NORWEGIAN GOVERNMENT PENSION FUND GLOBAL

REAL ESTATE PORTFOLIO REPORT, 2016

December 2017

MSCI

EXECUTIVE SUMMARY

This report, commissioned by the Ministry of Finance, has been prepared by MSCI to provide quality assurance of Norges Bank's return calculations and to provide a return objective (benchmark) with corresponding benchmarking analysis of the Government Pension Fund Global ("GPFG") real estate portfolio.

In the report, MSCI verifies Norges Bank's calculations of total return for the real estate portfolio in the year 2016 at -3.9% measured in NOK. This Net Asset Value (NAV) return is based upon fund subsidiaries and structures used for holding real estate assets, and listed real estate investments, taking into account the effects of leverage, other assets and liabilities, fees, and any other financial structuring.

Separate to this report, Norges Bank have been verified as being GIPS (Global Investment Performance Standard) compliant. The balance sheet and income statement have been subject to external audit by Deloitte AS.

MSCI's methodology begins with the calculation of direct property level return, which is subsequently built up by adding elements of fund structures to produce a fund level return ("bottom-up approach"). As explained in the report, this may lead to the calculation of different return figures via the bottom-up MSCI approach and the Norges Bank methodology. The reasons for these differences are covered in the report and relate to the dual role of the report, to provide both quality assurance of the Norges Bank return calculations and the benchmarking of real estate performance.

Beyond the differences in methodology, it is important to recognise that in the stages of building up a real estate portfolio there are likely to be differences between the portfolio and benchmark performance. These differences, which arise due to asset concentration and the acquisition costs associated with constructing the real estate portfolio, become less significant once the portfolio has moved beyond its construction phase.

MSCI's methodology gives total returns of -2.5% for the real estate portfolio and 2.2% for the benchmark, measured in NOK. All returns are based on data on assets held throughout the year ending December 2016, except where stated differently. In local currency, the portfolio total return of 5.6% underperformed the benchmark by 180 basis points, mainly due to underperforming investments within the US Office and US Industrial sectors. Overall, there was a strong negative FX impact, mainly driven by investments in the UK and US.

However, such benchmark comparisons should, as highlighted in the report, be interpreted with caution when the portfolio is under construction. The variation in market performance within countries, in particular at a city level, is covered in the market review section.

LIST OF CONTENTS

EXPLANATORY SECTION

BACKGROUND AND ROLE OF MSCI

This report has been commissioned by the Ministry of Finance of Norway ("MoF") and has been prepared by MSCI.

The scope of the report, which incorporates the two approaches to performance measurement, is as follows:

- Quality assurance on the performance calculations carried out by Norges Bank.

- Calculation of the direct property performance of the Government Pension Fund Global ("GPFG") Property Portfolio ("the Portfolio") relating to the return objective (benchmark) as described in the "Real Estate Benchmarking" section.

MSCI does not perform an audit control on the underlying data provided by Norges Bank or any other third party, which has been required to perform relevant calculations, and this should not be seen to fall under the scope of this report. Separately to this report however, the GPFG balance sheet and income statement have been subject to external audit.

COMPONENTS OF NET FUND RETURN

The components of Net Fund Return analysis link the unleveraged direct property-level performance to the overall fund-level performance, via different fund structures. Elements of fund structure include the impacts of leverage, cash, tax and management fees. An additional part of performance is the contribution from the public real estate in which Norges Bank has invested. Furthermore, the return from public real estate investment is not included in property level analytics or the disaggregation into property type and geography.

The analysis shows the impact of each element of the fund structure in percentage points, indicating whether it had a positive or negative contribution to the overall fund performance.

The quantifiable differences between MSCI bottom-up methodology and Norges Bank top-down methodology have been split between base case capital difference and the resolution from daily to monthly. The base case capital ("capital recognition policy") difference highlights the impact on returns from the difference in MSCI and Norges Bank capital employed. The resolution of daily to monthly relates to the calculation methodology for time weighted returns, as Norges Bank calculates performance at actual day of funding or defunding, whereas it is MSCI methodology to only calculate performance at month end.

DIFFERENCES IN METHODOLOGY

Following comparative reviews of the Norges Bank and MSCI standard performance calculation methodologies, the differences can be summarised as follows:

DIFFERENCE	NORGES BANK	MSCI
Foreign exchange rates	GPFG values in both NOK and Currency Basket (CCY); converted monthly, and upon significant capital transfer events.	Values converted to Norwegian Kroner (NOK) at WM/Reuters end-month closing spot rates.
Acquisition and valuation	Acquisition price, then held down until next valuation.	Acquisition price, then interpolated between valuations.
Calculation method	Time weighted returns (TWR) calculated at month end; capital transfer events at actual day of funding or defunding.	Time weighted returns (TWR) calculated at month end.

QUALITY ASSURANCE CALCULATIONS

5

The publication of the GPFG annual report makes investment return performance publically available across all asset classes, along with all of the calculation methodologies used in generating these returns. For the real estate asset class, MSCI has performed a control function to validate the performance calculations of Norges Bank, the purpose of which is a level of quality assurance that calculations have been performed to the stated methodology. This part of the report forms the basis for our top-down analysis.

For the year to December 2016, the GPFG annual report states these total returns as -3.91% and 0.78%, calculated in NOK and the fund's international currency basket (CCY) respectively. The high-level performance calculation of the return is the result of two primary inputs, the Net Asset Value (NAV), which is the total value of the assets less the value of the liabilities, and the transfer of capital into and out of the fund; the verification of these components has therefore been central to the quality assurance function. The review of the NAV component was conducted in the context of its composition; the components being bank deposits, real estate assets

and investment properties, and all other financial assets and liabilities. The second primary input relates to the transfer of capital into and out of the real estate portfolio, most particularly in the acquisition of financial assets and investment properties throughout the year.

Using the input data alongside supplied foreign exchange rates and accounting adjustments, MSCI have verified the calculation methodology on which the performance results are based in relation to the NAV and capital transfers provided at each month and transfer event. Furthermore, upon rolling up the inputs into a set of performance returns for the construction of the published annual return, MSCI is able to replicate the published results on both an NOK and CCY denominated basis.

On the basis of these quality assurance calculations, it is the opinion of MSCI that the performance statements and headline results published by Norges Bank on its real estate investments have been calculated consistently and in accordance with the methodology required by the Norwegian Ministry of Finance.

PERFORMANCE CALCULATION (YEAR TO DEC-16)	NORGES BANK	MSCI	DIFFERENCE
Net Asset Value* as at Dec-16 (NOK), millions	241,756.2	241,756.2	0.0
Net transfers into the portfolio (NOK), millions	15,482.7	15,482.7	0.0
Annual Return (NOK)	-3.91%	-3.91%	0.00
Annual Return (CCY)	0.78%	0.78%	0.00

Source: MSCI, Norges Bank

* Top-down NAV figures may differ from the NAV used in the bottom-up approach. This is due to differences between Norges Bank Real Estate values and the direct-level valuations MSCI receives from each joint venture.

MSCI PERFORMANCE ANALYSIS

REAL ESTATE BENCHMARKING

Given the maturing nature and globalization of real estate markets, there is scope to measure and compare performance across global markets. Benchmarking is a well-established tool in liquid asset classes and is increasingly being applied for direct real estate. As for other asset classes, the benchmarking of real estate portfolios may enable investors to monitor their investments in a wider context, and provide useful insights into the reasons for out- or underperformance.

Although improvements have been made in developing real estate benchmarks, there remain limitations due to the uniqueness and potential large scale or "lumpiness" of individual real estate assets. These difficulties are compounded when building benchmarks across national real estate markets, due to differences in the quality of data and the frequency with which the benchmarks are released. A further factor to consider is that individual assets can have a significant influence on a portfolio's return during the period when a real estate portfolio is being built up. In addition, real estate benchmarks are likely to comprise mainly held investments, with a smaller proportion being subject to transaction or development than in a portfolio under construction.

The level of acquisition costs in the benchmark will therefore be limited compared with those of the portfolio.

At this stage of constructing the GPFG portfolio, there are likely to be notable differences between the portfolio and benchmark due to asset-specific factors. For this reason, the results of the analysis need to be interpreted with care.

For more information on real estate benchmarking, please visit https://www.msci.com/real-estate

In this report, the benchmark determined by MoF includes countries where MSCI is represented globally, excluding Norway, and is adjusted to the MSCI estimated market weights applied to the IPD Global Annual Property Index.

Given that the GPFG is benchmarked against the wider global real estate market, including countries where the fund is not currently represented, it is important to understand the main trends in the market during the course of the year. For this reason, the following section provides a broad review of global real estate performance in 2016.

REAL ESTATE MARKET REVIEW 2016

Global property held directly by private investors delivered a total return of 7.4% in 2016, marking the seventh consecutive year of positive performance since the global financial crisis (GFC). Global performance edged downward from 10.7% in 2015. Sweden led the list of countries, and although returns moderated from 14.0% in 2015 to 13.9% in 2016, the reduction was relatively minimal. Sweden's performance was followed by Spain (13.3%) and Ireland (12.4%). The UK (3.9%) and USA (7.5%) also provided positive returns, although the former was constrained by capital value falls after the vote to leave the European Union.

The cyclical and structural dynamics of real estate have attracted a wave of capital in this cycle, which has propelled the asset class through a period of strong performance. The appeal was initially cyclical, as depressed prices attracted capital in the immediate aftermath of the GFC. In a typical cycle,

tightening real estate yields would slow the flow of capital, but in recent years, record-low bond yields and financing costs have kept spreads attractive. The atypical nature of this cycle continues to keep investors on alert for the inevitable inflection point that, at least in 2016, remained illusory.

Beyond these national variations, there were also significant differences in property sector performance. Industrial assets led the major property sectors again in 2016, driven by a relatively high income return and significant value growth. All four major sectors lost momentum in 2016, although the retail sector was the weakest of the four. Retail property returned 6.8% globally, with the UK the hardest hit at 2.6%. Changing overall retail trends, alongside the growth of the online sales, have impacted the sector. Online sales can also be seen as one of the major drivers of industrial returns, leading to increased demand for logistics space.

FIGURE 1
Performance momentum, 2015–2016

All property annual total return in local currency
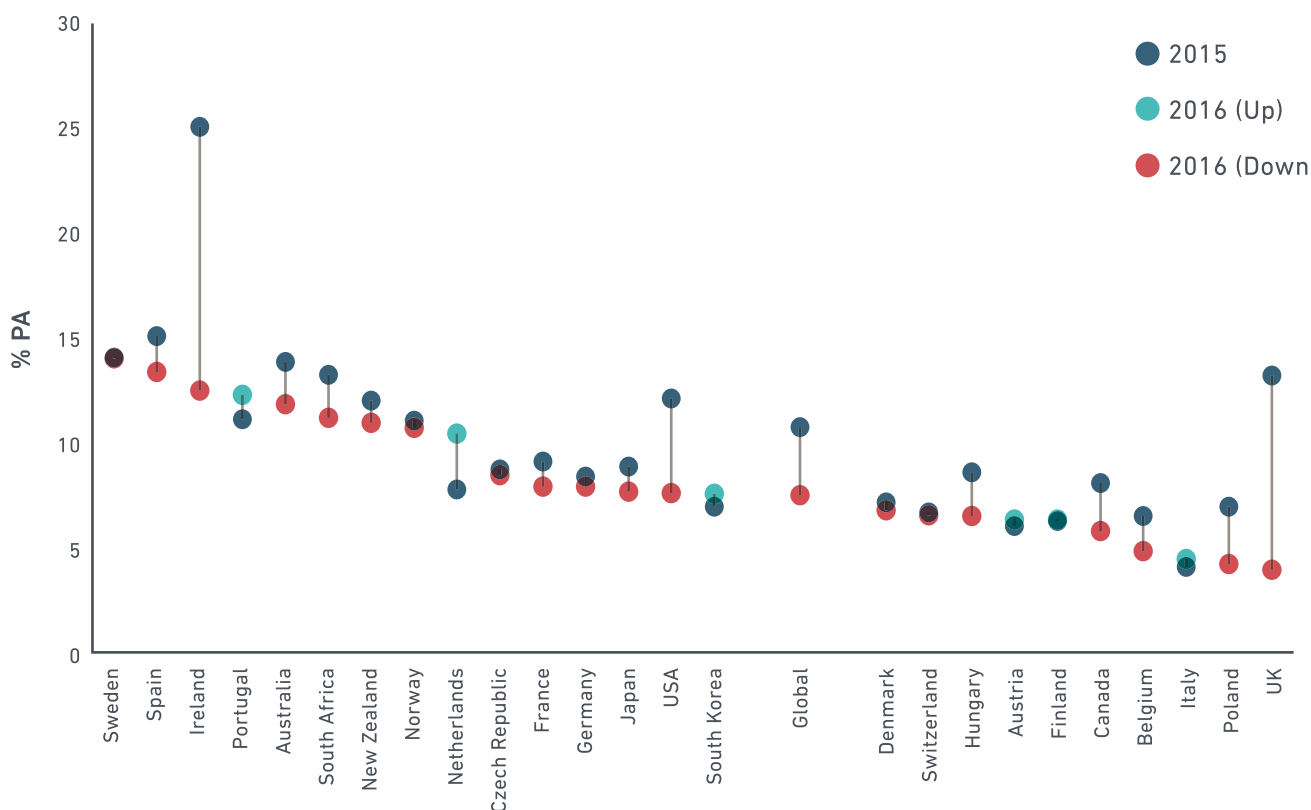
Source: MSCI; KTI

FIGURE 2
Global property performance (local currency)

Sweden	13.9	9.3	18.2	11.9	11.9	16.0	11.5
Spain	13.3	13.0		6.1		11.6	12.9
Ireland	12.4	19.3				11.9	12.9
Portugal	12.2	-2.0		8.3		3.1	16.4
Australia	11.7	11.2	19.5	15.9		13.4	9.5
South Africa	11.1	13.6	2.7	12.4		7.6	12.6
New Zealand	10.9			12.5		10.5	10.2
Norway	10.6	12.4	9.2	13.9		10.0	11.2
Netherlands	10.3	8.9		7.7	14.5	9.1	3.6
Czech Republic	8.4	10.1				7.5	7.0
Germany	7.8	8.3	6.5	9.0	7.9	7.6	8.0
France	7.8	8.2	4.6	12.0	4.1	7.8	8.5
Japan	7.6	8.4	14.0	7.1	6.9	7.1	7.0
USA	7.5	11.8	5.7	7.4	6.4	6.3	7.9
Korea	7.5	10.4	8.0		7.8	7.4	7.2
Denmark	6.7	5.4		7.2	10.4	6.5	6.3
Switzerland	6.4	6.6	1.9	1.7	8.2	5.0	4.7
Hungary	6.4	9.9				4.9	
Austria	6.3	5.8	6.2	5.8	5.8	7.0	5.8
Finland	6.2	6.0	12.4	7.0	8.0	4.8	4.0
Canada	5.7	5.8		4.9	8.0	4.7	6.0
Belgium	4.8	6.5				2.5	6.6
Italy	4.4	6.6	0.3	6.0	0.3	4.3	5.8
Poland	4.2	5.5				0.7	5.9
UK	3.9	7.7	8.6	7.3	5.6	2.1	2.6

Source: MSCI; KTI

City-specific variations in performance can be significant, even within national markets. In 2016, more than 1000 bps separated the best and worst performing cities in the USA, Canada, and Australia. Even for the smaller, more densely populated European markets of the UK and Germany, spreads exceeding 500 bps between the top and bottom performing cities could be found in 2016.

For a property investor, the implication is a two-level approach to geographic allocations. Macroeconomic issues such as interest rates, currency exchange rates and market transparency are the first level to be considered. These variables impact national markets and are relatively straightforward effects with associated risks that can mostly be easily understood and effectively monitored and measured.

But within a national market, city-level economics, shifting strategic locations, demographic trends, land use policies and constraints, and supply fundamentals can all lead to differences in cyclical performance and investment opportunities from one metropolitan area to the next.

At this subnational level of allocation, the nuances can become more difficult to grasp as well as to measure. The underlying drivers and property type compositions of Las Vegas and Washington, DC, for example, are very different, as are those for Tokyo and Sapporo, Munich and Düsseldorf, and Vancouver and Montreal.

Across most global markets in 2016, income yields stood at or very close to historic lows. To be sure, there were some notable exceptions, including Spain, Ireland and to a lesser extent, Germany, but in most countries, income yields held at low levels in 2016. In each of the five largest markets in the weighted 25-country global index – the USA, UK, Japan, Germany, and France – the domestic all property income return stood below the global average level in 2015.

FIGURE 3
Performance of cities within countries, 2016
All property annual returns
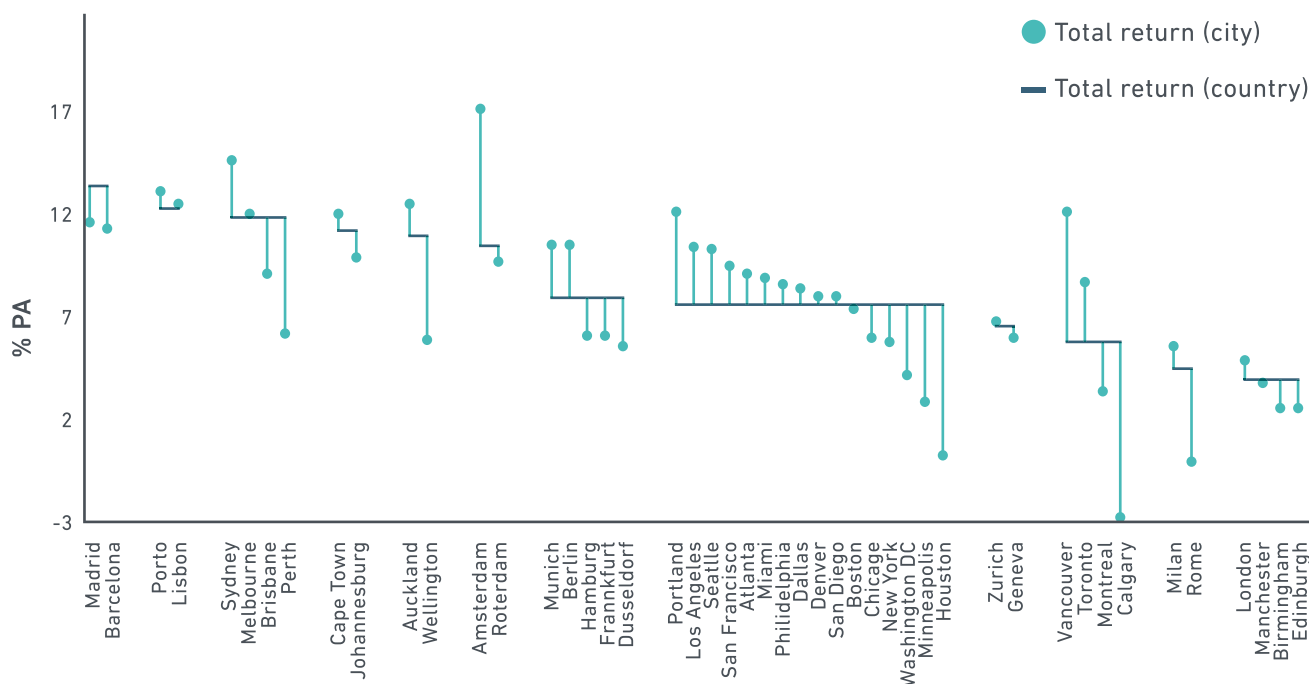
Source: MSCI; KTI

FIGURE 4

2016 Income Return Relative to Local Market History

All property annual income return by country
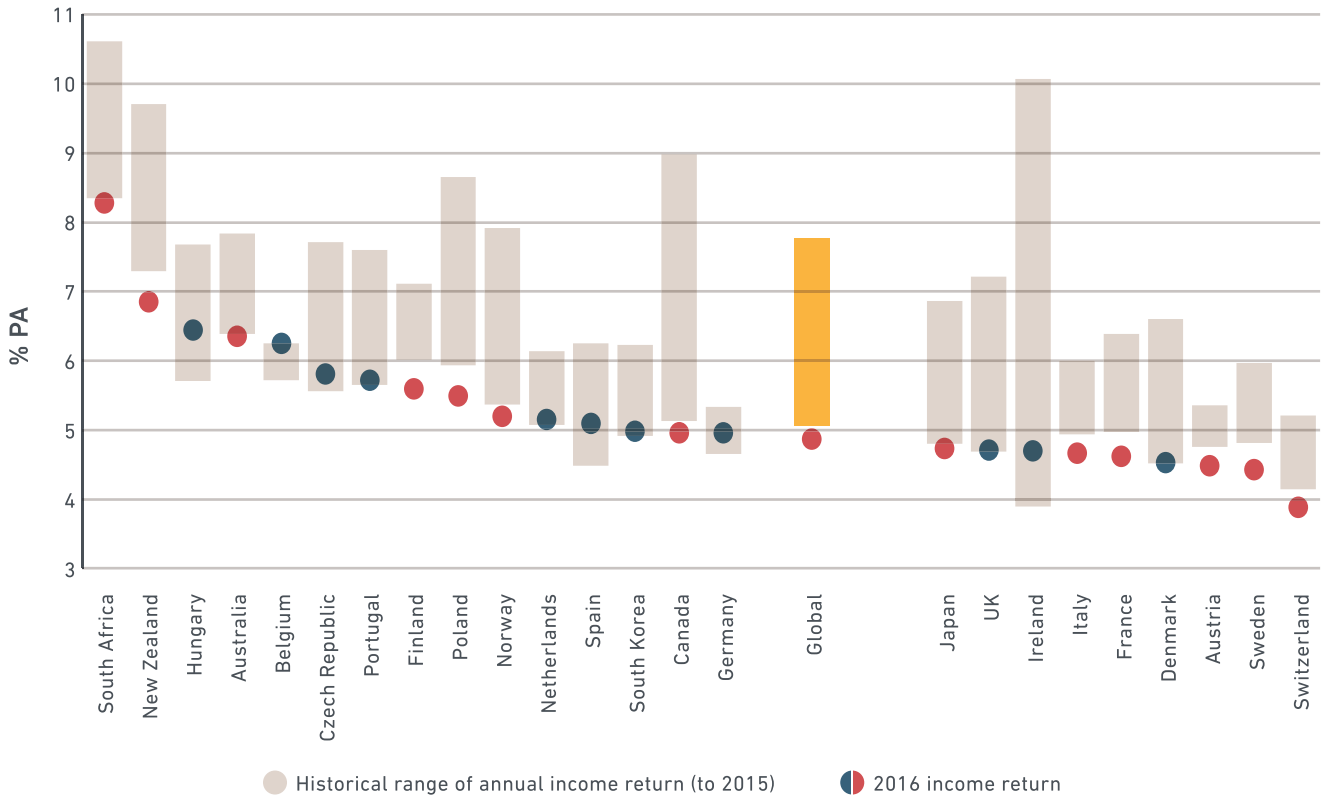
Note: Annual income return histories shown above range from a minimum of 10 years to a maximum of 15 years, depending upon individual market availability.

Source: MSCI; KTI

PORTFOLIO AND RELATIVE PERFORMANCE

MSCI is well known, within real estate, for the indexes and benchmarks it provides on direct real estate, based on portfolios of property held by investing institutions, and this forms the basis for the "bottom-up" approach to performance measurement in this report. This focuses on the performance of direct real estate investment based on the Gross Asset Value (GAV) of the properties and their relative performance against comparable benchmarks. One of the key strengths of this methodology is its analytical potential.

Differences in the timing of investments need to be taken into account in calculating performance relative to the benchmark. A more fundamental caveat relates to the construction phase and asset concentration of the portfolio. At the construction stage of a real estate portfolio, it is likely that there will be notable differences between portfolio and benchmark performance due to high concentration in a relatively small number of assets, and the associated property risks. These asset specific factors become less significant once the portfolio becomes more mature.

The benchmark used in this section is different from the numbers shown in the Real Estate Market Review section. The benchmark is using all properties including standing investments, transactions and developments while the Real Estate Market Review only includes standing investments.

The overall portfolio and benchmark returns in 2016 were -2.5% and 2.2% respectively on a NOK basis and 5.6% and 7.5% on a local currency basis. This implies an FX impact of -8.2% for the portfolio and -5.2% for the benchmark, with a relative difference of -2.9%.

Comparing the direct-level local currency returns of 5.6% and 7.5% for the portfolio and benchmark respectively produces a relative return of -1.8%. This underperformance was driven by capital growth of 1.5% for the portfolio compared to 2.7% for the benchmark, together with income return of 4.1% for the portfolio compared to 4.6% for the benchmark.

In the attribution analysis, the portfolio has structure and property scores of -0.7% and -0.9% respectively. The structure score explains how differences in sector weightings between the portfolio and the benchmark affected the portfolio's relative performance, either positively or negatively. The portfolio suffered from a negative structure score in 2016, mainly from the UK allocation, as it was overweight in the retail and office sectors here, which underperformed the global benchmark.

The property score indicates how assets in the portfolio performed compared to similar assets in the benchmark. In this respect, it was mainly US office and US industrial investments that significantly underperformed the benchmark; their weight in the overall portfolio meant they made a major contribution to the negative property score.

BALANCE SHEET

JANUARY TO DECEMBER 2016

The Portfolio balance sheet shows the composition of the Portfolio. Starting from the overall exposure or Gross Asset Value (GAV), the Net Asset Value (NAV) is derived from deducting the total liabilities.

The GAV is a composition of Direct Property Invesments (DIP), Other Investment Assets (OIA) and Cash.

ALL FIGURES SHOWN IN NOK MILLION	CAPITAL VALUE		NET INVESTMENT	VALUE CHANGE	
	DEC '15	DEC '16		FX IMPACT	LOCAL CURRENCY VALUE CHANGE
Gross asset value (GAV)	252208.1	258745.0	16608.2	-15023.9	-10071.4
Direct property investments (DIP)	197060.4	204175.9	19360.1	-15023.9	2779.3
France	19918.9	27916.4	8873.2	-1112.9	237.3
Retail	3206.9	11960.9	9054.8	-177.7	-123.1
Office	13191.1	12740.4	9.7	-736.0	275.6
Industrial	3513.4	3208.0	-191.4	-198.7	84.7
Residential	-	-	-	-	-
Other	7.5	7.0	-	-0.4	-
US	97896.8	103161.8	5994.6	-2575.3	1845.7
Retail	697.1	484.2	-2.8	-19.3	-190.8
Office	66586.9	73057.6	7178.1	-1627.8	920.3
Industrial	27930.4	27070.2	-1133.1	-852.3	1125.3
Residential	-	-	-	-	-
Other	2682.4	2549.8	-47.6	-75.9	-9.1
UK	53902.2	47843.7	4041.6	-10038.0	-62.2
Retail	23092.9	22977.8	4118.7	-4352.6	118.9
Office	23362.9	18896.1	54.0	-4318.5	-202.3
Industrial	6991.0	5518.2	-153.2	-1282.5	-37.1
Residential	277.1	298.4	21.8	-51.3	51.0
Other	178.4	153.2	0.3	-33.0	7.4
Switzerland & Germany	16206.3	16085.6	95.4	-779.3	563.2
Retail	-	-	-	-	-
Office	15525.5	15419.9	81.0	-740.9	554.3
Industrial	673.5	643.5	5.4	-37.7	2.3
Residential	-	-	-	-	-
Other	7.3	22.3	9.1	-0.7	6.6
Rest of the World	9136.2	9168.4	355.3	-518.4	195.3
Retail	-	-	-	-	-
Office	-	-	-	-	-
Industrial	9082.8	9054.9	274.9	-516.3	213.5
Residential	-	-	-	-	-
Other	53.4	113.5	80.5	-2.1	-18.3
Other Investment assets	54057.0	52391.7	-1665.3	0.0	0.0
Total liabilities	-17224.0	-14811.8	-2903.8	-	-
Cash*	1090.7	2177.3	-1086.6	-	-
Debt	-17426.9	-15609.7	-1817.2	-	-
Other Financial Liabilities	-887.8	-1379.4	491.6	-	-
Net asset value (NAV)	233893.4	241755.8	14791.0	-15023.9	-10071.4

COMPONENTS OF NET FUND RETURN

JANUARY TO DECEMBER 2016

The table below shows the build of NAV return from the direct investment property return. The impact from each fund structure is represented in percentage points starting with Leverage to Capital differences.

The NAV return calculated bottom up would therefore be the sum of direct investment return and total contribution from the fund structures.

COMPONENTS OF NET FUND RETURN (BOTTOM-UP APPROACH)	GLOBAL - PORTFOLIO	IPD® GLOBAL - BENCHMARK*	DIFFERENCE
Direct Investment Property Return (%)	–2.5	2.2	↓ –4.8
Contribution from Fund Structure			
Leverage	↓ –0.6	↓ –0.1	
Fair Value Change Debt	↓ –0.1	→ 0.0	
Cash	↑ 0.1	→ 0.0	
Tax	↓ –0.2	→ 0.0	
Fees	↓ 0.0	↓ 0.0	
Other Expenses	↓ –0.1	→ 0.0	
Other Financial Assets and Liabilities	↓ –0.1	→ 0.0	
Methodology	↑ 0.0	→ 0.0	
Capital Recognition Policy	↑ 0.4	→ 0.0	
Residual	↑ 0.1	→ 0.0	
Total	↓ –0.5	↓ –0.1	
Private Real Estate Return including Contribution from Real Estate Fund Structure (%)	–3.0	2.1	↓ –5.2
Public Real Estate Return (%)**	–6.9	–	

NET FUND RETURN (TOP-DOWN APPROACH) (%)	GLOBAL - PORTFOLIO	IPD® GLOBAL - BENCHMARK*	DIFFERENCE
Portfolio NAV Return	–3.9	2.1	↓ –6.0

All figures shown in NOK

Note: The graph below displays the breakdown of the Portfolio NAV return by each individual component excluding impact from Public Real Estate. Starting with direct property investment on the left, each component adds either a positive or negative return (bar) to the cumulated NAV return (dot).The sum of the components results in the total NAV over the period which is shown by the bar on the right.

Note: All calculated periodic returns are linked geometrically.

* Benchmark adjusted by the same level of Debt and Fees components (as a percentage of value), as reported for GPFG

** Cash includes impact from Deposits in Bank

** Public Real Estate Return of –6.9% reflects the return on shares and is not included in the property level analytics (disaggregation into property type and geography).

Portfolio impact analysis

Last 12 months (%)
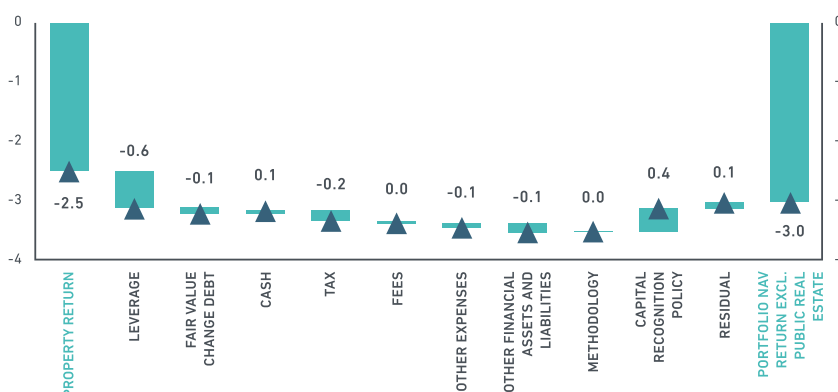
Time series

Annual returns (%)

	TOP-DOWN IN NOK		BOTTOM-UP IN NOK		BOTTOM-UP IN LOCAL CURRENCY	
	2015	2016	2015	2016	2015	2016
Portfolio	23.7	-3.9	24.0	-2.5	10.2	5.6
Benchmark	25.9	2.1	24.1	2.2	10.7	7.5
Relative	-2.2	-6.0	-0.1	-4.8	-0.5	-1.8

CURRENCY IMPACT

JANUARY TO DECEMBER 2016

The table below shows the returns for the Portfolio and Benchmark in NOK and local currency. The FX impact expresses the difference between the returns in NOK and local currency for the portfolio and benchmark.

The difference in FX impact between the portfolio and benchmark explains the out or underperformance caused by the currency exchange.

ALL FIGURES SHOWN IN %		TOTAL RETURN NOK			TOTAL RETURN LOCAL CURRENCY			FX IMPACT		
		PORTFOLIO	BMK	DIFFERENCE	PORTFOLIO	BMK	DIFFERENCE	PORTFOLIO	BMK	DIFFERENCE
Global		-2.5	2.2	-4.8	5.6	7.5	-1.8	-8.2	-5.2	-2.9
France		-0.4	2.2	-2.5	5.7	8.1	-2.4	-6.1	-6.0	-0.1
	Retail	1.5	2.5	-0.9	8.0	8.5	-0.6	-6.4	-6.0	-0.4
	Office	-0.1	2.6	-2.7	5.8	8.6	-2.8	-5.9	-6.0	0.1
	Industrial	2.5	2.0	0.5	8.6	7.9	0.7	-6.1	-5.9	-0.1
	Residential	-	-1.5	-	-	4.2	-	-	-5.7	-
	Other	-5.6	5.2	-10.8	0.0	11.4	-11.4	-5.6	-6.2	0.6
US		3.1	4.7	-1.6	6.1	7.7	-1.6	-3.0	-2.9	0.0
	Retail	-27.1	4.8	-31.9	-25.0	7.8	-32.8	-2.1	-2.9	0.9
	Office	2.3	3.4	-1.1	5.3	6.4	-1.1	-3.0	-2.9	0.0
	Industrial	6.3	8.8	-2.6	9.3	11.9	-2.6	-3.0	-3.0	0.0
	Residential	-	4.1	-	-	7.0	-	-	-2.9	-
	Other	0.0	3.8	-3.8	2.9	6.8	-3.9	-2.8	-3.0	0.1
UK		-15.6	-15.2	-0.4	3.8	3.9	-0.2	-19.4	-19.1	-0.3
	Retail	-15.3	-16.4	1.1	4.5	2.5	2.0	-19.8	-18.9	-0.9
	Office	-16.3	-16.3	0.0	2.7	2.6	0.1	-19.0	-18.9	-0.1
	Industrial	-14.6	-12.1	-2.5	4.7	7.8	-3.1	-19.3	-19.9	0.6
	Residential	-17.1	-13.4	-3.7	1.7	6.1	-4.4	-18.8	-19.4	0.7
	Other	-11.2	-13.4	2.2	9.0	6.1	2.8	-20.1	-19.5	-0.6
Switzerland & Germany		2.6	1.5	1.1	7.8	7.0	0.8	-5.2	-5.4	0.3
	Retail	-	1.2	-	-	6.7	-	-	-5.6	-
	Office	2.6	1.2	1.4	7.8	6.8	1.0	-5.1	-5.6	0.4
	Industrial	1.0	2.3	-1.3	7.0	8.1	-1.1	-6.0	-5.8	-0.1
	Residential	-	2.9	-	-	7.9	-	-	-5.0	-
	Other	40.7	-1.1	41.8	48.2	4.2	43.9	-7.5	-5.3	-2.2
Rest of the World		2.6	5.5	-2.9	8.7	8.3	0.4	-6.1	-2.8	-3.3
	Retail	-	5.4	-	-	7.8	-	-	-2.4	-
	Office	-	5.0	-	-	8.0	-	-	-3.0	-
	Industrial	2.5	6.0	-3.5	8.7	8.2	0.5	-6.1	-2.2	-4.0
	Residential	-	5.6	-	-	9.0	-	-	-3.4	-
	Other	4.6	7.9	-3.3	8.4	10.8	-2.4	-3.8	-2.9	-0.9

Relative impact of currency on returns

IMPACT OF CURRENCY IN RETURNS
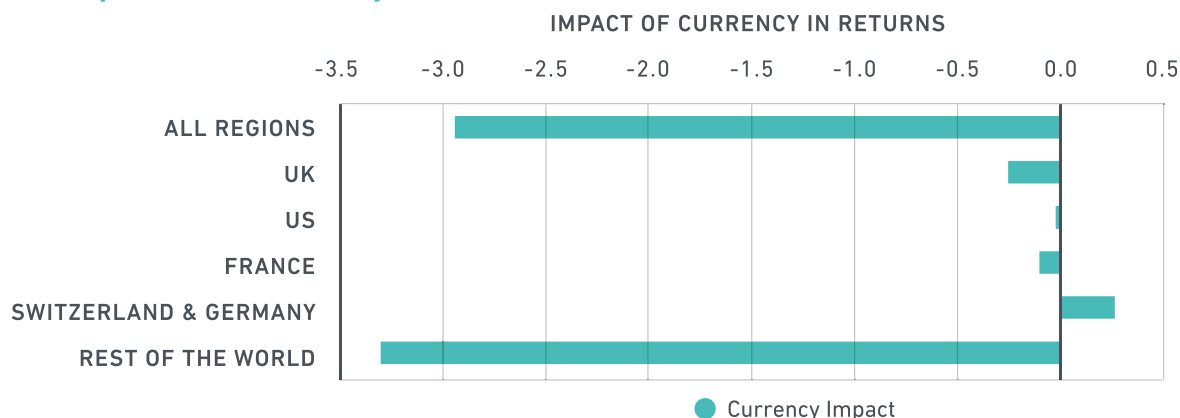
Note: Negative return for US retail driven by a single property with 95% vacancy rate. Positive return for Switzerland & Germany Other driven by a single development property

ATTRIBUTION ANALYSIS

JANUARY TO DECEMBER 2016

The attribution technique calculates that part of the relative return derived from the Portfolio's Gross Asset Value relative weighting in the strong or weak sectors of the market (structure component), and that portion which is due to the exceptional performance of the Portfolio's own assets within each segment of the market (property component).

ALL FIGURES SHOWN IN %, RETURNS IN NOK	TOTAL RETURN LOCAL CURRENCY			ATTRIBUTION ANALYSIS		PERCENTAGE OF CAPITAL EMPLOYED		
	PORTFOLIO	BMK	RELATIVE	PROPERTY	STRUCTURE	PORTFOLIO	BMK	DIFFERENCE
Global	5.6	7.5	-1.8	-0.9	-0.7	100.0	100.0	0.0
France	5.7	8.1	-2.4	-0.2	0.1	10.5	5.5	5.0
Retail	8.0	8.5	-0.6	0.0	0.0	2.1	1.1	1.0
Office	5.8	8.6	-2.8	-0.2	0.0	6.7	3.1	3.6
Industrial	8.6	7.9	0.7	0.0	0.0	1.8	0.3	1.5
Residential	-	4.2	-	-	0.0	0.0	0.7	-0.7
Other	0.0	11.4	-11.4	0.0	0.0	0.0	0.4	-0.4
US	6.1	7.7	-1.6	-0.9	0.1	52.5	42.4	10.1
Retail	-25.0	7.8	-32.8	-0.1	0.0	0.3	7.7	-7.4
Office	5.3	6.4	-1.1	-0.4	-0.2	36.5	16.9	19.6
Industrial	9.3	11.9	-2.6	-0.4	0.3	14.4	6.9	7.5
Residential	-	7.0	-	-	0.0	0.0	9.8	-9.8
Other	2.9	6.8	-3.9	-0.1	0.0	1.4	1.2	0.2
UK	3.8	3.9	-0.2	0.1	-0.6	24.0	9.5	14.5
Retail	4.5	2.5	2.0	0.2	-0.3	10.7	4.0	6.7
Office	2.7	2.6	0.1	0.0	-0.3	10.1	2.6	7.5
Industrial	4.7	7.8	-3.1	-0.1	0.0	3.0	1.5	1.5
Residential	1.7	6.1	-4.4	0.0	0.0	0.1	0.6	-0.4
Other	9.0	6.1	2.8	0.0	0.0	0.1	0.9	-0.8
Switzerland & Germany	7.8	7.0	0.8	0.1	0.0	8.3	9.5	-1.3
Retail	-	6.7	-	-	0.0	0.0	2.3	-2.3
Office	7.8	6.8	1.0	0.1	0.0	7.9	3.8	4.1
Industrial	7.0	8.1	-1.1	0.0	0.0	0.3	0.6	-0.2
Residential	-	7.9	-	-	0.0	0.0	2.3	-2.3
Other	48.2	4.2	43.9	0.0	0.0	0.0	0.5	-0.5
Rest of the World	8.7	8.3	0.4	0.0	-0.2	4.7	33.0	-28.4
Retail	-	7.8	-	-	0.0	0.0	8.8	-8.8
Office	-	8.0	-	-	-0.1	0.0	13.9	-13.9
Industrial	8.7	8.2	0.5	0.0	0.0	4.6	3.1	1.5
Residential	-	9.0	-	-	-0.1	0.0	4.9	-4.9
Other	8.4	10.8	-2.4	0.0	-0.1	0.0	2.3	-2.2

Attribution of relative return in %

ATTRIBUTION OF RELATIVE RETURN, IN %

● Structure   ● Property
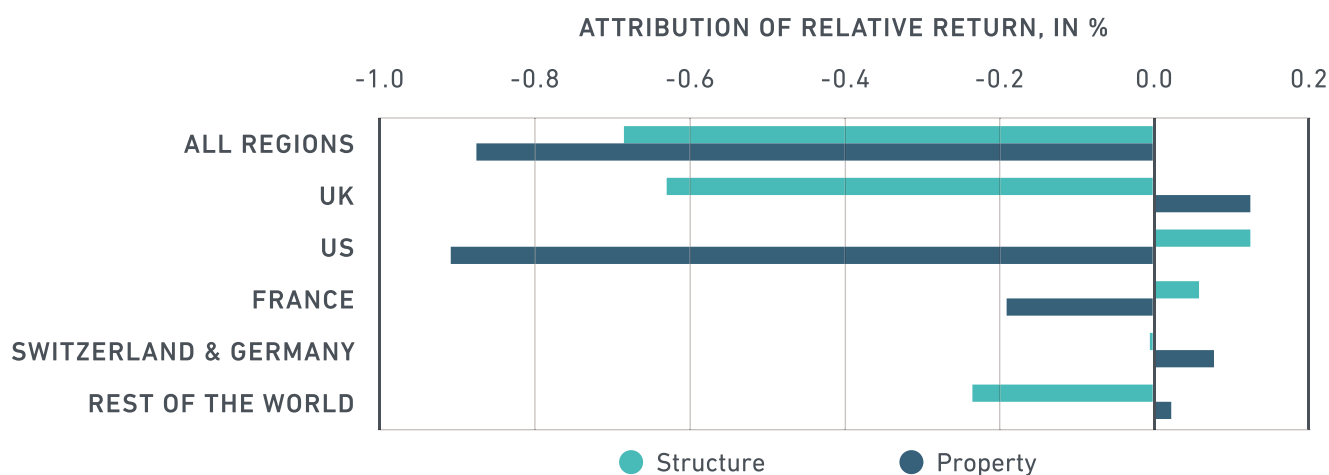
APPENDIX: TECHNICAL NOTE

All calculations within the report and specified in this section are in line with MSCI Global Methodology Standards for Real Estate Investment if not stated otherwise. Further information on MSCI applied methodologies can be found in the MSCI Global Data Standards for Real Estate Investment and the MSCI Global Methodology Standards for Real Estate Investment.

TOTAL RETURN (DIRECT PROPERTY/ OTHER INDIRECT ASSETS)

The return on an asset is the capital appreciation net of capital expenditure and receipts plus net income generated from the asset expressed as a percentage of capital employed during the holding period. Capital employed is the capital invested in an asset during the analysis period, that is, the capital value of the asset at the start of the holding period and any additional investments to the asset during the holding period.

In other words, total return is the total money return ('numerator') as a percentage of the capital employed ('denominator').

$$TR_{GAV,t} = \frac{(CV_t - CV_{(t-1)} - CEXP_t + CREC_t + NI_t)}{(CV_{(t-1)} + CEXP_t)} \times 100$$

CV_t = Current Capital Value

$CV_{(t-1)}$ = Previous Month Capital Value

$CEXP_t$ = Total Capital Expenditure during month (incl. purchase, development and capital expenditure)

$CREC_t$ = Total Capital Receipts during the month (including sales and other receipts)

NI_t = Net Income Receivable over the month

CAPITAL GROWTH

The capital growth component is defined as following

$$CG_{GAV,t} = \frac{(CV_t - CV_{(t-1)} - CEXP_t + CREC_t)}{(CV_{(t-1)} + CEXP_t)} \times 100$$

INCOME RETURN

The income return component is defined as following

$$IR_{GAV,t} = \frac{NI_t}{(CV_{(t-1)} + CEXP_t)} \times 100$$

TOTAL RETURN (NAV)

Total return on NAV level is an extension of the GAV total return formula. The existing methodology is enriched by including fees, tax and debt. The net asset value in each time period is calculated as the difference between current GAV and net debt.

$$NAV_t = GAV_t - NetDebt_t$$

Where net debt is calculated as follow

$$NetDebt_t = Debt_t - Cash_t$$

The NAV total return is defined as

$$TR_{NAV,t} = \frac{(NAV_t - NAV_{(t-1)} - CEXP_t + CREC_t - RP_t + DD_t - Tax_t - Fees_t) + (NI_t - I_t)}{(NAV_{(t-1)} + CEXP_t - DD_t)} \times 100$$

I_t = Interest payments on $NetDebt_t$

RP_t = Repayment on $NetDebt_t$

DD_t = Drawdown / Increase in $NetDebt_t$

Tax_t = Tax payments in period t

$Fees_t$ = Fees in period t

IMPACT OF DEBT

MSCI uses the ratio method to calculate impact of debt. However, in this report, the impact of debt (ID_t) is the arithmetic difference between the leveraged direct property returns and the total return on GAV basis.

$$ID_t = TR_{Leveraged,t} - TR_{GAV,t}$$

Leveraged returns are calculated similar to the NAV calculation, but ignore tax and fees.

$$TR_{Leveraged,t} = \frac{(NAV_t - NAV_{(t-1)} - CEXP_t + CREC_t - RP_t + DD_t) + (NI_t - I_t)}{(NAV_{(t-1)} + CEXP_t - DD_t)} \times 100$$

RELATIVE RETURN

MSCI Global Methodology Standards for Real Estate Investment for calculating relative returns is by taking the ratio of the fund return to the benchmark return. In this report, the relative return is the arithmetic difference between the fund performance and the chosen benchmark performance.

$$RR_t = TR_{fund,t} - TR_{benchmark,t}$$

RR_t = Relative return

$TR_{fund,t}$ = Total return of fund (NAV)

$TR_{benchmark,t}$ = Total return of benchmark (NAV)

COMPOUNDED PERFORMANCE MEASURES

All MSCI measures are calculated on monthly basis. In order to produce measures on a higher time denomination, the concept of compounding is applied.

Compounding is performed as following (taking the annualised total return measure as an example):

$$100 \times \left[\prod_{i=0}^{11} \left(1 + \frac{TR_{t+i}}{100}\right) - 1 \right] = 100 \times \left[\left(1 + \frac{TR_t}{100}\right) \times \left(1 + \frac{TR_{t-1}}{100}\right) \times \dots \times \left(1 + \frac{TR_{t-11}}{100}\right) - 1 \right]$$

TR_t = Total return

ATTRIBUTION ANALYSIS: STRUCTURE SCORE

Structure Score provides information on whether, compared with a peer group, an individual portfolio is best allocated to take advantage of market conditions.

MSCI Global Methodology Standards for Real Estate Investment for relative return is the geometric method which stands in contrast to the arithmetic approach used in this formula.

Structure Score is the proportion of the relative return attributable to the weightings of the portfolio relative to the benchmark in each of the segments used in the analysis.

$$\left[Weighting_{Fund,t} - Weighting_{Market,t} \right] \times \left[TR_{Market\_Segment,t} - TR_{Market,t} \right]$$

$Weighting_{Fund,t}$ = Weighting of the fund by Capital Employed

$Weighting_{Market,t}$ = Weighting of the market by Capital Employed

$TR_{Market\_Segment,t}$ = Market Total Return per segment in period t

$TR_{Market,t}$ = Market Total Return in period t

ATTRIBUTION ANALYSIS: PROPERTY SCORE

Property scores indicate how well individual assets are performing when compared with their peers.

MSCI Global Methodology Standards for Real Estate Investment for relative return is the geometric method which stands in contrast to the arithmetic approach used in this formula.

Property score is the proportion of the relative return attributable to the performance of the fund's properties relative to the benchmark in each segment.

$$Weighting_{Fund,t} \times \left[TR_{Fund\_Segment,t} - TR_{Market\_Segment,t} \right]$$

$Weighting_{Fund,t}$ = Weighting of the fund by Capital Employed

$TR_{Fund\_Segment,t}$ = Fund Total Return per segment in period t

$TR_{Market\_Segment,t}$ = Market Total Return per segment in period t

ATTRIBUTION ANALYSIS: FOREIGN EXCHANGE (FX) IMPACT

MSCI Global Methodology Standards for Real Estate Investment for relative return is the geometric method which stands in contrast to the arithmetic approach used in this formula.

The FX impact in context with the attribution analysis explains the contribution of the relative out- or under-performance of the fund's FX impact with the benchmark's FX impact. FX impact behaves qualitative as the property score, but is solely focused on FX.

$$\text{Weighting}_{\text{Fund},t} \times (\text{TR}_{\text{FX,Fund},t} - \text{TR}_{\text{no-FX,Fund},t}) - \text{Weighting}_{\text{Market},t} \times (\text{TR}_{\text{FX,Market},t} - \text{TR}_{\text{no-FX,Market},t})$$

$\text{Weighting}_{\text{Fund},t}$ = Weighting of the fund by Capital Employed in period t	$\text{TR}_{\text{no-FX,Fund},t}$ = Fund Total Return in period t, without currency impact
$\text{Weighting}_{\text{Market},t}$ = Weighting of the market by Capital Employed in period t	$\text{TR}_{\text{FX,Market},t}$ = Market Total Return in period t, with currency impact
$\text{TR}_{\text{FX,Fund},t}$ = Fund Total Return in period t, with currency impact	$\text{TR}_{\text{no-FX,Fund},t}$ = Market Total Return in period t, without currency impact

CURRENCY EXCHANGE RATES

All foreign currencies are converted to the reporting currency at the WM/Reuters end-month closing spot rates.

COMPONENTS OF NET FUND RETURN

MSCI calculates real estate investment performance at the asset and fund level. The components of Net Fund Return analysis attempts to bridge the gap between the underlying unleveraged property returns to the Net of Fee fund level return by analysing the impact of separate fund level structures highlighted below.

LEVERAGE: The impact of debt associated with the fund, the pure leverage element accounts for the nominal effect of leverage.

FAIR VALUE CHANGE DEBT: The impact of the profit and loss associated with Marked to Market debt compared to the book value.

CASH: Layering cash immediately after leverage impacts allows the undistorted analysis of the net debt position.

TAX AND OTHER EXPENSES: Impact of Tax exhibited on the fund, although most funds are tax exempt if present they will reduce returns.

MANAGEMENT FEES: Fund management fees are then deducted as this allows the calculation of a net fund return, which an average investor will receive once the manager has been remunerated for managing the fund.

METHODOLOGY: The effect of different calculation methods between MSCI and NBIM as MSCI employs a monthly based calculation and NBIM calculates on a daily basis.

CAPITAL DIFFERENCE: The impact of returns due to the differences in MSCI and NBIM capital employed.

ABOUT MSCI

For more than 40 years, MSCI's research-based indexes and analytics have helped the world's leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset class coverage and innovative research. Our line of products and services includes indexes, analytical models, data, real estate benchmarks and ESG research. MSCI serves 99 of the top 100 largest money managers, according to the most recent P&I ranking. For more information, visit us at **www.msci.com**.

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