Morningstar® Cash Flow Methodology

Morningstar Methodology Paper
October 31, 2011

Methodology

Morningstar calculates estimated net cash flow in-house on a monthly basis for global open-end funds and non-US ETFs, on a quarterly basis for US separate accounts and CITs, and on a daily basis for US ETFs using total net assets and returns for different time periods.

Monthly Cash Flows (months with no distributions)

The cash flow estimate for a month (C) is simply the difference in beginning and ending total net assets (TNA) that cannot be explained by the monthly total return (r).

$$C_t = TNA_t - TNA_{t-1}(1 + r_t)$$

Cash Flows (months with distributions)

If the above calculation was used to calculate cash flows for months with distributions then it would be assumed that 100% of investors reinvested their distributions. By overstating the reinvestment rates, we would be underestimating inflows by attributing asset growth to reinvestment rates rather than attributing that growth to net new flows. In months in which there is a distribution Morningstar adds back the distributions that were cashed out. The cashed out distributions were not reinvested so they do not contribute to growth in TNA. Therefore, the growth of TNA should be attributed to net new cash flows. The reinvestment adjustment currently applies only to US open-end funds.

$$CF_t = TNA_t - TNA_{t-1}(1 + r_t) + \left(\left(\frac{TNA_{t-1}}{p_{t-1}}\right) * \sum_{i=1}^{t} d_i\right) * (1 - b)$$

CF_t = net cash flows for month t
TNA_{t-1} = beginning of the month total net assets (ending TNA of previous month)
TNA_t = end of the month total net assets
r_t = monthly return for month t
d_i = distribution (capital gain or dividend) during month t
p_{t-1} = beginning of the month NAV (ending NAV of previous month)
b = reinvestment rate

Methodology

Reinvestment rates for monthly cash flows

For U.S. 1940 Act Funds, we apply the fund-level reinvestment rate determined using distribution data disclosed in semi-annual N-SAR reports. Because we have found little variation over time in individual fund reinvestment rates, we simply take the current rate and apply it historically.

If for some reason (badly formatted or missing N-SAR filing, or new fund) the N-SAR-derived reinvestment rate is not available, we use the following assumed rates:

US Stock	90%
Balanced	88%
International Stock	90%
Alternative	90%
Taxable Bond	75%
Municipal Bond	66%

For Europe-domiciled funds that have the Income/Accumulation attribute, we apply a 0% reinvestment rate for Inc share classes and 100% for Acc. If the Inc/Acc attribute is null or ambiguous, we apply a 100% rate.

Fund-level Flow Calculation

In some fund domiciles it is customary to report fund size rather than share-class level net assets. In these cases, we compute fund-level flow using the same calculation as above, but with the NAV and fund sizes of the oldest share class.

Mergers

In the case of mergers Morningstar makes an adjustment to the cash flow estimate for the monthly cash flow estimate during the month of the merger. The month of the merger is the month where the assets of the obsolete fund have moved to the surviving fund. Morningstar makes the following adjustment to the cash flow estimate calculation:

$$C_t = TNA_t - TNA_{t-1}(1 + r_t)$$

Where

TNA_t	=	The ending TNA of the surviving fund
TNA_{t-1}	=	The beginning TNA of the surviving fund + the beginning TNA of the obsolete fund
r_t	=	The return of the surviving fund

In the case of multiple mergers Morningstar makes an adjustment to the cash flow estimate for the monthly cash flow estimate during the month of the merger. The month of the merger is the month where the assets of the obsolete funds have moved to the surviving fund. Morningstar makes the following adjustment to the cash flow estimate calculation:

$$C_t = TNA_t - TNA_{t-1}(1 + r_t)$$

Where

TNA_t	=	The ending TNA of the surviving fund
TNA_{t-1}	=	The beginning TNA of the surviving fund + the beginning TNA of obsolete fund A + the beginning TNA of the obsolete fund B + etc…
r_t	=	The return of the surviving fund