

NORWEGIAN GOVERNMENT PENSION FUND GLOBAL

REAL ESTATE PORTFOLIO REPORT, 2014



November 2015

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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 ("GPF") real estate portfolio.

In the report, MSCI verifies Norges Bank's calculations of total return for the real estate portfolio at 27.5% measured in NOK. This Net Asset Value (NAV) return is based upon fund subsidiaries and structures used for holding real estate assets, and for the first time 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 returns which is then subsequently built up via adding elements of fund structures to a fund level return ("Bottom-up approach"). As explained in the report, this may lead to different return figures between the bottom up MSCI approach and the Norges Bank methodology. The reasons behind them 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 the 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 building the real estate portfolio, become less significant once the portfolio has moved beyond its construction phase.

MSCI's methodology gives a total return of 27.0% and 26.4% measured in NOK, for the real estate portfolio and the benchmark respectively. All returns are based on data held throughout the year ending December 2014 except where stated differently. In local currency, the portfolio shows a stronger outperformance relative to the benchmark of 190 basis points reaching a total return of 11.8% - mainly due to outperforming investments within the booming UK market. Overall, there is a strong FX impact mainly driven by investments in the US and UK due to the devaluation of NOK.

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

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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,
- The calculation of the direct property performance of the Government Pension Fund Global ('GPF') Property Portfolio (the 'Portfolio') relating to the return objective (benchmark) as described in the 'real estate benchmarking' chapter.

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 GPF balance sheet and income statement have been subject to external audit.

COMPONENTS OF NET FUND RETURN

Within the components of Net Fund Return analysis, we begin to link the unleveraged direct property-level performance to the overall fund-level performance via different fund structures. Elements of fund structure includes impact of leverage, cash, tax and management fees. An additional part of performance is the contribution from public real estate Norges Bank invested in during fourth quarter 2014. Public real estate returns is reflecting return on shares and for Q4 2014 only. Furthermore, the return is not included in the property level analytics and therefore not 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 has 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 due to the difference in MSCI and Norges Bank capital employed. The resolution of daily to monthly relates to the calculation methodology of Time Weighted Returns as Norges Bank calculates a performance at month end as well as capital transfers 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	GPIFG 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 & 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, and capital transfer events.	Time Weighted Returns (TWR) calculated at month end.

QUALITY ASSURANCE CALCULATIONS

The publication of the GPFG annual report makes the investment return performance across all asset classes publically available, 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 2014, the GPFG annual report states these total returns as 27.5% and 10.4% calculated in NOK and the funds 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, and so the verification of these components has been central to the quality assurance function. The review of the NAV component was conducted in the context of its composition; this 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 the acquisitions 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 a 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 has been calculated consistently and in accordance with the methodology required by the Norwegian Ministry of Finance.

PERFORMANCE CALCULATION (YEAR TO DEC-14)	NORGES BANK	MSCI	DIFFERENCE
Net Asset Value* as at Dec-14 (NOK), millions	140,868	140,868	0.00
Net transfers into the portfolio (NOK), millions	65,250	65,250	0.00
Annual Return (NOK)	27.5%	27.5%	0.00
Annual Return (CCY)	10.4%	10.4%	0.00

Source: MSCI, Norges Bank

* Top-down NAV figure may differ with the NAV used in the bottom-up approach. This is down to the difference 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 building up a real estate portfolio. In addition, real estate benchmarks are likely to comprise of mostly held investments, and thus a smaller proportion having been subject to transaction or development than a portfolio under construction.

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

At this stage of portfolio construction there are likely to be notable differences between the portfolio and benchmark due to asset-specific factors. For this combination of reasons, 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 the Global real estate in 2014.

REAL ESTATE MARKET REVIEW 2014

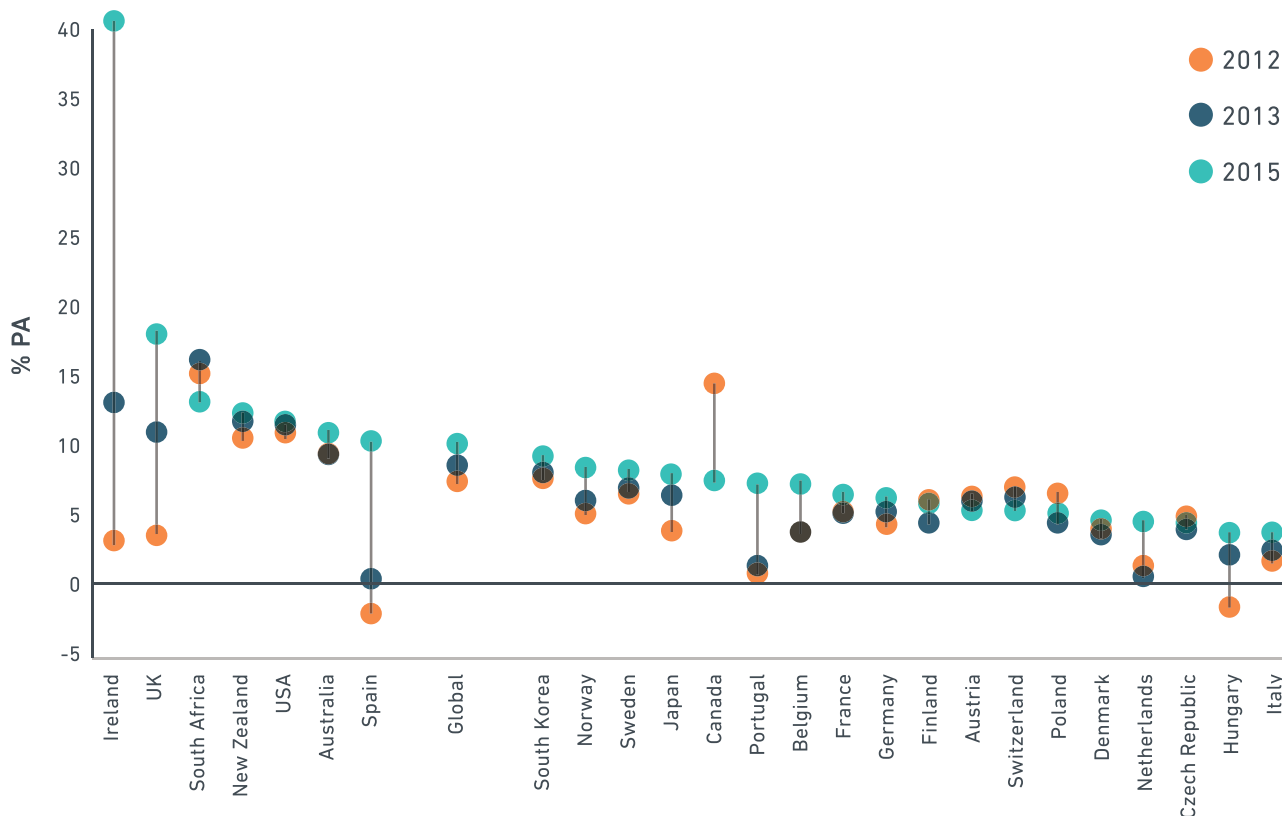
Global property delivered a total return of 9.9% in 2014, the fifth consecutive year of strong returns since the financial crisis, and the best performance since 2007. Momentum is improving in 20 of the 25 countries covered by the *IPD* Global Property Index, with some quite dramatic improvements, particularly in the top performing market, Ireland which returned 40% for the year, the highest ever recorded in any *IPD* national index. The UK was the second best performing market in 2014 with a 17% annual return as international investors, particularly focused on London, drove demand for assets in this highly liquid market.

Two other markets which experienced marked rebounds in 2014 were Portugal and Spain. Reforms to Iberian economic policies were implemented less swiftly than in Ireland, but the austerity measures put in place began translating into positive effects in the real estate market in 2014.

A 10% return for Spain is just above the global average and represents a sharp turn-around from the 0.3% of 2013. Many other European countries are improving but at a slower pace. The worst performers of 2014 include Italy and the Netherlands, both large Eurozone economies; the three Central and Eastern European (CEE) markets of Poland, Hungary, and the Czech Republic; and the Nordic market of Denmark. The depressed European economy continues to weigh on these real estate markets.

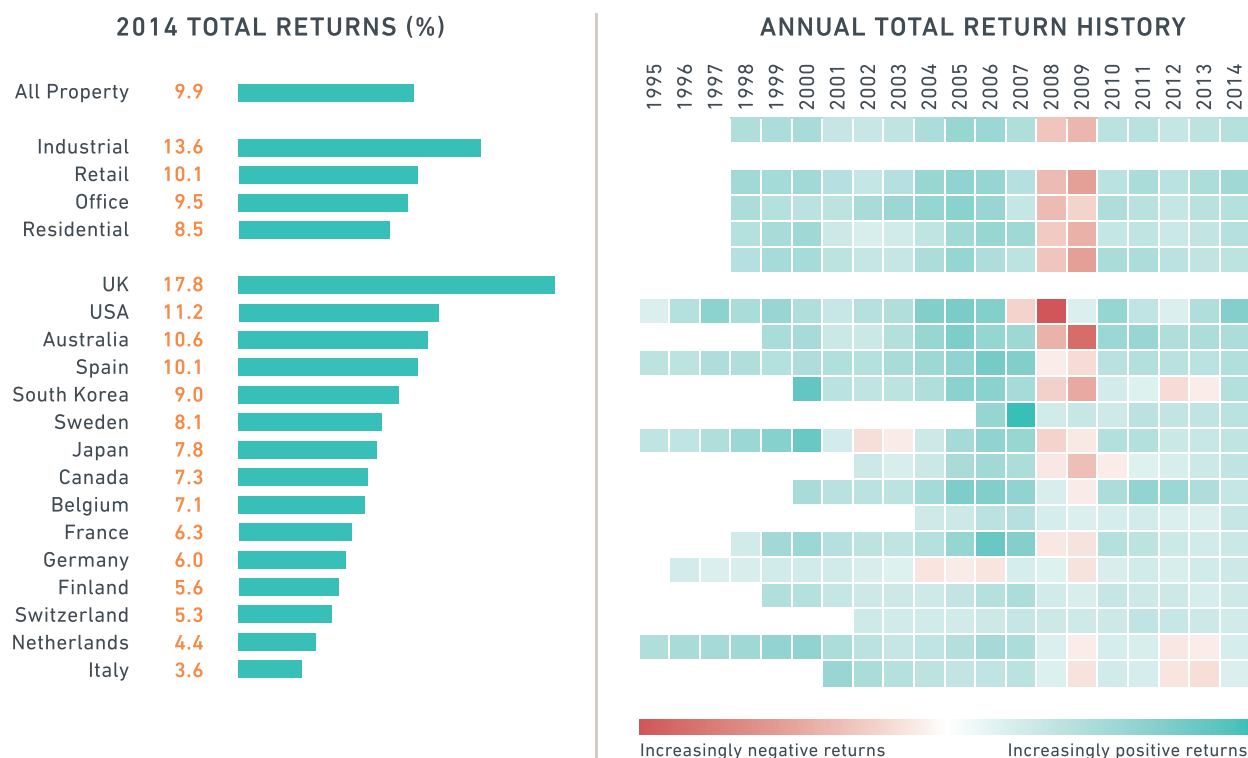
The US continued its strong performance, with a return of 11.2% in 2014, contributing to the annualized 12.4% over the past five years. Canada, in contrast, was the only major real estate market that experienced a slowing of performance during the year. Whilst returns were still solid at 7.3% in 2014 and included some capital growth, performance was significantly lower than 2013, which in turn was a slowdown on 2012.

FIGURE 1
Performance momentum, 2012-2014
 All property annual total return in local currency



Source: MSCI; KTI

FIGURE 2
Global property performance



Note: Annual returns (shaded cells on the right-hand side column) reflect range between peaks & lows.

Source: MSCI; KTI

Beyond these national variations, there were also significant differences in property sector performance. Industrial was a strong outperformer in 2014, driven by a relatively high income return and significant value growth. This sector was the best performing in 13 of the 25 countries, including the two largest markets (the US and the UK) and in CEE markets of Poland, Czech Republic, and Hungary where it strongly outperformed. Conversely, the office sector tended to be an underperformer, although in the two best performing markets of Ireland and the UK, it boosted returns. Retail underperformed within the UK and Ireland, but in most others it posted performance close to or slightly above national averages.

Over the longer term, office has tended to deliver the weaker performance, underscored by oversupply and relatively high rates of obsolescence. While the residential sector performed relatively well during the early years of the recovery, in 2010/11, it slipped to being the weakest performing sector globally, largely due to the low income returns and earlier periods of yield compression.

City-specific variations in performance were also significant, even within national markets. In the US in 2014, nearly 1100 bp separated the best performing city, San Francisco, from the worst, Washington DC. In the UK, 760 bp separated London and Edinburgh, and the spread between the best and worst performing Australian and Canadian cities was 500 bp.

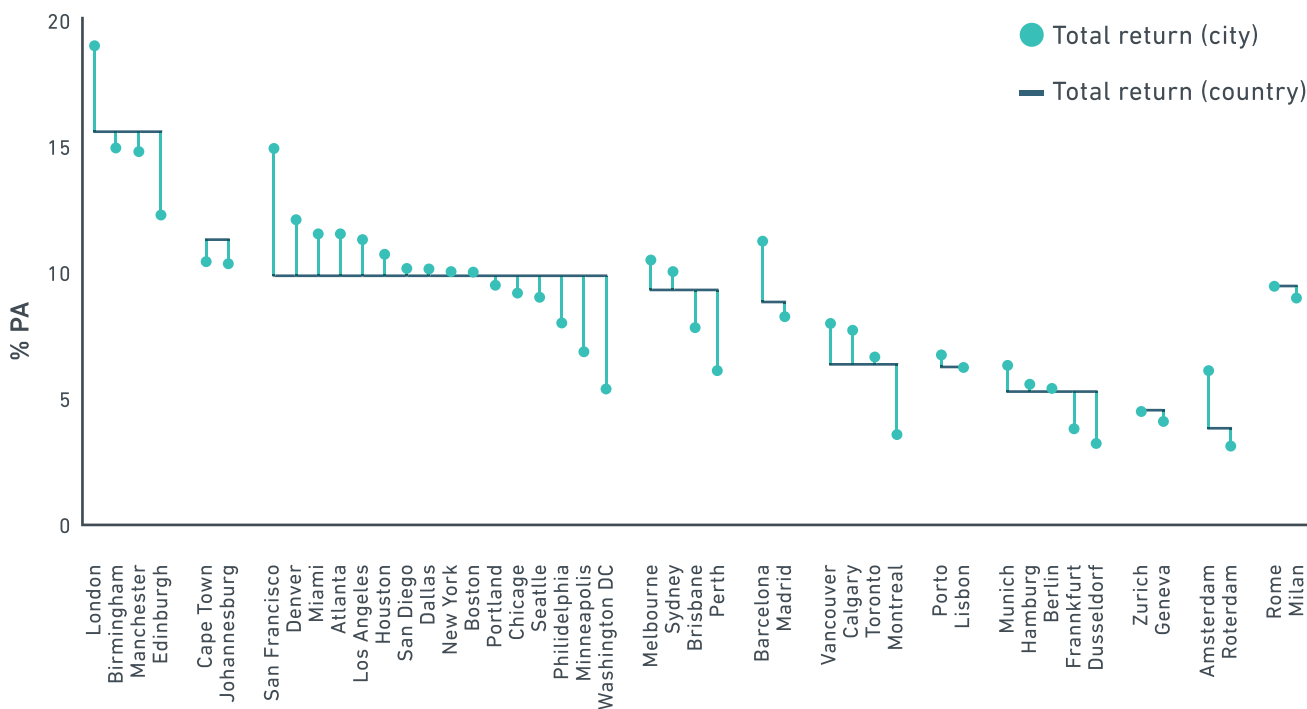
Even for the relatively stable German and Dutch markets, there were important subnational variations with Munich and Amsterdam strongly outperforming other cities in their respective countries.

These variations are just a snapshot of recent performance with cities tending to move through their cycles based largely on local market fundamentals.

Beyond these variations in performance by country, property type and city, a major theme for 2014 was, as for the previous year, the continued compression of real estate income yields, driven by the strong investor appetite for the asset class.

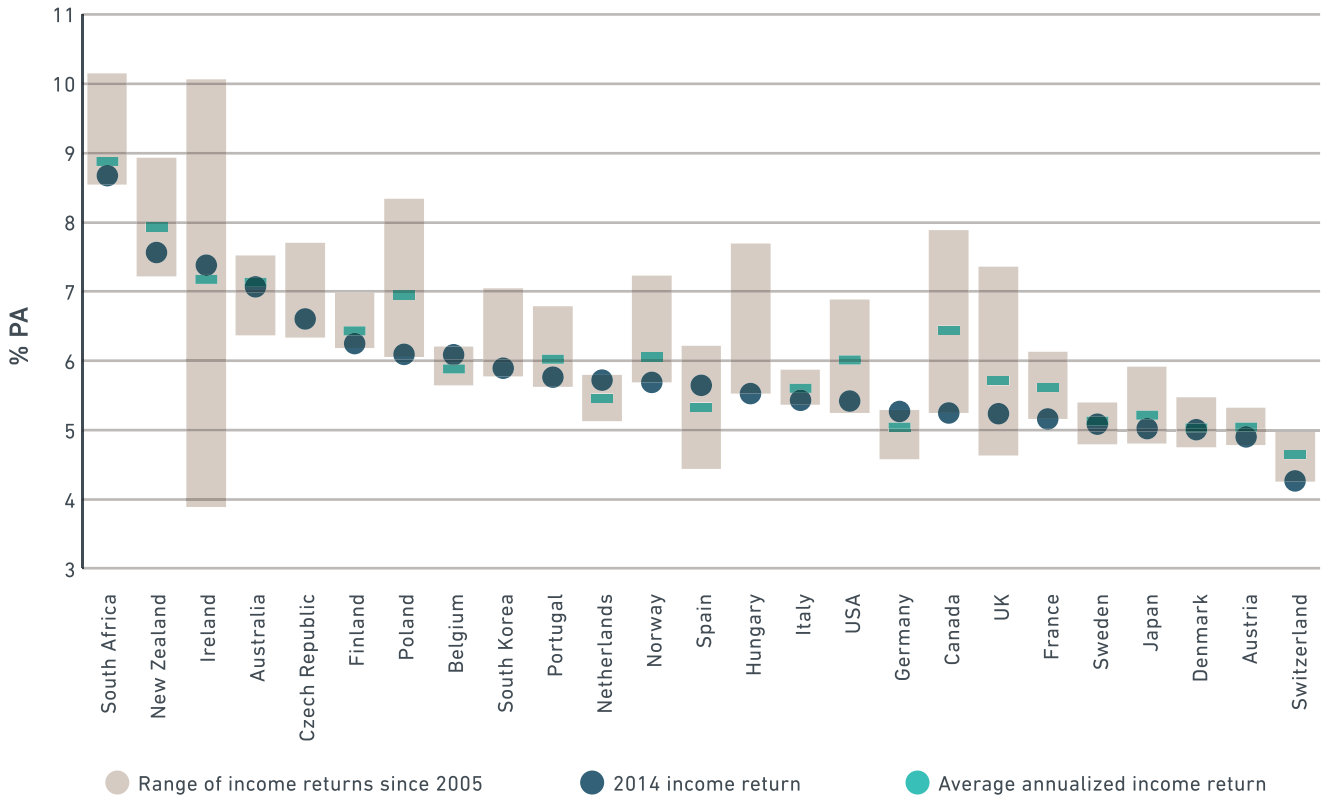
Although the spreads between government long dated bond yields and real estate income returns remained relatively wide, income returns are now at or very close to historic lows for 18 of the 25 markets. To be sure, there are some notable exceptions, including Spain, Ireland, Germany, and the UK, but in most markets, income yields are very low.

FIGURE 3
Performance of cities within countries, 2014
 All property annual returns



Source: MSCI; KTI

FIGURE 4
Range of income returns over 10 years, 2004-2014
 All property annual income return by country



Note: Annual income returns available from 2005 forward for all countries except South Korea, Czech Republic, and Hungary which are 2006 forward
 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, 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 with this methodology is the analytical capabilities it presents.

The difference in the timing of the investments needs 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 building up a real estate portfolio it is likely that there will be notable differences between the portfolio and benchmark performance due to the high concentration and property risks. These asset specific factors become less significant once the portfolio becomes more mature.

The overall portfolio and benchmark return were 27.0% and 26.4% respectively on a NOK basis and 11.8% and 9.9% on a local currency basis. This gives us a FX impact of 15.2% for the portfolio and 16.5% for the benchmark with a relative difference of -1.2%.

The underperformance in FX impact arises from the fact that the portfolio is less invested in the US which achieved strong currency returns in 2014 especially compared to continental Europe investments.

Looking at the direct-level local currency returns of 11.8% and 9.9% for the portfolio and benchmark respectively represents a relative return of 1.9%. This outperformance was driven by stronger capital growth of 6.9% for the portfolio compared to the 4.6% seen in the benchmark. In contrast, the income return for the portfolio was significantly lower (4.7%) than for the benchmark (5.2%).

Within the attribution analysis the portfolio has a structure and property score of 1.1.% and 0.9% respectively.

The structure score explains how a different sector weight in the portfolio compared to that of the benchmark could have a positive or negative impact on the portfolio. In the UK the portfolio had a positive structure score as it was overweight in the retail, office and industrial sectors which outperformed the benchmark. On the other hand the portfolio achieved negative structure scores in continental Europe at which a strong weighting in offices had a negative impact as this sector underperformed the overall benchmark return considerably.

The property score represents how assets within the portfolio performed compared to similar assets in the benchmark. Within this aspect mainly UK retail investments, but also industrial investments in the rest of the world and France outperformed the benchmark notably.

BALANCE SHEET

JANUARY TO DECEMBER 2014

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 Investments (DIP) and Other Investment Assets (OIA).

ALL FIGURES SHOWN IN NOK MILLION	CAPITAL VALUE		NET INVESTMENT	VALUE CHANGE	
	DEC '13	DEC '14		FX IMPACT	LOCAL CURRENCY VALUE CHANGE
Gross asset value (GAV)	58550.3	152067.5	70161.7	12983.1	23355.4
Direct property investments (DIP)	57199.5	118486.1	42358.6	12983.1	5944.8
France	11950.9	17191.8	3803.4	1313.3	124.2
Retail	1150.3	1269.8	0.6	98.2	20.8
Office	8460.9	9182.1	59.0	726.8	-64.5
Industrial	2339.8	2817.0	55.8	205.4	216.1
Residential	-	-	-	-	-
Other	-	3922.8	3688.0	282.9	-48.1
US	10120.3	42220.9	24812.9	5748.9	1538.8
Retail	-	-	-	-	-
Office	10120.3	36417.0	20029.2	5058.7	1208.7
Industrial	-	3817.3	2911.0	558.7	347.6
Residential	-	-	-	-	-
Other	-	1986.6	1872.6	131.5	-17.5
UK	18216.8	37051.7	10903.7	4117.5	3813.7
Retail	12377.9	15822.2	193.5	2046.8	1204.0
Office	2564.2	15978.1	10092.4	1462.0	1859.6
Industrial	3184.5	4905.5	591.0	591.6	538.4
Residential	45.0	218.3	19.1	8.9	145.4
Other	45.2	127.5	7.7	8.2	66.4
Switzerland & Germany	11624.3	14214.7	1442.3	1240.3	-92.2
Retail	-	-	-	-	-
Office	11155.5	13646.9	1439.7	1200.1	-148.3
Industrial	468.8	567.7	2.6	40.2	56.1
Residential	-	-	-	-	-
Other	-	-	-	-	-
Rest of the World	5287.2	7807.0	1396.4	563.2	560.2
Retail	-	-	-	-	-
Office	-	-	-	-	-
Industrial	5287.2	7772.3	1364.3	559.5	561.3
Residential	-	-	-	-	-
Other	-	34.7	32.1	3.7	-1.1
Other Investment assets	613.5	33363.8	27283.3	0.0	5467.0
Total liabilities	-6077.3	-11352.8	5132.1	-	-
Cash	737.4	217.6	519.8	-	-
Debt	-6307.1	-10919.4	4612.4	-	-
Other Financial Liabilities	-507.6	-650.9	143.4	-	-
Net asset value (NAV)	51735.7	140497.1	74774.0	12983.1	28822.5

Note: There's a slight change of GAVs, NAVs and Direct Property Investments between the 2013 to 2014 reports.

COMPONENTS OF NET FUND RETURN

JANUARY TO DECEMBER 2014

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 Recognition Policy.

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 (%)	27.0	26.4	↑ 0.6
Contribution from Fund Structure			
Leverage	↑ 1.6	↑ 1.2	
Fair Value Change Debt	↑ -0.5	→ 0.0	
Cash	↓ -0.2	→ 0.0	
Tax	↓ -0.7	→ 0.0	
Fees	↓ -0.1	↓ -0.1	
Other Expenses	↓ -0.5	→ 0.0	
Other Financial Assets and Liabilities	↓ 0.0	→ 0.0	
Methodology	↓ -0.7	→ 0.0	
Capital Recognition Policy	↑ 0.6	→ 0.0	
Residual	↑ 0.1	→ 0.0	
Total	↓ -0.4	↑ 1.1	
Private Real Estate Return including Contribution from Real Estate Fund Structure (%)	26.6	27.6	↓ -1.1
Public Real Estate Return (%)**	14.7	-	

NET FUND RETURN (TOP-DOWN APPROACH) (%)	GLOBAL - PORTFOLIO	IPD® GLOBAL - BENCHMARK*	DIFFERENCE
Portfolio NAV Return	27.5	27.6	↓ 0.1

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.

Portfolio impact analysis

Last 12 months (%)



Time series

Annual returns (%)

	TOP-DOWN IN NOK		BOTTOM-UP IN NOK		BOTTOM-UP IN LOCAL CURRENCY	
	2013	2014	2013	2014	2013	2014
Portfolio	20.6	27.5	19.2	27.0	7.1	11.8
Benchmark	15.9	27.6	15.4	26.4	8.3	9.9
Relative	4.7	-0.1	3.8	0.6	-1.1	1.9

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

** Public Real Estate Return reflects only, and contributes to, 3 months (Q4 2014) performance. However, this report focus on annual performance for 2014, so the Q4 contribution is considered and captured prior to annual aggregation. Furthermore, the total return of 14.7% reflects the return on shares and is not included in the property level analytics (disaggregation into property type and geography). At year-end 2014 GPFG real estate portfolio held NOKm 33231 in public real estate, which reflected 23.6% of the net asset value.

CURRENCY IMPACT

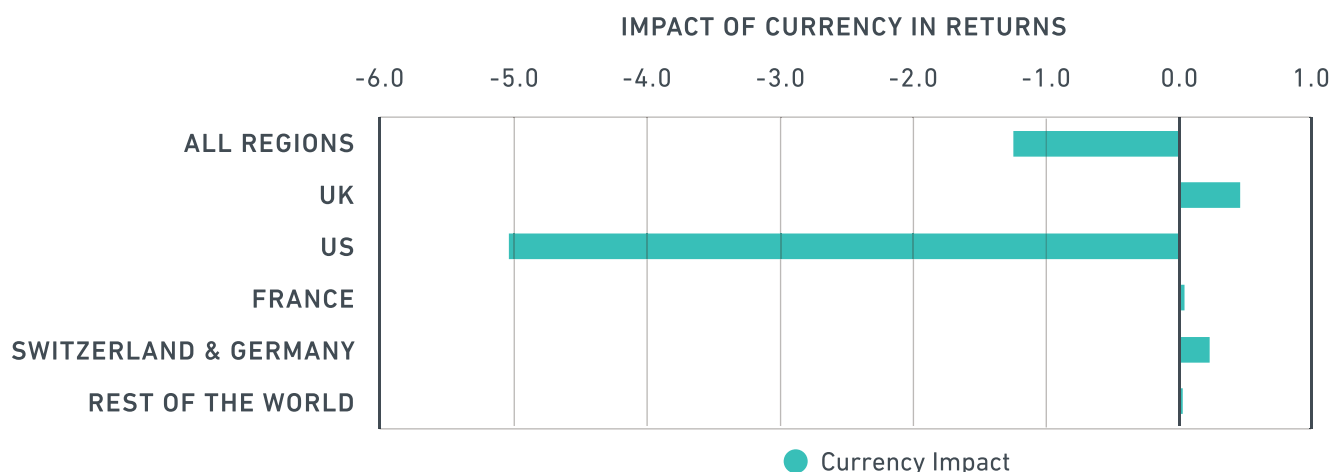
JANUARY TO DECEMBER 2014

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	27.0	26.4	0.6	11.8	9.9	1.9	15.2	16.5	-1.2
France	15.1	15.0	0.1	6.1	6.1	0.0	9.0	8.9	0.0
Retail	15.4	17.3	-1.8	6.4	8.1	-1.7	9.1	9.1	-0.1
Office	13.2	14.9	-1.7	4.3	6.0	-1.7	8.9	8.9	0.0
Industrial	26.5	16.1	10.5	16.6	7.1	9.5	10.0	9.0	1.0
Residential	-	12.3	-	-	3.6	-	-	8.8	-
Other	-	12.4	-	-	3.8	-	-	8.6	-
US	31.0	37.3	-6.3	10.3	11.6	-1.3	20.7	25.7	-5.0
Retail	-	37.9	-	-	11.9	-	-	26.0	-
Office	30.7	37.7	-7.0	9.6	12.1	-2.5	21.1	25.6	-4.5
Industrial	38.8	39.4	-0.6	16.5	13.1	3.4	22.3	26.3	-3.9
Residential	-	36.0	-	-	10.4	-	-	25.6	-
Other	-	29.9	-	-	5.6	-	-	24.3	-
UK	40.5	36.7	3.7	21.0	17.7	3.3	19.5	19.0	0.5
Retail	41.7	33.0	8.7	21.8	14.4	7.4	19.9	18.6	1.3
Office	39.8	42.4	-2.6	19.8	22.6	-2.9	20.1	19.8	0.3
Industrial	40.7	42.6	-1.9	21.3	22.9	-1.6	19.4	19.7	-0.3
Residential	30.6	31.5	-0.9	12.5	13.2	-0.7	18.1	18.3	-0.2
Other	32.1	31.7	0.4	13.7	13.6	0.1	18.4	18.1	0.3
Switzerland & Germany	13.2	15.2	-2.0	3.4	5.6	-2.2	9.8	9.6	0.2
Retail	-	16.0	-	-	6.5	-	-	9.5	-
Office	12.7	13.3	-0.6	2.9	4.1	-1.2	9.8	9.2	0.6
Industrial	28.6	19.2	9.3	18.5	9.8	8.7	10.1	9.5	0.6
Residential	-	17.2	-	-	6.7	-	-	10.5	-
Other	-	14.5	-	-	5.0	-	-	9.4	-
Rest of the World	25.9	17.6	8.3	15.9	7.6	8.3	10.0	10.0	0.0
Retail	-	18.6	-	-	7.7	-	-	10.9	-
Office	-	16.9	-	-	7.2	-	-	9.7	-
Industrial	26.0	19.6	6.3	16.0	9.0	7.0	10.0	10.7	-0.7
Residential	-	16.3	-	-	7.6	-	-	8.7	-
Other	-	18.1	-	-	8.6	-	-	9.5	-

Relative impact of currency on returns



ATTRIBUTION ANALYSIS

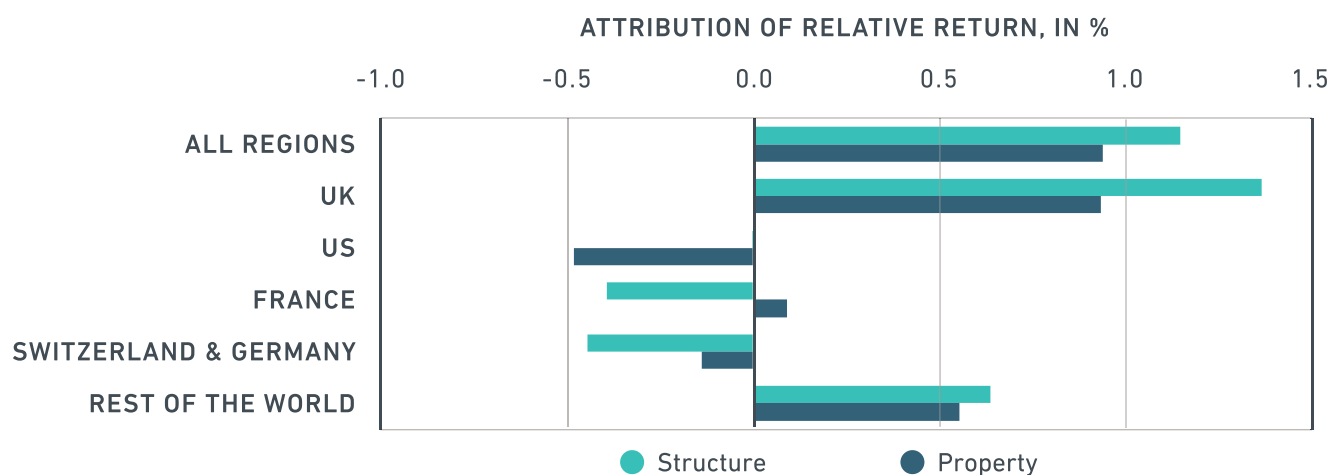
JANUARY TO DECEMBER 2014

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	11.8	9.9	1.9	0.9	1.1	100.0	100.0	0.0
France	6.1	6.1	0.0	0.1	-0.4	17.2	5.9	11.3
Retail	6.4	8.1	-1.7	0.0	0.0	1.4	1.3	0.2
Office	4.3	6.0	-1.7	-0.2	-0.3	10.5	3.3	7.2
Industrial	16.6	7.1	9.5	0.3	-0.1	3.0	0.4	2.7
Residential	-	3.6	-	-	0.0	0.0	0.8	-0.8
Other	-	3.8	-	-	-0.1	2.2	0.2	2.1
US	10.3	11.6	-1.3	-0.5	0.0	29.5	40.4	-10.9
Retail	-	11.9	-	-	-0.1	0.0	7.5	-7.5
Office	9.6	12.1	-2.5	-0.6	0.2	25.1	15.2	9.9
Industrial	16.5	13.1	3.4	0.1	-0.1	4.0	6.7	-2.6
Residential	-	10.4	-	-	0.0	0.0	9.4	-9.4
Other	-	5.6	-	-	0.0	0.4	1.6	-1.3
UK	21.0	17.7	3.3	0.9	1.4	29.1	10.4	18.6
Retail	21.8	14.4	7.4	1.2	0.5	16.6	4.7	11.9
Office	19.8	22.6	-2.9	-0.2	0.6	7.7	2.8	5.0
Industrial	21.3	22.9	-1.6	-0.1	0.3	4.6	1.6	2.9
Residential	12.5	13.2	-0.7	0.0	0.0	0.1	0.5	-0.4
Other	13.7	13.6	0.1	0.0	0.0	0.1	0.8	-0.7
Switzerland & Germany	3.4	5.6	-2.2	-0.1	-0.4	16.3	9.9	6.5
Retail	-	6.5	-	-	0.1	0.0	2.6	-2.6
Office	2.9	4.1	-1.2	-0.2	-0.6	15.7	4.1	11.6
Industrial	18.5	9.8	8.7	0.1	0.0	0.6	0.5	0.1
Residential	-	6.7	-	-	0.1	0.0	2.2	-2.2
Other	-	5.0	-	-	0.0	0.0	0.5	-0.5
Rest of the World	15.9	7.6	8.3	0.5	0.6	7.9	33.4	-25.5
Retail	-	7.7	-	-	0.2	0.0	9.6	-9.6
Office	-	7.2	-	-	0.4	0.0	14.5	-14.5
Industrial	16.0	9.0	7.0	0.5	0.0	7.8	2.8	5.0
Residential	-	7.6	-	-	0.1	0.0	4.6	-4.6
Other	-	8.6	-	-	0.0	0.0	1.8	-1.8

Attribution of relative return in %



APPENDIX: TECHNICAL NOTE

All calculations within the report and specified in this section are in line with *IPD* standard methodology if not stated otherwise. Further information on *IPD* applied methodologies can be found in the *IPD* Index and Benchmark Guide available from www.msci.com/real-estate.

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

Tax_t = Tax payments in period t

RP_t = Repayment on NetDebt_t

$Fees_t$ = Fees in period t

DD_t = Drawdown / Increase in NetDebt_t

IMPACT OF DEBT

IPD uses the ratio method to calculate impact of debt. However, in this report, the impact of debt (IDt) 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

IPD standard methodology 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 = Relative return

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

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

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

COMPOUNDED PERFORMANCE MEASURES

All *IPD* 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.

IPD standard methodology 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.

$$\left[\text{Weighting}_{\text{Fund},t} - \text{Weighting}_{\text{Market},t} \right] \times \left[\text{TR}_{\text{Market_Segment},t} - \text{TR}_{\text{Market},t} \right]$$

$\text{Weighting}_{\text{Fund},t}$ = Weighting of the fund by Capital Employed

$\text{TR}_{\text{Market_Segment},t}$ = Market Total Return per segment in period t

$\text{Weighting}_{\text{Market},t}$ = Weighting of the market by Capital Employed

$\text{TR}_{\text{Market},t}$ = Market Total Return in period t

ATTRIBUTION ANALYSIS: PROPERTY SCORE

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

IPD standard methodology 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.

$$\text{Weighting}_{\text{Fund},t} \times \left[\text{TR}_{\text{Fund_Segment},t} - \text{TR}_{\text{Market_Segment},t} \right]$$

$\text{Weighting}_{\text{Fund},t}$ = Weighting of the fund by Capital Employed

$\text{TR}_{\text{Fund_Segment},t}$ = Fund Total Return per segment in period t

$\text{TR}_{\text{Market_Segment},t}$ = Market Total Return per segment in period t

ATTRIBUTION ANALYSIS: FOREIGN EXCHANGE (FX) IMPACT

IPD standard methodology 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

$\text{Weighting}_{\text{Market},t}$ = Weighting of the market by Capital Employed in period t

$\text{TR}_{\text{FX,Fund},t}$ = Fund Total Return in period t, with currency impact

$\text{TR}_{\text{no-FX,Fund},t}$ = Fund Total Return in period t, without currency impact

$\text{TR}_{\text{FX,Market},t}$ = Market Total Return in period t, with currency impact

$\text{TR}_{\text{no-FX,Market},t}$ = 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

IPD 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 *IPD* and NBIM as *IPD* employs a monthly based calculation and NBIM calculates on a daily basis.

CAPITAL RECOGNITION POLICY: The impact of returns due to the differences in *IPD* and NBIM capital employed.



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