

Guidelines for Calculation of Return

This document is prepared for the purpose of clarification and providing the guidelines on how MUFAP calculates returns of funds and expect its member institutions to calculate return in the same manner.

The gain or loss of funds is calculated using net asset value (NAV). Before looking at the formula, please be comfortable with the following terminologies:

Net Asset Value per unit (NAV):

It is the total value of the fund, less liabilities, divided by the total number of shares outstanding. NAV is calculated on a daily basis based on the closing market prices of the securities in the fund's portfolio.

Dividend:

It is the distribution of a portion of the funds earning to all the fund holders.

Cum-Dividend NAV:

It is the NAV at which the buyer of the security is entitled to receive dividend. In other words, it is the NAV right before the announcement of dividend.

Ex-Dividend NAV:

It is the NAV after the buyer of the security have been awarded the dividend. In other words, it is the NAV right after the distribution of dividend. After the ex-date has been declared, the stock will usually drop in price by the amount of the expected dividend.

Starting NAV:

It is the NAV at the beginning of the period of return calculation.

Current NAV:

It is the last NAV of the period till which the return needs to be calculated.

The formula for calculating return is as follows:

$$\text{Absolute Return}^* = (\text{Current NAV} - \text{Starting NAV}) / (\text{Starting NAV}) \times 100$$

*(with no dividend distributed during the period)

Absolute return is used by the following category of funds:

- Asset Allocation
- Balanced
- Capital Protected
- Equity
- Funds of Funds
- Index Tracker
- Islamic Asset Allocation
- Islamic Balanced
- Islamic Equity
- Pension - Equity

The above formula is simply used when there are no dividends distributed during the period of return calculation.

In case there are dividends announced during the period of return calculation, we need to adjust the Starting NAV in the above mentioned return formula. The formula for adjusting the Starting NAV is shown below:

$$\text{Adjusted Starting NAV} = \text{Starting NAV} / \text{Factor}$$

$$\text{Factor} = \text{Factor}_1 \times \text{Factor}_2 \times \text{Factor}_3 \times \text{Factor}_n$$

(a factor is calculated for every dividend distributed)

Where,

$\text{factor}_1 = \text{Cum-dividend}_1 \text{ NAV} / \text{Ex-dividend}_1 \text{ NAV}$

$\text{factor}_2 = \text{Cum-dividend}_2 \text{ NAV} / \text{Ex-dividend}_2 \text{ NAV}$

$\text{factor}_3 = \text{Cum-dividend}_3 \text{ NAV} / \text{Ex-dividend}_3 \text{ NAV}$

$\text{factor}_n = \text{Cum-dividend}_n \text{ NAV} / \text{Ex-dividend}_n \text{ NAV}$

So the return formula after adjusting dividends is as follows:

$$\text{Absolute Return}^* = (\text{Current NAV} - \text{Adjusted Starting NAV}) / (\text{Adjusted Starting NAV})$$

*(With distribution of dividends during the period)

The return of the following funds needs to be annualized:

- Aggressive Fixed Income
- Income
- Islamic Aggressive Fixed Income
- Islamic Income
- Islamic Money Market
- Money Market
- Pension – Debt
- Pension – Money Market

The formula for Annualized Return is shown below:

$$\text{Annualized Return} = \text{Absolute Return} \times (365/n)$$

Where,

n = number of days since the starting NAV of the period of calculation

PS: For calculations it is required to use digits with at least 4 decimal places.

(Live cases and examples are shown on the next page)

LIVE CASE # 1

(return calculated for the period of July-December)

ABL Stock Fund	
Category	Equity
Starting NAV – June 30, 2010	10.0134
Current (ending) NAV – December 31, 2010	12.3641
Dividends Announced	None

Absolute Return = $(12.3641 - 10.0134) / 10.0134 = 23.48\%$

- No factor was calculated as no dividends were announced, therefore the starting NAV wasn't adjusted
- Returns from Equity funds are not annualized

LIVE CASE # 2

(return calculated for the period of July-December)

Atlas Money Market Fund	
Category	Money Market
Starting NAV – June 30, 2010	513.60
Current (ending) NAV – December 31, 2010	515.50
Dividends Announced	13.5 (ex-dividend NAV: 500.10; cum-dividend NAV: 513.60) – July 09, 2010 11.5 (ex-dividend NAV: 503.47; cum-dividend NAV: 514.97) – October 12, 2010

Factor₁ = $513.60 / 500.10 = 1.0270$

Factor₂ = $514.97 / 503.47 = 1.0228$

FACTOR = $1.0270 * 1.0228 = 1.0504$

Adjusted Starting NAV = $513.60 / 1.0504 = 488.9566$

Absolute Return = $(515.5 - 488.9566) / 488.9566 = 5.4286\%$

Annualized Return = $5.4286 * 365 / 184 = 10.7686\%$

- For every dividend a factor is calculated and used to adjust the starting NAV
- Money Market funds needs to be annualized

LIVE CASE # 3

(return calculated for the period of July-December)

Faysal Asset Allocation Fund	
Category	Asset Allocation
Starting NAV – June 30, 2010	73.6389
Current (ending) NAV – December 31, 2010	65.9654
Dividends Announced	15(ex-dividend NAV: 58.6389; cum-dividend NAV: 73.6389) – July 09, 2010

$$\text{FATOR} = 73.6389/58.6389 = 1.2558$$

$$\text{Adjusted Starting NAV} = 73.6389/1.2558 = 58.6390$$

$$\text{Absolute Return} = (65.9654-58.6390)/58.6390 = \mathbf{12.4941\%}$$

- A factor is calculated for the only dividend announced and used to adjust the starting NAV
- Returns from Asset Allocation funds are not annualized

LIVE CASE # 4

(return calculated for the period of July-December)

JS Aggressive Income Fund	
Category	Aggressive Income
Starting NAV – June 30, 2010	96.63
Current (ending) NAV – December 31, 2010	104.16
Dividends Announced	none

$$\text{Absolute Return} = (104.16-96.63)/96.63 = 7.7926\%$$

$$\text{Annualized Return} = 7.7926*365/184 = \mathbf{15.4582\%}$$

- No factor was calculated as no dividends were announced, therefore the starting NAV wasn't adjusted
- Income funds needs to be annualized

OTHER EXAMPLES

The table below shows 4 different funds, with their respective NAVs and dividend history.

	Fund A	Fund B	Fund C	Fund D
Category	Equity	Asset Allocation	Income	Money Market
NAV – June 30	85.4659	21.3548	105.2374	11.3549
NAV – Dec 31	98.9584	26.4597	107.9877	13.6557
Dividends	No dividends	0.1354 ^a	No dividends	0.3564 ^b
				0.1224 ^c

a) Cum Dividend NAV: 23.5684; Ex-Dividend NAV: 22.8744

b) Cum Dividend NAV: 11.9987; Ex-Dividend NAV: 11.8756

c) Cum Dividend NAV: 12.9843; Ex-Dividend NAV: 12.8574

The return calculations for all the funds are shown below:

Return_{Fund A}: $(98.9584 - 85.4659) / 85.4659 * 100 = \mathbf{15.7870\%}$

Return_{Fund B}: Factor = $23.5684 / 22.8744 = 1.0303$
Adjusted Starting NAV = $21.3548 / 1.0303 = 20.7268$
Return = $(26.4597 - 20.7268) / 20.7268 * 100 = \mathbf{27.6594\%}$

Return_{Fund C}: $(107.9877 - 105.2374) / 105.2374 * 100 = 2.6134\%$
Annualized Return = $2.6134 * 365 / 184 = \mathbf{5.1842\%}$
(n=number of days between June 30 and December 31)

Return_{Fund D}: Factor = $(11.9987 / 11.8756) * (12.9843 / 12.8574) = 1.0204$
Adjusted Starting NAV = $11.3549 / 1.0204 = 11.1279$
Absolute Return = $(13.6557 - 11.1279) / 11.1279 * 100 = 22.7159\%$
Annualized Return = $22.7159 * 365 / 184 = \mathbf{45.0614\%}$
(n=number of days between June 30 and December 31)