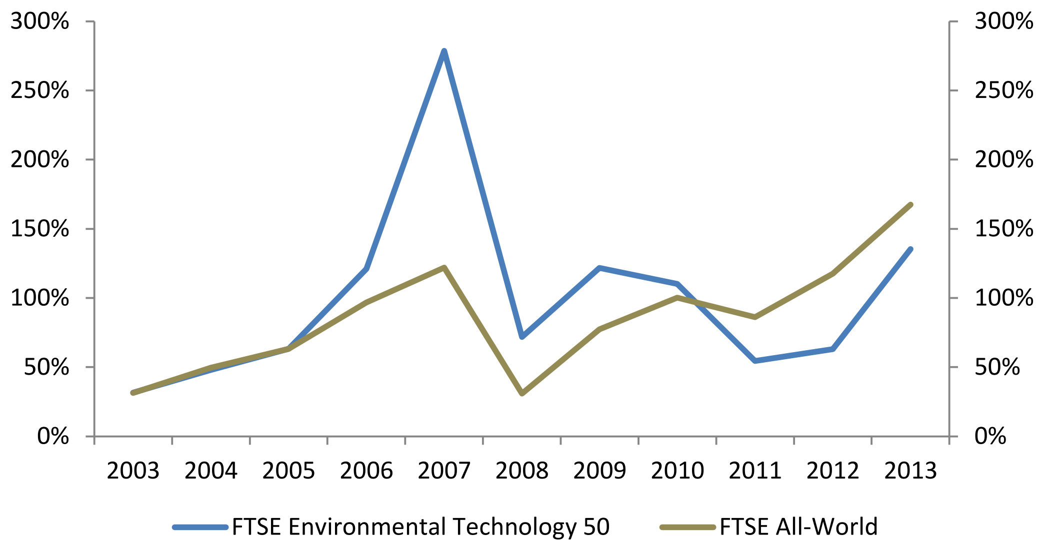


Source: FTSE

The share prices of environmental companies with a single business focus have been volatile over the last decade. Figure 4 shows that the FTSE Environmental Technology index performed very strongly in the four or five years prior to the financial crisis, both in an absolute sense and also relative to the overall, global equity market. The index more than halved in value during 2008. It subsequently recovered somewhat in 2009, returning to levels seen in 2006.

NBIM's first investments in environment-related mandates were made at the end of 2009. Unfortunately, environmental companies with a single business focus have struggled since then, returning 6 per cent measured in USD. In the same time period, global equity markets have returned more than 50 per cent. Still, since the end of 2002, environmental companies with a single business focus have returned 8 per cent on an annual basis in US dollars, only slightly weaker than the overall market at 9 per cent.

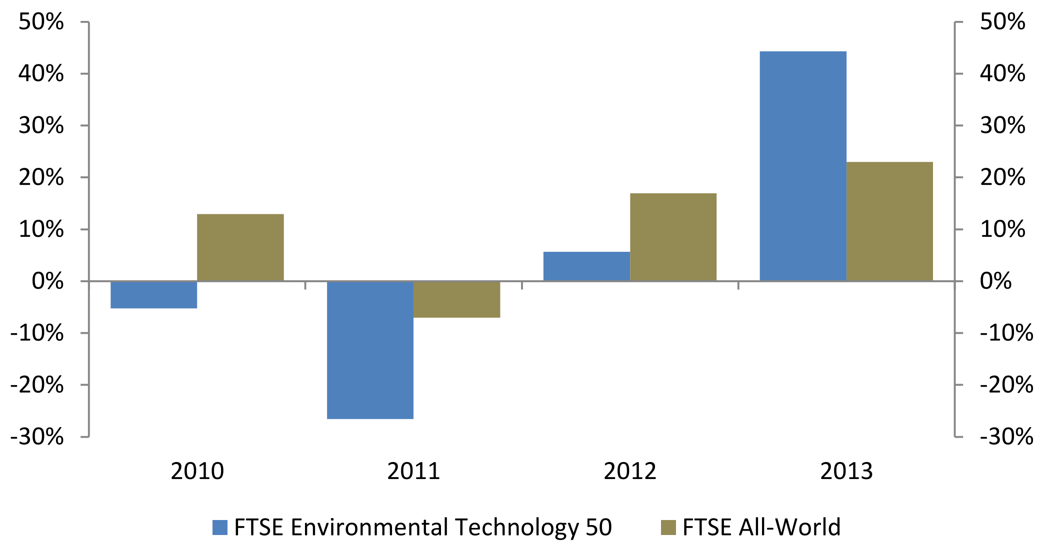
Figure 4: Cumulative total returns in dollars, 2003-2013



Source: FTSE

Figure 5 shows the returns for each year since NBIM's first investments in environment-related mandates were made. As is evident, environmental companies with a single business focus lagged the overall market in each of the first three years. 2011 was a particularly weak year. In 2013, environmental companies with a single business focus have made a strong recovery, returning more than 30 per cent so far.

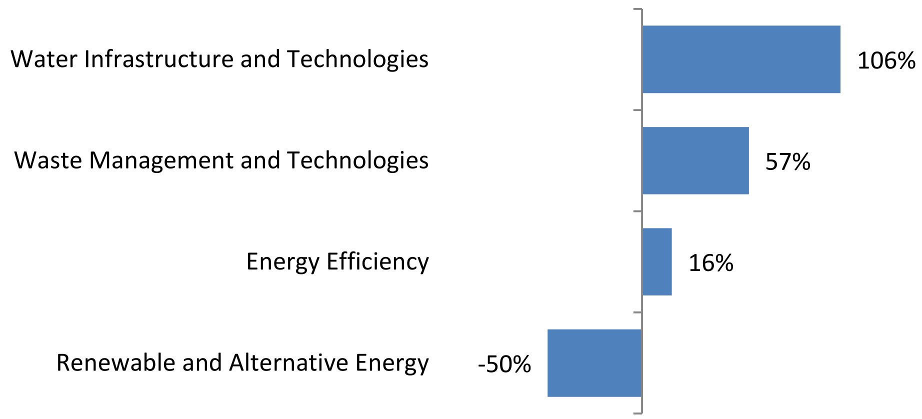
Figure 5: Total returns per year in dollars, 2010-2013



Source: FTSE

Figure 6 shows the returns for environmental companies with a single business focus during the last four years by sector. It should be noted that FTSE does not make these calculations for companies with a single business focus, presumably because some of the sectors consist of very few companies. NBIM has performed the calculations for sectors where there are at least six constituents at all times. As this is a limited selection of companies, some caution needs to be shown in interpreting the results for sectors other than renewable and alternative energy.

Figure 6: Total returns by environmental sector in dollars, 2010-2013

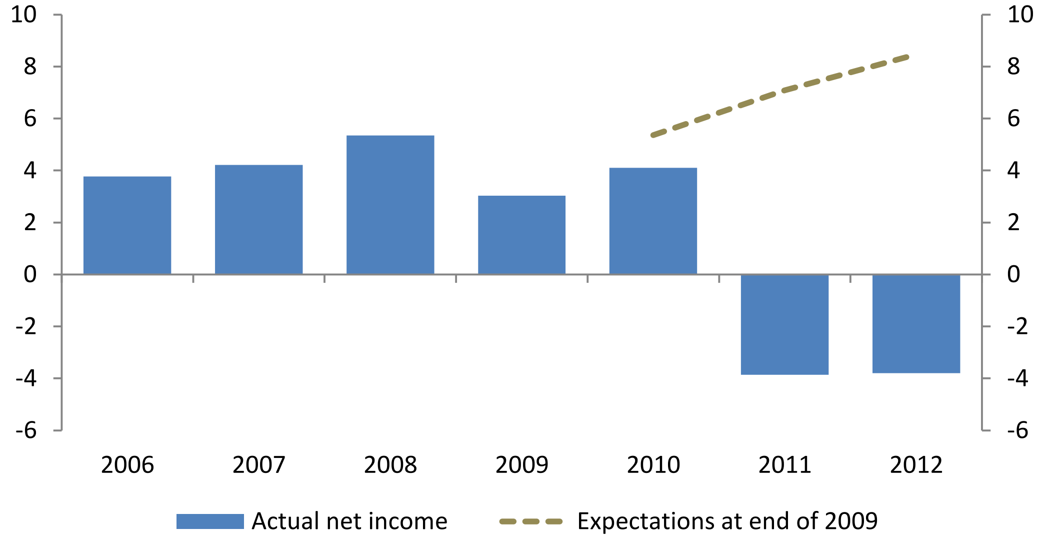


Source: FTSE, NBIM calculations

As is evident from Figure 6, the main contributor to the poor performance of environmental companies with a single business focus in the last four years has been the renewable and alternative energy sector. As was shown in Figure 1 this was by far the largest sector among environmental companies with a single business focus at the end of 2009, making up almost half of the universe.

Since 2009, companies in the renewable and alternative energy sector have struggled with a reduction of subsidies and a large capacity increase in China. The emergence of shale gas in the US has added to the pressure. Figure 7 shows how net income for the sector as a whole has fallen well short of expectations. While analysts back in 2009 expected the sector to post aggregate profits of 7-8 billion dollars in 2011 and 2012, the sector actually posted losses of almost 4 billion dollars in each of these years.

Figure 7: Net income of the renewable and alternative energy sector 2006-2012 (billions of dollars)



Source: FactSet, NBIM calculations

3. NBIM's management of environment-related mandates

As communicated in letters to the Ministry of Finance, NBIM intended to manage environment-related mandates within the same framework as the rest of the GPFG. Furthermore, NBIM argued that environment-related mandates are particularly well-suited for active management.

In general, NBIM puts great emphasis on conducting independent, fundamental research in its active management. NBIM believes that investment professionals must specialise in a fairly narrow segment of the market in order to perform such research effectively. As described in the previous section, there is significant variety among companies considered environment-friendly. Therefore, NBIM has split its environment-related mandates between different managers, each with specialist knowledge of a particular segment of the environment-related investment space.

The first four mandates[5] were awarded at the end of 2009. An additional five mandates were awarded during 2010. These were all given to external managers. Another mandate was awarded to an external manager in 2011. Finally, three of the external environment-related mandates were terminated in 2013. Both the award and termination of mandates are considered investment decisions and regularly occur in the operational management of the GPFG.

Table 2: Development in number of mandates

	2009	2010	2011	2012	2013
Internal	2	2	2	2	2
External	2	7	8	8	5
Total	**4**	**9**	**10**	**10**	**7**

Source: NBIM

There are two internal mandates. One invests in clean energy companies and the other in water and waste-processing companies. The approach to investing in these mandates is similar to the approach in NBIM's other internal sector mandates. As mentioned, this involves making investments based on in-house fundamental research. The ability to conduct such research is helped by, among other things, a high degree of specialisation in one or a few related industries.

As in other industries, NBIM makes a judgment on the future prospects of environment-related companies by analysing their strategy, competitive advantage, management and financial statements. In addition, the environment-related sector requires substantial knowledge and awareness of global and local environmental policies. Most of these corporations are dependent on policy-making decisions on which technologies to favour (e.g. wind, solar, hydro, nuclear) or which obligations to impose (e.g. smart metering, CO_2 emissions caps, vehicle fuel efficiency levels, building efficiency constraints). Considerable time is dedicated to meetings with the management of the companies, visits to facilities and discussions with government authorities relevant to the sector, which, combined with financial modelling, serve as basis for stock selection.

When NBIM started investing in equities in 1998, all of the assets were managed by external portfolio managers. Over time, NBIM has developed its capabilities, and most of the assets are now managed internally. However, NBIM still utilises the knowledge of external managers for

[5] A mandate is the authority to invest a certain amount of money on behalf of the GPFG. Mandates can be given to portfolio managers who work for NBIM or to portfolio managers in external asset management organisations. A mandate includes a number of restrictions that ensure that money is invested as intended. NBIM continuously monitors the activity in mandates to make sure restrictions are adhered to.

investments in parts of the equity market to complement our in-house capabilities. This includes investments in particular countries in emerging markets and investments in smaller companies in developed markets.

In a similar vein, NBIM has awarded environment-related mandates to external asset managers. These include investments in the water supply chain and investments in smaller manufacturing companies that produce technology components for environment-related products.

NBIM has found that there are relatively few asset managers that can offer both specialist knowledge and an investment process that fulfils NBIM's requirements. The majority of established products are based on thematic allocation or a negative screening philosophy. NBIM, on the other hand, wants each investment to be based on independent, fundamental research. NBIM has therefore looked for specialist knowledge and a customised strategy created specifically for NBIM.

The mandate structure has successfully ensured competent coverage of most segments of the environment-related investment space. In aggregate, the environment-related mandate portfolio currently has investments in about 170 companies. Fewer than 50 of these companies are held by more than one mandate.

As mentioned, NBIM awarded the first mandates and made the first investments at the end of 2009. Initially, 7.3 billion kroner was invested in the environment-related mandates. The following year, as internal capabilities were further developed and more external managers identified, an additional 18.9 billion kroner was invested. Since then, relatively small adjustments have been made. In 2013, three external environment-related investment mandates were terminated 6.9 billion kroner was withdrawn during the year. Net of withdrawals, NBIM has invested 24.5 billion kroner in the environment-related mandates since inception.

Table 3: Investments made by year (billions of kroner)

	2009	2010	2011	2012	2013
Internal	5.4	9.1	1.0	0.0	0.0
External	1.9	9.8	0.1	4.1	-6.9
Total	**7.3**	**18.9**	**1.1**	**4.1**	**-6.9**

Source: NBIM

As described in the previous section, environment-related mandates were in general very poor investments in 2011, before rebounding strongly in 2013. NBIM's environment-related mandates have by and large mirrored the overall developments. At the end of 2013, the environment-related mandates had achieved a 13.0 per cent cumulative return since inception, corresponding to 3.0 per cent on an annualised basis[6].

Table 4: Returns (measured in the currency basket)

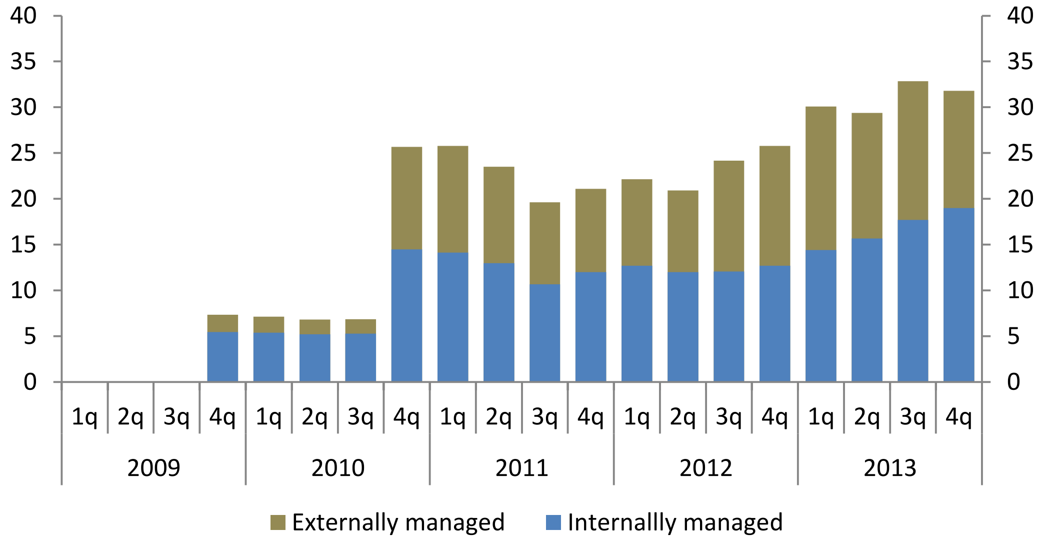
	2009	2010	2011	2012	2013
Per year	1%	-6%	-23%	9%	41%
Cumulative	1%	-5%	-26%	-20%	13%

2009 return for 14 days only. Source: NBIM

[6] On page 43 of NBIM's annual report for 2013, the average annual return is stated as 2.7 per cent in the period 2010-2013. This figure does not include the return in the last two weeks of 2009.

Figure 8 shows the development in the net asset value of the environment-related mandates. Net asset value changes as investments are made and the market value of securities fluctuates. The net asset value fell in 2011 as a result of a decline in share prices. However, with the subsequent rebound in 2013, the net asset value has recovered and is now 31.4 billion kroner[7].

Figure 8: Net asset value of environment-related mandates 2009-2013 (billions of kroner)



Source: NBIM

From the beginning, NBIM has argued that the environment-related mandates are particularly well-suited for active management. As mentioned several times, the environment-related space consists of companies in very many different industries and with many different business models. There is a high level of uncertainty about how things will develop. This means that there is likely to be a huge disparity between the returns of successful companies and the returns of less successful companies.

Many of the investment strategies currently deployed use fairly crude measures of environmental friendliness rather than in-depth analysis of companies. This is partly because it is much more expensive to perform in-depth research into companies. The GPFG is a large investor that invests globally for the long term. This means that NBIM is in a very strong position to make the necessary investments in fundamental research both in general and for environment-related investments in particular.

The alternative to active management is to invest in exactly the same companies that are included in an environmental benchmark, distributing investments according to each company's weight. As discussed in the previous section, there is no objective definition of what constitutes an environment-friendly company. A passive replication would leave the decision of whether a company is environment-friendly or not to a third party. In some instances, the third party might have a subjective interest in classifying a company in a certain way.

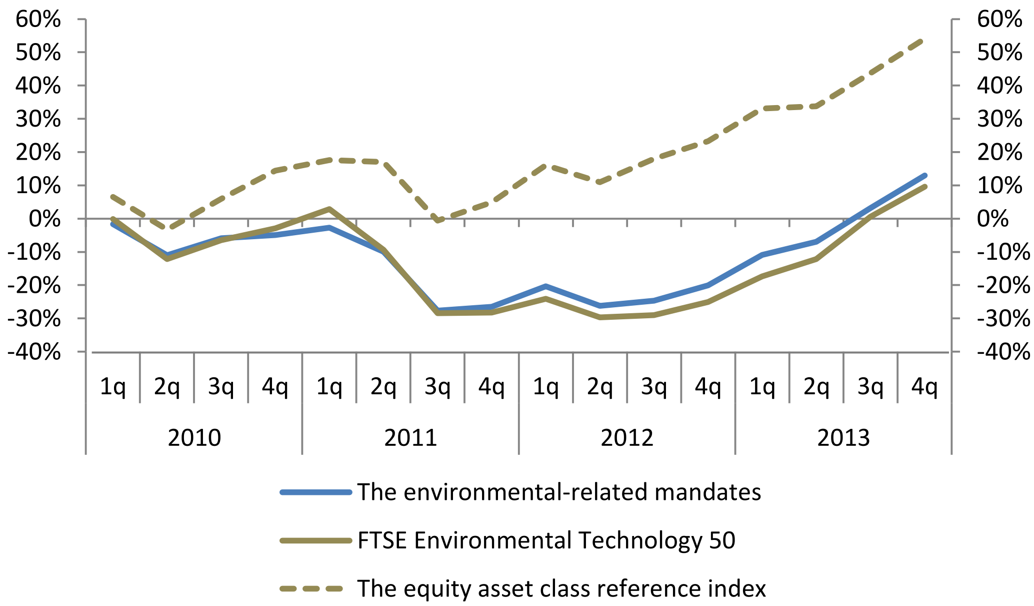
[7] The net asset value of 31.4 billion kroner is exclusive of a small amount of cash held by the environment-related mandates. All return figures include the impact of holding cash.

NBIM has the ability in-house to create benchmarks. Every mandate is measured relative to a benchmark that is customised to fit its investment objective and investment universe. The environmental mandates are also measured relative to such tailor-made benchmarks.

Although tailor-made benchmarks are very well-suited for the operational management of the GPFG, there is little or no transparency for external observers. In this document, NBIM therefore reports the relative performance of the environment-related mandates against the publicly available FTSE Environmental Technology 50. The development in this index has been fairly similar to NBIM's in-house customised environmental benchmark.

As Figure 9 shows, the environment-related mandates have, on aggregate, tracked the FTSE Environmental Technology 50 index fairly closely. As previously stated, at the end of 2013 the environment-related mandates had returned 13.0 per cent since inception. In the same time period, the FTSE Environmental Technology 50 index returned 9.6 per cent. The environment-related mandates have thus outperformed by 3.4 percentage points over the whole time period. This corresponds to 0.8 percentage points on an annualised basis.

Figure 9: Cumulative returns since inception (measured in the currency basket)



Source: NBIM

For comparison, Figure 9 also shows the development in the equity asset class reference index. In total, the equity asset class reference index has returned 54.1 per cent in this time period, which corresponds to 11.2 per cent on an annualised basis. The equity asset class reference index does not necessarily reflect the actual funding of the environment-related mandates.

NBIM has paid 291 million kroner in fees to external managers of environment-related mandates. This is equal to 0.8 per cent of the average external assets under management per year. In general, external management is more expensive than internal management. In comparison, the cost for running the overall GPFG is less than 0.1 per cent per year. Almost half of the environment-related mandates have been managed externally, while the corresponding figure for the overall fund is less than 5 per cent.

4. Experiences

For its internal management of the environment-related mandates, NBIM has established a separate team within its group of sector specialists. NBIM has had similar teams for investments in various other industries since 1999.

As in other segments of the market, NBIM has augmented the internal teams with specialist external mandates. NBIM has experience in searching for, selecting and monitoring external managers. This competence has been used to award specialist environmental mandates.

The diverse set of industries that encompass the environment-related investment space, the ambiguity of whether the environmental activities of a company are substantial enough to warrant an investment, and the limited number of companies with a single business focus above a certain size have led to some challenges in designing appropriate benchmarks and constructing and monitoring portfolios. NBIM's has, however, been able to handle any issues that have arisen.

The investment space has, in general, been very challenging since the environment-related mandates were set up, significantly underperforming the broader market. It is likely that returns will continue to be volatile. The political and technological uncertainty is high, and a segment such as renewable energy is prone to boom-bust cycles. NBIM continues to believe that these characteristics warrant an investment approach based on specialisation and fundamental research. NBIM's portfolio has outperformed appropriate benchmarks, both tailor-made and publicly available.

Norges Bank is still of the opinion that environment-related mandates are well suited for inclusion in our active investment management strategies. The sector is fairly narrow in terms of investment opportunities in companies with a single business focus. However, the current size of assets under these types of mandates is manageable. As the definition is not clear-cut, a large degree of flexibility is warranted. Until this point the mandates have been concentrated on listed equities, but we would not rule out including environment-related bonds at some future point in time. The returns have been volatile compared to the overall equity market, and we must be prepared for this volatility to continue.

NORGES BANK
INVESTMENT MANAGEMENT

STRATEGY 2011-2013 CLOSE OUT

10 March 2014

Contents

Introduction

Norges Bank Investment Management's mission is to safeguard and build financial wealth for future generations.

Our main goals for the 2011-2013 strategy period were to:

- Implement an investment strategy built on the fund's defining characteristics and the owner's target of absolute return, with strategies that are long-term oriented, scalable and focused on underlying value.
- Simplify our infrastructure, obtaining an efficient and robust execution platform.
- Strengthen the investment culture across NBIM, while maintaining our risk awareness and attention to detail where it matters.

Our main achievements in the strategy period were:

- We moved the organisation towards a long-term return focus, and successfully launched real estate investments.
- We simplified the portfolio and systems and reduced the number of service providers.
- We strengthened our investment culture through investment analysis and improved communication.

Investment strategy – improve risk/return

INVESTMENT OBJECTIVE

We moved the organisation towards a long-term return focus

The market value of the Government Pension Fund Global rose from 3,077 billion kroner to 5,038 billion kroner in the strategy period. The fund is invested in equities, fixed income and real estate across the world. The Ministry of Finance has a long-term expectation of a real return of around 4 percent. The fund provided an annual return of 8.62 percent in the period. Equity investments returned 10.77 percent, while fixed-income investments returned 4.55 percent. Investments in real estate returned 4.57 percent[1]. The annualised relative return on equity and fixed-income investments was 0.33 percentage point. Equity and fixed-income investments had an annualised excess return on 0.34 percentage points and 0.16 percentage points respectively. The annual net return adjusted for inflation and management costs was 6.35 percent in the period.

We advised the Ministry of Finance on new strategic indices for both fixed-income and equity investments. The Ministry made its decision in early 2012. The new strategic index for fixed income applies GDP weights for government bonds and a fixed market-weighted allocation to corporate bonds. The new strategic index for equity investments implies a move away from fixed regional weights towards market weights. The new strategic indices entail a new geographical distribution for the fund and signal a major shift in the fund's strategy. A larger share of the fund has been invested in Asia and Americas. The new geographical distribution will improve the overall diversification of the fund and put the fund in a better position to capture global value creation.

We expanded our investments into new currencies and markets. 21.3 percent of the fixed income portfolio was invested outside the four main currencies at the end of 2013, up from 6.7 percent at the beginning of 2011. The number of currencies in the strategic index for fixed-income investments increased from 11 to 21 in the period. The number of currencies in the fixed-income portfolio increased from 24 to 32, since we had started investing in emerging markets prior to the change in the strategic index. The number of countries in the strategic equity index remained unchanged at 46, while the number of countries in our equity portfolio increased from 45 to 56.

We advised the Ministry of Finance on a new rebalancing rule, and the Ministry announced a public rebalancing rule in 2012. We changed the way we manage inflows to reduce transaction costs and market impact by spreading transactions over several days or weeks.

The Ministry sets a strategic benchmark index. In the period, we established an operational reference portfolio, which serves as the starting point for our management of the fund. In the operational reference portfolio we choose securities, instruments and markets from a wider opportunity set than used in the strategic benchmark index to move the starting point closer to the global market portfolio. We address unwarranted rules, complexity and weaknesses in the strategic index, and ensure appropriate aggregate exposures towards systematic risks. To position the fund better on an absolute return/risk relationship, we established capacity for a more dynamic allocation.

To further support our long-term perspective, we have strengthened our internal research capacity. We have published 23 discussion notes on research topics relevant to the development of the investment strategy for the fund. The discussion notes also form the foundation for our advice to the Ministry of Finance. We sent four letters directly connected to our discussion notes to the Ministry with advice on major changes in the fund's investment strategy.

EQUITY MANAGEMENT

We became more focused and improved our investment analysis

During the strategy period we have strengthened our capacity to conduct fundamental analysis of companies we invest in. Within equities, the research processes have been structured through more formal requirements for company coverage, investment cases, financial models, documentation of company meetings and consideration of environmental, social and

[1] From 01.04.2011

governance issues. All research is documented and shared internally.

We have continued to focus on specialised sector mandates with fewer positions managed by each portfolio manager. In so doing, we have enabled longer-term holding periods which incentivise each portfolio manager to take higher conviction positions. The number of sector mandates managed internally was reduced from 30 to 21 in the strategy period. The reduction was mainly due to a slower industry specialist recruitment pace than expected and due to fewer portfolio managers managing more than one portfolio.

In addition to the sector mandates, we have established a capital allocation team to make larger investments in individual companies. The team focuses on long-term investments and special situations, including investments in companies undergoing changes in their capital structure. The team is also responsible for listed real estate, listed infrastructure and unlisted equity investments. The first pre-IPO investment was undertaken in May 2012. The number of large positions with a dollar value above 300 million increased from 7 to 38 in the period from 2011 to 2013.

A large part of the equity portfolio in developed markets has historically been managed on an index tracking market exposure basis. For these portfolios we have moved our strategy from index replication to broad market exposure.

The value of assets under external management increased slightly in absolute terms, but was reduced significantly as a proportion of total assets under management. At the end of 2013, 3.7 percent of the fund was managed through 67 external equity mandates. Our external equity managers are primarily country specialists focusing on small and medium-sized companies in emerging and frontier markets, including specialist environmental mandates. 49 of the mandates were in emerging markets and the share of assets in emerging markets has increased from 34 percent to 69 percent of assets under external management. The external manager contracts are subject to a cap that in some cases has prevented us from attracting some managers.

FIXED-INCOME MANAGEMENT

We simplified the fixed-income portfolio

We simplified the fixed-income portfolio and significantly reduced the number of fixed-income instruments. Complex over-the-counter instruments have been removed from the investment universe, together with some types of securitised debt. The number of bond holdings decreased from 9,500 at the beginning of 2011 to around 4,500 at the end of 2013. We started to invest in emerging-market government bonds in line with the strategy, to diversify the portfolio on more currencies.

In addition to the individual market segment mandates, we now manage term, credit and liquidity for the entire fixed-income portfolio on an overall basis.

The fund is currently invested in approximately 2,000 corporate bonds. This is down from 3,500 bonds at the beginning of 2011. We strengthened our research capacity in credit to improve our analysis of issuers and covenants on single issues, and analyse all new issues we participate in. We have concentrated our participation on new issues, where we now take around four times larger stakes and participate in fewer issues. In the strategy period, we participated in 652 new bond issues with a total nominal value of 193 billion kroner.

We increased our capacity in macro research, and integrated this into allocation and fixed-income positioning. The main focus has been on emerging markets.

A limited portion of the fixed-income portfolio is externally managed. During the period, we gradually reduced our exposure to externally managed US securitised debt without significant losses and awarded two new external fixed-income mandates in emerging markets. At the end of 2013 this constitutes 0.1 percent of the fund.

REAL ESTATE MANAGEMENT

We successfully made our first real estate investments

Real estate investments were started in this period, but represented only 1,0 percent of the fund’s value at the end of 2013. 51.8 billion kroner was invested in ten separate real estate structures in Europe and the US in the office, retail and industrial sectors. We executed the strategy through joint ventures with partners that possess local market knowledge and strong asset management capabilities and balance sheet capacity.

We have built a real estate organisation of 36 people, with a focus on developing investment and research capabilities in key markets. Systems and support functions have been established within a comprehensive risk and governance framework. We established due-diligence processes covering financial, legal, tax, operational, technical, insurance and environmental aspects. We have also set up real estate support functions responsible for cash transfer processes and transparent reporting.

We established the Luxembourg subsidiary NBIM S.à r.l. in 2011. NBIM S.à r.l. is a holding company wholly owned by Norges Bank, responsible for the administration of real estate assets in continental Europe.

OWNERSHIP

We integrated ownership activities into the investment process

NBIM seeks to safeguard investments in more than 8,000 companies worldwide. We have worked to promote good standards of corporate governance, as well as sustainable business models from an environmental and social perspective. Over the last three years we have had around 7,000 company meetings with more than 2,000 companies.

We reorganised the ownership group and integrated ownership activities with the investment processes. A research database for environmental, social and governance factors was established, easily available to all portfolio managers, with information on approximately 4,000 companies.

We have voted on average at 97.8 percent of all shareholder meetings, representing in total about 31,000 meetings over the last three years. We have given more attention to the issue of nomination of directors and contact with boards, and participated for the first time in a board nomination committee. We also established a Corporate Governance Advisory Board, to improve our work on corporate governance.

We have a global investment mandate with a starting point that we should invest broadly in all regions and many countries. We use a framework to manage our long term sustainability risks which include risk assessments on country, sector and company level. Some countries, sectors and companies we choose not to invest in based on our ownership risk analysis. This has led to disinvestments in some palm oil and mining companies.

We have continued our ownership efforts within six focus areas and highlighted deforestation as a topic within climate change. We improved our expectation documents on children's rights, climate change and water management, and published six sector reports. We did not, however, expand our overall ownership research capability in line with our ambitions and will focus on this going forward.

In the strategy period, we responded to several public consultations and surveys organised by various regulators on topics such as high-frequency trading and corporate governance frameworks. We have supported and provided input to standard setters including the development of disclosure and reporting standards such as the Global Reporting Initiative and the International Integrated Reporting Council.

Investment execution – simplify the investment platform

TRADING

We ensured cost-efficient implementation of our investment decisions

We have had a high focus on trading cost since inception. Total inflows to the fund for the period amounted to 787 billion kroner.

Changes to the strategic index led to significant transitions. The new strategic indices for fixed income and equities resulted in a significant change in the geographical composition of the fund. We started the transition during the strategy period with a total trade amount of 447 billion kroner in fixed income and 162 billion kroner in equities. The transition excluding inflow has so far been implemented at a low total cost of 6.8 basis points. The fixed-income transition has been completed, and the equity transition will continue into 2014.

We implemented an internal trade pricing system giving traders more discretion in execution. We have moved from trading analytics to execution analytics, with the main purpose of ensuring the best possible timing of trade execution, and to reduce transaction costs. For equity single stock trading, the average order size has increased, and the average order implementation time has gone from 2.3 days to 6.2 days.

In the period, electronic trading for fixed income decreased slightly from 46 percent to 43 percent due to our increased investments in emerging markets. Electronic trading for equities decreased from 55 percent to 44 percent in the period, with a focus more on finding natural liquidity in the market.

The treasury functions of financing, cash and currency management and securities lending have been centralised across asset classes. This has improved the efficiency of cash, foreign exchange and collateral management, as well as the risk management of the combined activities in this area.

We believe well-functioning markets are essential to the management of the fund. NBIM approached several regulators and exchanges directly to influence market microstructure. We did however not achieve our targets in this area.

RISK MANAGEMENT

We developed new risk measures to support the long-term investment strategy

A well-functioning and efficient risk control environment is core to NBIM. We have implemented a more efficient and standardised reporting process, and a broader risk analytics coverage. We have developed new tools for risk analysis with improved attribution and views on risk and return drivers.

We established new risk measures to include cash flows, shortfall and factor risk. We improved our forward-looking risk models by using option prices in combination with cash flows and historical prices.

We expanded our operational risk framework to include business continuity management, event risk, and financial and reputational risk tolerance levels. We designed and implemented a simulation model to calculate the total operational risk exposure based on incident and risk factor information. Our ambition has been to integrate legal, ownership and operational risk into an overall business risk framework, with a strengthened emphasis on safeguarding the fund. Work still remains to ensure an efficient implementation of the integrated business risk approach.

We have continued our internal governance structure, with clearly documented processes, policies and guidelines, and division of roles and responsibilities. Our committee structure was maintained. The governance framework has seen increased adoption across the organisation, resulting in more efficient organisational management and improved risk management and internal control. This has been reflected in conclusions and feedback from 51 audit projects during the strategy period.

OPERATIONS

We simplified the portfolio and systems

Consolidation and simplification have been key drivers for the changes to our technology, infrastructure and system portfolio. Our target has been a simple, efficient and consistent infrastructure.

The technology platform was transferred to a new infrastructure provider. This increased our operational stability and general performance, and significantly reduced the overall system complexity.

We reduced the number of IT systems to minimise overall complexity in our operations. A cross-asset system for trade processing and portfolio accounting is under implementation for equities and fixed income. System implementation has taken more time than anticipated, mainly due to difficulties finding a suitable solution to meet NBIM’s needs. The system solution will be further expanded to support portfolio management and trading in the next strategy period.

Management of information security has been given significant attention. We segregated responsibility between IT operations and the risk and control functions, and implemented monitoring of information security on an ongoing basis. Our information security monitoring still needs development.

SERVICE PROVIDERS

We reduced the number of service providers and reduced costs

We continued to concentrate the organisation on core investment activities and reviewed the level of investment services outsourced to external providers.

We consolidated IT application support, system development, back-office processing and IT infrastructure services under one provider. The focus has been on delivery of services rather than technical components, which has modernised our IT infrastructure.

We consolidated the service model for core custody services, moved all assets to one global custodian and established a contingency custody solution with a second vendor. We insourced trade processing services for fixed income. These vendor consolidations have contributed considerably to cost savings. Total management costs excluding performance-based fees to external managers were 5.2 basis points of assets under management in 2013, compared to 7.0 basis points in 2010.

Investment organisation – a global investment culture

HUMAN RESOURCES

We expanded our global presence and remained small and agile

NBIM remains a small and agile organisation. The number of employees increased from 278 at the end of 2010 to 370 at the end of 2013.

The majority of recruitment was within the investment areas. The share of employees directly involved in investment decisions increased from 24 percent at the end of 2010 to 33 percent by the end of 2013. This strengthened our investment capabilities in new asset classes and in new markets. The allocation of employees to our international offices increased from 20 percent at the beginning of 2011 to 35 percent by the end of 2013.

A key objective was to recruit, retain and develop highly qualified staff. We improved our recruitment process, as well as our ability to recruit in the international labour market. We strengthened our performance management processes by closely linking our organisational targets with individual employee appraisals. We also established a longer-term incentive structure for our investment personnel.

We improved our talent management and strengthened our four-year Investment Talent Programme.

INVESTMENT CULTURE

We improved information sharing across the organisation

NBIM is a knowledge-based organisation, and we value employees with a desire to learn and improve their capabilities. In the strategy period, we introduced a series of investment-related courses for employees across all functions.

We increased the number of employees involved in investment decisions, and increased investment focus in the management group.

We launched a new system platform to improve internal knowledge sharing on investment analytics. We developed arenas for sharing investment knowledge and current market insight.

COMMUNICATION

We improved internal and external communication

We remained attentive to our dialogue with external stakeholders. We presented at more than 150 external speaking events in 20 countries. 50 percent of these events targeted Norwegian stakeholders.

Our web pages have been the main channel for external information sharing, and we have seen an increased number of visitors, especially among Norwegian stakeholders.

Our governance model, principles and policies are published on nbim.no. We have improved transparency on our voting by making our voting records publicly available immediately after the shareholder meeting. We have improved the content related to our investments on our website, and during 2013 we worked to further improve the website for a broader audience.

We enhanced our public reporting through the implementation of International Financial Reporting Standards and improved our quarterly and annual reports.

We have established a close relationship with academia to gain insights we can use as a large global investor. We established the Norwegian Finance Initiative in 2011. As part of the initiative, we have arranged financial research conferences, awarded scholarships and given out publication bonuses. We have conducted research projects with renowned researchers and held more than 50 internal academic seminars with professors of finance and economics.

Summary

NBIM's objective is to safeguard the owners' long-term financial interests and build wealth over the long term. This should be done through investment decisions based on analytical insight, and by implementing the strategy in a simple, cost-efficient and controlled manner. The key elements of the 2011-2013 strategy period were to:

- Emphasise absolute returns, moving away from a relative return focus, as we capitalise on the fund's long-term outlook and size.
- Simplify the investment infrastructure.
- Strengthen our investment culture and be open about how we invest.

The key achievements in the strategy period have been:

- We obtained an annual real return of 5 percent for the fund.
- We improved our investment process and reduced costs.
- We strengthened our investment organisation.

The achievements the last three years has prepared us for future challenges and the direction set out for 2011-2013 will continue for the strategy period 2014-2016.