Portfolio Performance

Components of Return

Investment returns are multi-dimensional and can be measure in several ways.

Total Return

Income	Capital Appreciation
Cash dividends	Increase in value
Interest payments	

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Holding Period Return (HPR)

The total return earned from an investment over the period for which the asset or portfolio was held by the investor

Interest or dividends

Not Annualized

$$HPR = \frac{Price_{End} - PriceBeg + Income}{Price_{Beg}}$$

Result is a percent gain or loss

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Absolute and Relative Performance

Absolute	Relative
Actual return	Difference between Absolute return and the benchmark return
For a specified time period	

The benchmark can be the overall market or comps

An important measure of performance

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Rolling Returns

Measuring Returns

- Single Period
  - One method
- Multiple Time Periods
  - Can vary based upon time period
  - Overlapping Cycles
  - Rolling Returns

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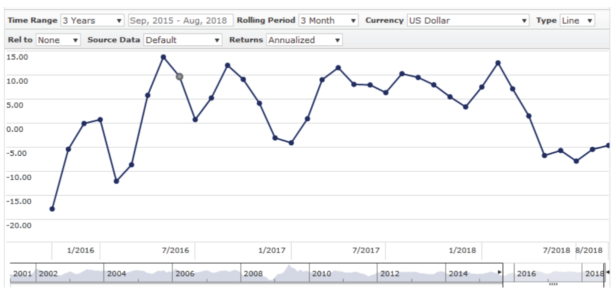
Rolling Returns - Example

MSCI Emerging Market Index 3-Month Single Period Trailing	MSCI Emerging Market Index 3-Month Rolling



Source: Morningstar

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Time Weighted Rate of Return (TWR)

Time Weight Return

The compound rate of growth over a stated evaluation period of $1 initially invested in the account

Requires that the account be valued every time there is an incoming or outgoing cash-flow

Each return is then weighted by Time

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Time-Weighted Rate of Return (TWR) - Example

	Period Length (Days)	Beginning Value	End of Period Cash-flows	Ending Value	Daily Return	Period Return
Period 1	5	$1,000,000	$150,000	$1,250,000	1.92%	10.00%
Period 2	11	$1,250,000	($5,000)	$1,300,000	0.39%	4.40%
Period 3	14	$1,300,000	$0	$1,350,000	0.27%	3.85%

Period Return = (Ending Value - C/F) / Beg Value -1

Eliminates the effects of portfolio cash flows on returns

$$TWR = (1+r_1) * (1+r_2) * .... (1+r_n) - 1$$

$$TWR = (1+.10) * (1+.044) * (1+.0385) – 1 = 19.3\%$$

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Money Weighted Rate of Return (MWR)

Money Weighted Return

Measures the compound growth rate
in all funds invested in the account over the evaluation period.

Also known as the "internal rate of return" or "IRR"

Unlike TWR, more than just investment performance. Takes into account all cash flows

Money-Weighted Rate of Return (MWR) - Example

A stock was purchased for \$100 and sold exactly 2 years later for \$105. The investor also received a dividend of \$2 at the end of year 1. What is the MWR?

Year	Cash Flow
0	\$ (100.00)
1	\$ 2.00
2	\$ 105.00

Excel Function = IRR ()
=3.5%

MWR is the rate where
PV of outflows = PV inflows

$$0 = CF_0 + \frac{CF_1}{(1+IRR)} + \frac{CF_2}{(1+IRR)^2} + \frac{CF_3}{(1+IRR)^3} + \ldots + \frac{CF_n}{(1+IRR)^n}$$

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