

A light blue silhouette of a world map serves as a background for the central text.

IPSAS Accounting MRK Performance Measurement and Reporting

Objective of Presentation



- The objective of this presentation is to provide clarity on the differences between terminology used for investment accounting and investment performance reporting purposes.
- In certain cases, the same terminology may be used for both purposes, but these terms may have different meanings depending upon the report.
- It is important to identify both the term used and the reporting purpose to which the term applies.
- Otherwise, there is a risk that terminology could be taken out of context, and this can affect the conclusions and/or findings of the observer.

“Income” can be defined in several ways



➤ Financial Statements:

- ❖ Investment Income
- ❖ Other Investment Income is a component of Investment Income
- ❖ Changes in Investment Income are monitored by the external auditors

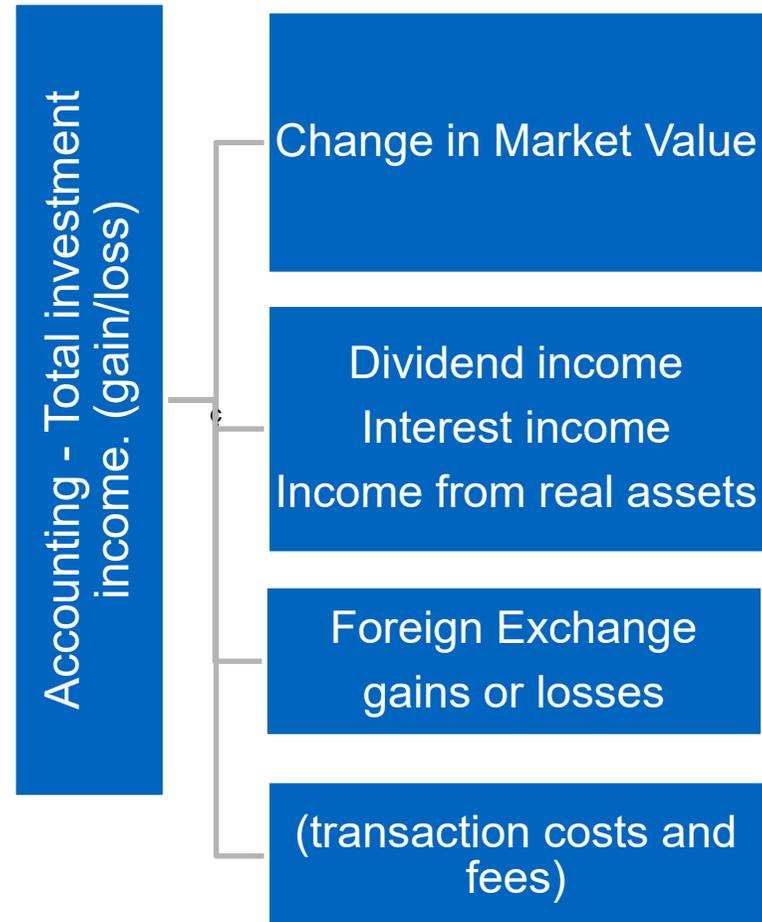
➤ Investment Performance:

- ❖ Income is a component of Total Return
 - Total Return and Investment Income have similar components
 - The methodology used to calculate Investment Income is different from the methodology used to calculate Total Return

➤ Long-term Solvency or Sustainability:

- ❖ Investment Return (Total Return) is the most important factor
 - Income is a component of Total Return
- ❖ Net Cash Flow or Contributions less Benefit Payments and Expenses

Components of Investment Income



Definition of Investment Income



- Under IPSAS, the Fund recognizes all Investments at Fair Value.
- Because of the fair value designation, all investments of the Fund are re-measured at each reporting date as if they were to be sold on that date (even if the investments are kept in the Fund).
- All investments of the Fund are designated at fair value through surplus and deficit.
- Consequently, the Fund's investments are carried and reported at fair value on the Statement of Net Assets Available for Benefits.
- Changes in fair value are recognized in the Statement of Changes in Net Assets Available for Benefits. These changes, along with income generated from dividends and interest, are defined as Investment Income.

Definition of Fair Value under IPSAS



- Fair Value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.
- Fair value includes changes in market price and changes in foreign exchange (FX) for investments, which are denominated in a currency other than the Fund's Reporting currency (USD).
- Fair value includes recognition of both the realized and the unrealized components of market prices of investments as well as the FX gains and losses related to these holdings.

Investment Income under IPSAS



- The Fund's Financial Statements report the change in the market price of Investments separately from changes (gains and losses) in Foreign Exchange. Both are components of Investment Income.
- The change in fair value includes the changes in market price and the changes in the exchange rate used to translate the non-USD investment into USD. These changes are presented separately even though they may be related to the same transaction(s).
- The Fund manages its investments from a total return perspective, and the Financial Statements show the underlying components of total return such as changes in market price and changes in Foreign Exchange.

2016 Investment Income



	(USD Million)
Investment Income for the year ended	31 December 2016
Change in market value for assets designated at fair value	
Short-term investments	(4.0)
Equities	2,008.4
Fixed Income	(284.6)
Real assets investments	300.9
Alternative investments	241.4
Total change in market value for financial assets designated at fair value	2,262.1
Interest income	
On cash and cash equivalents	3.3
On fixed income instruments	322.5
Interest income	325.8
Dividend income	821.6
Income from real assets	55.0
Net foreign exchange (losses)	(679.9)
Transaction costs	
Management fees and other related fees	(90.7)
Small capitalization fund management fees	(10.1)
Brokerage commissions	(13.0)
Other transactions cost	(3.7)
Total transaction cost	(117.5)
Net investment income / (loss)	2,667.1

Change in asset market value	2,262.1
Realized Gain	1,143.8
Un-realized Gain	1,118.3

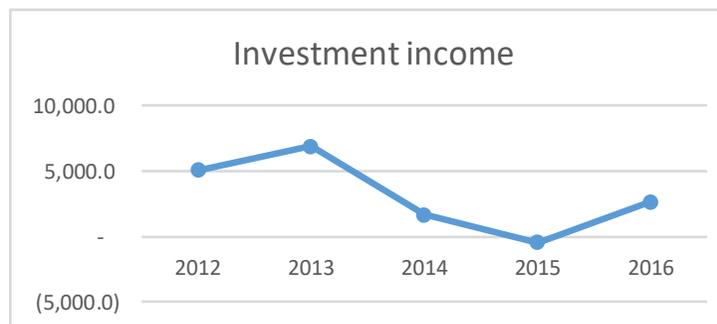
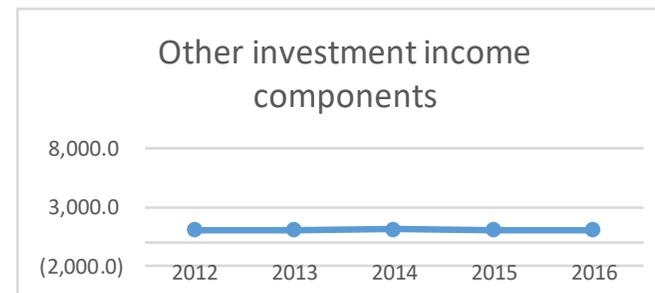
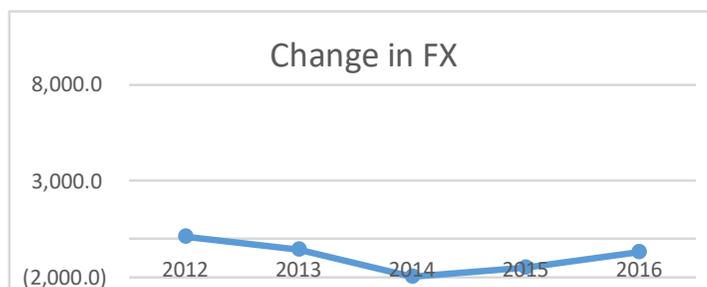
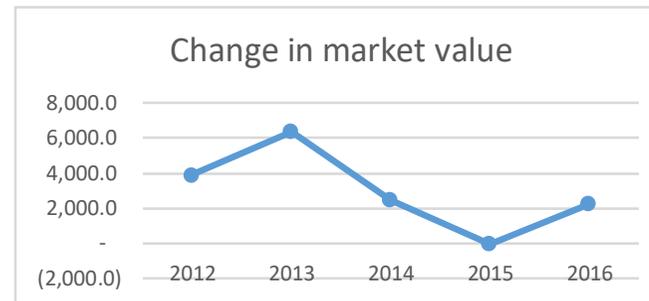
Net foreign exchange (losses)	(679.9)
Unrealized gain (Investment)	96.5
Realized loss	(776.4)

	(USD Million)
Net Assets Available for benefits	31 December 2016
Assets	
Cash and cash equivalents	1 562.5
Investments	52 951.3
Contribution receivables	13.8
Accrued income from investments	139.3
Receivable from investments	15.1
Withholding tax receivable	10.5
Other assets	33.2
Total Assets	54 725.7
Liabilities	
Benefits payable	133.8
Payments from investment traded	8.1
ASHI and other employees benefit liab.	76.7
Other accruals and liabilities	19.0
Total liabilities	237.6
Net assets available for benefits	54 488.1

Investment Income Volatility



	2012	2013	2014	2015	2016
Change in market value	3,898.6	6,387.0	2,488.0	(18.0)	2,262.1
Change in FX	120.4	(558.9)	(1,955.0)	(1,487.4)	(679.9)
Interest income	442.0	398.0	375.1	355.6	325.8
Dividend income	687.0	761.7	845.1	777.9	821.6
Income from real assets	32.2	36.6	30.6	38.3	55.1
Transaction cost	(93.6)	(110.1)	(124.9)	(124.5)	(117.5)
Investment income	5,086.6	6,914.3	1,658.9	(458.1)	2,667.2



Investment Income Interpretation



- Investment Income and its components are identified for accounting purposes
- Recent focus has been on:
 - The changes in Investment Income from one year to the next; and
 - The FX component of Investment Income
- In some years, Investment Income could decline due to a decline in the fair value of the Fund's assets.
 - This is not always a bad thing.
 - If the returns of 2 simultaneous years both exceeded the Fund's return objectives, but the return for the second year is less than the return of the first year, then Investment Income could decline from year one to year two.
- The FX component of Investment Income may include realized or unrealized gains or losses.

The Fund's Reporting Currency (USD)



- The Fund is measured in USD terms for both investment accounting and investment performance purposes.
- The Fund invests a significant portion of its assets in non-US countries. These investments are made in the local currencies, and they are translated into USD for investment accounting and investment performance purposes.
- From 2013 to 2016, the Fund experienced FX losses on its non-US investments, most of which were unrealized, due to the strength of the US dollar (USD).
- The Fund experienced FX gains during the first half of 2017, as the USD weakened against other major currencies.
- Currency markets tend to move in cycles over the long term.
- The impact of currency on the Fund's investment performance and Financial Statement accounting has been a zero sum game over the long term.

2016 - Financial Statement Currency Breakdown



Currency	Sum of Fx Change - Realized	Sum of Fx Change - Unrealized	Sum of Foreign exchange change	% of Total IMD
British pound sterling	(176,070,004)	(285,700,915)	(461,770,919)	68%
Euro	(184,239,303)	10,563,481	(173,675,821)	25%
Mexican peso	(89,381,721)	17,040,050	(72,341,672)	11%
Polish zloty	(59,382,162)	30,795,638	(28,586,524)	4%
Swedish krona	(31,105,222)	2,920,012	(28,185,210)	4%
South Korean won	(15,151,110)	(3,162,552)	(18,313,662)	3%
Swiss franc	(6,363,350)	(6,423,260)	(12,786,610)	2%
Turkish lira	(4,220,945)	(3,928,032)	(8,148,977)	1%
Australian dollar	(76,578,813)	69,008,295	(7,570,518)	1%
Malaysian ringgit	(28,040,771)	21,683,118	(6,357,653)	1%
Indian rupee	(12,829,883)	8,545,893	(4,283,989)	1%
Singapore dollar	(2,497,306)	(710,658)	(3,207,964)	0%
Philippine peso	(2,174,492)	(1,005,333)	(3,179,825)	0%
Danish krone	(912,744)	(1,955,099)	(2,867,843)	0%
Chilean peso	(191,346)	(79,443)	(270,789)	0%
Hong Kong dollar	99,902	(251,961)	(152,059)	0%
Hungarian forint	(199)	-	(199)	0%
United States dollar	-	-	-	0%
Russian Ruble	7,828	-	7,828	0%
New Zealand dollar	(3,565,893)	4,478,142	912,249	0%
Norwegian krone	(41,808,533)	43,507,957	1,699,425	0%
South African rand	1,186,628	6,552,671	7,739,298	-1%
Brazilian real	(4,638,407)	24,956,158	20,317,752	-3%
Canadian dollar	(57,132,975)	88,547,041	31,414,065	-5%
Japanese yen	11,017,929	75,243,454	86,261,383	-13%
Grand Total	(783,972,892)	100,624,657	(683,348,235)	100%
Fund secretariat	7,551,267	(4,084,680)	3,466,587	
UNJSPF Total	(776,421,625)	96,539,977	(679,881,648)	

Investment Income example of the Impact of FX



- A US based investor purchases a single unit of an equity security in the UK valued at £10.00
 - Assuming an exchange rate of £0.5 per US\$1, that equity investment will cost the UK investor US\$20.00
- 30 November 2016 – month end valuation
- Assume over the next eleven months the value of the UK equity investment increases by 5.00% while the USD / £ exchange rate rises to 0.6. The equity investment is now valued at £10.50, equivalent to US\$17.50
- 31 December 2016 - sales
- The equity investment goes up to £10.60. The investor decides to liquidate the security and repatriate the proceeds to USD. Assuming the FX rate remains unchanged. In converting the £10.60 back to USD, the investor will receive US\$17.67.
 - Despite an annualised return of +6.00% on the investment, the total return on the investment incorporating the change in the exchange rate was -11.65%

Investment Income example of the impact of FX



Unrealised Market Gain or Loss

This value represents the portion of the unrealised gain or loss attributable to changes in the price of the security from the time of purchase to the report date. The formula used to determine this is:

$$\frac{\text{Market Value in Local Currency} - \text{Book Cost in Local Currency}}{\text{Current Month End Exchange Rate}} \quad (\text{£}10.50 - \text{£}10.00) / 0.6 = \text{US\$}0.83$$

Unrealised Translation Gain or Loss

This value represents the portion of unrealised gain/loss attributable to changes in the value of the local currency versus the clients base currency from the time of the security purchase to the report date. The formula used to determine this is:

$$\frac{\text{Book Cost in Local Currency}}{\text{Month End Exchange Rate}} - \text{Book Cost in Base Currency} \quad (\text{£}10.00 / 0.6) - 20 = - \text{US\$}3.33$$

Unrealised Gain or Loss Total

The difference between the market value of a security as of the report date and the book cost, expressed in the client's base currency.

$$\text{Unrealised Market Gain or Loss} + \text{Unrealised Translation Gain or Loss} \quad 0.83 + (-)3.33 = - 2.50$$

Investment income example of the impact of FX



Realised Gain/ Loss Market

This portion of total realised gain or loss attributable to fluctuation in the market price of the security, calculated as follows:

$$\frac{\text{Local Currency Proceeds} - \text{Local Currency Book Cost}}{\text{Trade Date} - 1 \text{ Exchange Rate}} \quad (\text{£}10.60 - \text{£}10.00) / 0.6 = \text{US\$}1.00$$

Realised Gain or Loss Translation

This portion of total realised gain or loss attributable to the fluctuation in the local currency of the security versus the base currency, calculated as follows:

$$\frac{\text{Local Currency Book Cost}}{\text{Trade Date} - 1 \text{ Exchange Rate}} - \text{Base Currency Book Cost} \quad (\text{£}10.00 / 0.6) - 20 = - \text{US\$}3.33$$

Realised Gain/ Loss Total

The difference between proceeds and book cost, expressed in base currency. Also equal to the sum of market and translation gain loss. The formula is as follows:

$$\text{Realised Gain or Loss Market} + \text{Realised Gain/Loss Translation} \quad 1.00 + (-)3.33 = - 2.33$$

Investment income example of the impact of FX



30 June 2016 – Dividend income

Dividend income of £2 was received, USD / GBP exchange rate was 0.55, equivalent to US\$3.64

Total investment income for 2016

	USD	GBP
Change in market value	1.00	0.60
Change in foreign exchange gains/losses	-3.33	0
Dividend income	3.64	2
Total investment income	1.31	2.60



Currency from an Investment Performance Reporting Perspective



What is Performance?

- An investment's profit or loss expressed as a percentage of its beginning period market value
- An investment's growth over a given period, expressed as a percentage of its market value
- An expression of a portfolio's profit or loss as a ratio of its market value in percentage terms
- The monetary return experienced by the holder of a portfolio



How to Measure Performance

- Independent Master Record Keeper - Northern Trust uses the US BAI 1968 methodology (Bank Administration Institute)
- Returns should be based on asset values measured on market value - not book cost
- Compliant with the GIPS code of best practice (Global Investment Performance Standards)
- Total Return = capital appreciation/depreciation + FX gain/loss + accrued income
- Returns are Time Weighted (includes every flow on the day of the transaction)

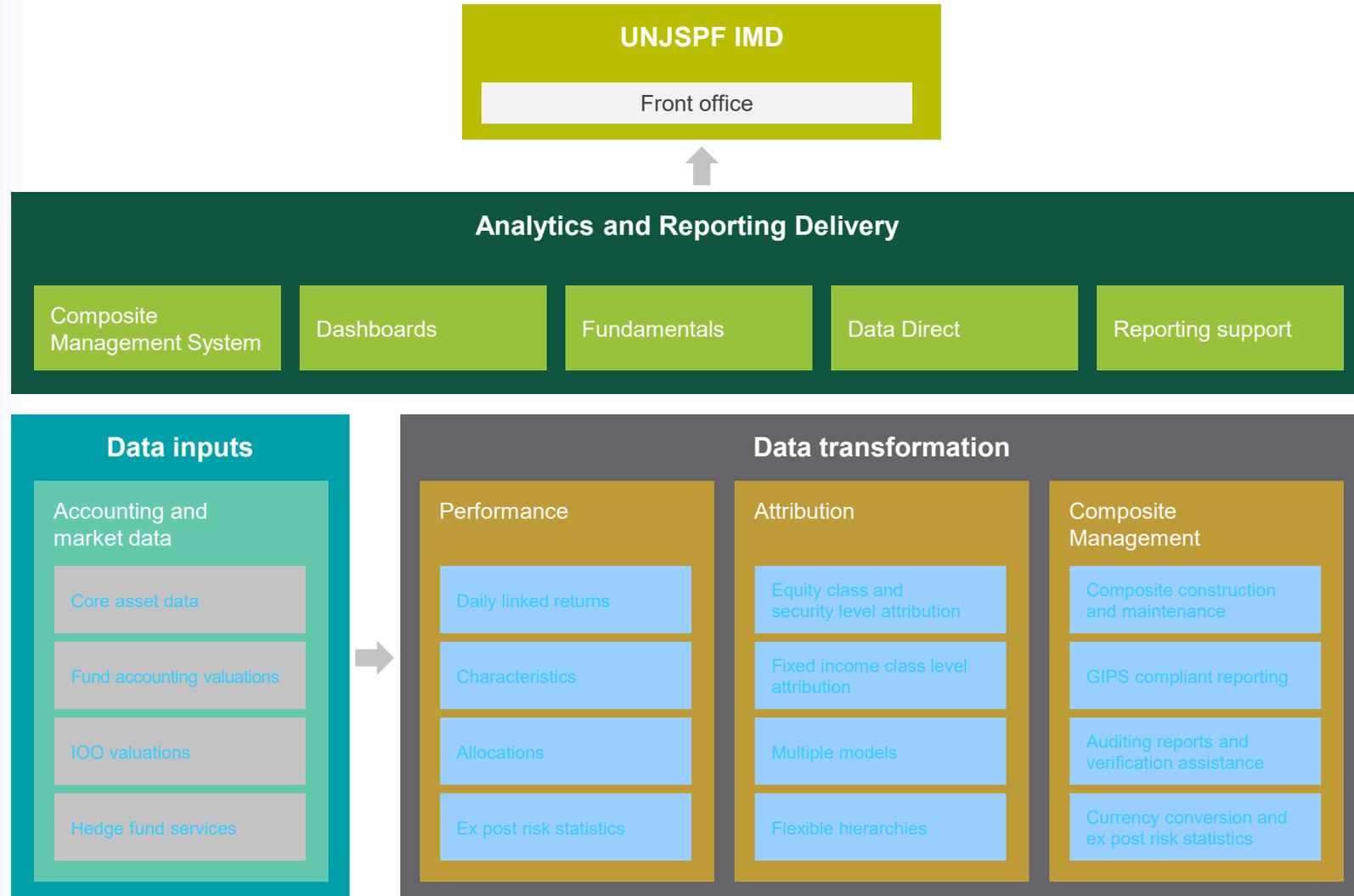


Performance Terminology

- Basis point = 0.01%, 1 bip = 0.01%, 1bp = 0.01%
- ROR = Rate of Return = Performance = Return
- BM = Benchmark = Index per asset class or strategy
- Flow = Contribution or withdrawal from a given portfolio, group, or plan
- Portfolio Return - BM Return = Excess Return or Relative Return



Independent Master Record Keeper – Data Flow



Performance Calculation at the Security Level



Performance of a security in portfolio “United Kingdom”.

A flow only effects the top of the equation (i.e. the Profit or Loss).

Profit or loss = end market value – start market value – flow

Performance = (Profit or Loss) / start market value

= (end market value – start market value – flow) / start market value

Live example 1: Return for MARKS & SPENCER for period 22/3/17 to 23/3/17:

Start Market Value = Market Value at 22/3/17 = \$25,131,510.49

End Market Value = Market Value at 23/3/17 = \$22,393,921.32

Flow on 31/3/17 = -\$3,761,738.05 (A Sale of 900,000 units)

Perf (22/3/17 to 23/3/17) = (end market value – start market value – flow) / start market value

= (\$22,393,921.32 – \$25,131,510.49 – -\$3,761,738.05) / \$25,131,510.49

= \$1,024,148.88 / \$25,131,510.49

= +4.08%



Performance building up to the Total Fund

- Performance of sub-groups, super-groups and total plan (consistent methodology throughout)

Group/Account	MV Last Month End	Historical Returns								
		ROR								
		1 Day	1 Week	1 Mo.	3 Mos.	1 Yr.	3 Yrs.	5 Yrs.	ITD	
▼ United Nations (63843) <i>UN Policy Benchmark (8/1/15)</i>	57,035,980,076	-0.18	0.34	0.95	4.96	9.18	3.75	6.25	8.06	
		—	—	1.01	5.09	10.00	4.28	6.39	—	
▼ Total Public Equity (1073865948) <i>MSCI ACWI GD</i>	36,008,891,049	-0.38	0.44	1.21	6.84	15.26	5.73	8.88	—	
		-0.41	0.39	1.29	7.05	15.69	5.65	8.97	—	
▶ Total Core Equity (1073804668) <i>MSCI ACWI GD</i>	35,392,028,623	-0.38	0.45	1.21	6.85	15.41	5.71	8.86	8.24	
		-0.41	0.39	1.29	7.05	15.69	5.65	8.97	7.35	
▶ Quantitative Strategies (125124)	408,789,000	-0.23	-0.32	1.05	5.89	7.37	—	—	7.33	
▶ Green Equity (125125)	208,073,426	-0.12	0.77	1.54	7.74	15.65	—	—	6.31	
▼ Real Assets (1073846784)	3,954,741,349	0.66	0.88	0.82	1.60	6.97	9.97	10.04	7.49	
▶ Real Estate (125120) <i>UN NCREIF Op-End Div Core NT N</i>	3,802,824,550	0.67	0.90	0.67	1.48	7.05	10.13	10.15	7.51	
		—	—	1.54	1.54	7.36	10.77	10.94	—	
▶ Infrastructure (105960)	135,334,621	0.50	0.40	5.58	4.93	4.05	5.23	9.18	-33.69	
▶ Timberlands (1073853620)	16,582,179	0.00	0.00	0.00	2.71	10.05	9.18	—	—	
▼ Alternative Investments (1073846785)	1,719,305,906	1.40	1.29	1.47	1.57	10.88	4.98	3.37	-1.13	
▶ Private Equity (88033) <i>UN MSCI World + 2%</i>	1,605,276,386	1.69	1.57	1.76	1.83	10.63	9.43	7.82	2.49	
		—	—	1.30	7.04	17.72	8.21	12.12	12.86	
▶ Total Real Return Strategies (1073866345)	114,029,520	-2.49	-2.49	-2.49	-1.95	3.89	-10.88	-8.46	-5.19	
▼ Total Fixed Income (63868) <i>BB Barclays Global Aggregate</i>	15,353,041,771	-0.11	-0.14	0.27	1.80	-3.08	-2.03	-0.42	6.00	
		-0.12	-0.17	0.15	1.76	-1.90	-0.39	0.38	—	
▼ Long Term Fixed (1073806776) <i>BB Barclays Global Aggregate</i>	12,874,873,158	-0.11	-0.11	0.32	2.04	-3.53	-1.82	-0.26	—	
		-0.12	-0.17	0.15	1.76	-1.90	-0.39	0.38	—	
▶ US Dollar (1073806779)	6,816,382,917	0.11	0.01	-0.09	0.84	-1.71	1.44	1.39	—	
▶ Non-US Dollar (65952)	6,058,490,241	-0.36	-0.24	0.78	3.35	-5.33	-5.07	-2.01	—	
▶ Cash & Equivalents (1073806777) <i>Cash & Equivalents ML Daily</i>	2,478,168,613	-0.12	-0.31	0.11	0.65	-0.49	-3.33	-1.70	—	
		-0.18	-0.51	0.32	0.70	-3.06	—	—	—	

- Performance built up from security level
- Performance and accounting on the same platform

Performance Measurement



Currencies

- The Fund invests in both 'USD' and 'non-USD' currencies.

Base Return (USD)

- Monetary return of the Fund's investments is US dollar.

Local Return

- Monetary return of the Fund's investments in local currency.
- Example – Euro, British pound, Brazilian real, etc.

Currency Contribution

- Difference between **Base Return** and **Local return**.
- Currency contribution is a component of the Total Return

Impact of Currency on Performance



- The globalization of institutional portfolios brings greater return and diversification opportunities
- When trading international securities pension funds must remember that a currency transaction is involved
- Any currency market movements do not always work in favour of the investor
- When investors have international asset exposure, changes in currency – known as foreign exchange (FX) – rates will cause the value of those assets to change
- FX volatility can be significant, and at times equal or overshadow the volatility of the underlying asset