TWRR Calculation

The Time Weighted ROR requires a Market Value calculation for each day when there is a capital flow.

The reporting period is segregated into different sub-periods when there is a capital flow.

Example: For a reporting period 1st Jan 2013 to 31st Dec 2013, if there are capital flows on 15th Apr 2013 and 13th Oct 2013, sub-periods will be:

i. 1st Jan 2013 to 15th Apr 2013
ii. 16th Apr 2013 to 13th Oct 2013
iii. 14th Oct 2013 to 31st Dec 2013

The sub-period start date and end date should be considered as Reporting Period Start Date and Reporting Period End Date for each sub-period.

Time Weighted ROR is calculated by geometrically linking the Simple ROR for each sub-period.

Time weighted ROR = $((1 + R_1) * (1 + R_2).....(1 + R_n)) - 1$
Where,
$R_1, R_2.... R_n$ are Simple ROR for each sub-period.

Example:

Date	COB Market Value	Capital Flow
12/31/2009	240,000.00	
11/12/2010	260,000.00	33,000.00
12/31/2010	275,000.00	
4/15/2011	290,000.00	-6,000.00
12/31/2011	300,000.00	

1 year Time Weighted ROR for Reporting Period 1/1/2010 to 12/31/2010
There would be two sub-periods for 1 yr. Time Weighted ROR due to capital flow on 11/12/2010:

1) 1/1/2010 to 11/12/2010
2) 11/13/2010 to 12/31/2010

1) Simple ROR for sub-period 1/1/2010 to 11/12/2010

EV = 260,000
BV = 240,000
CF = 33,000

Simple ROR = (EV – BV – CF)/BV
(260,000 – 240,000 – 33,000)/240,000 = -0.0541666666666667
⇨ -5.41666666666667%

2) Simple ROR for sub-period 11/13/2010 to 12/31/2010

EV = 275,000
BV = 260,000
CF = 0

Simple ROR = (EV – BV – CF)/BV
(275,000 – 260,000)/260,000 = 0.0576923076923077
⇨ 5.76923076923077%

Time Weighted ROR for Reporting Period 1/1/2010 to 12/31/2010
= (1-0.0541666666666667)*(1+0.0576923076923077) – 1
= (0.9458333333333333)*(1.0576923076923077) – 1
= 1.00040064102564 – 1
= 0.00040064102564
⇨ **0.040064102564%**

2 years Time Weighted ROR for Reporting Period 1/1/2010 to 12/31/2011
There would be three sub-periods for 2 yr. Time Weighted ROR due to capital flow on 11/12/2010 and 4/15/2011:

1) 1/1/2010 to 11/12/2010
2) 11/13/2010 to 4/15/2011
3) 4/16/2011 to 12/31/2010

1) Simple ROR for sub-period 1/1/2010 to 11/12/2010

EV = 260,000
BV = 240,000
CF = 33,000

Simple ROR = (EV – BV – CF)/BV
(260,000 – 240,000 – 33,000)/240,000 = -0.0541666666666667
⇨ -5.41666666666667%

2) Simple ROR for sub-period 11/13/2010 to 4/15/2011

EV = 290,000
BV = 260,000
CF = -6,000

Simple ROR = (EV – BV – CF)/BV
(290,000 – 260,000 + 6,000)/260,000 = 0.138461538461538
⇨ 13.8461538461538%

3) Simple ROR for sub-period 4/16/2011 to 12/31/2011

EV = 300,000
BV = 290,000
CF = 0

Simple ROR = (EV – BV – CF)/BV
(300,000 – 290,000)/290,000 = 0.0344827586206897
⇨ 3.44827586206897%

Time Weighted ROR for Reporting Period 1/1/2010 to 12/31/2011
= (1-0.0541666666666667)*(1+0.138461538461538)*(1+0.0344827586206897) – 1
= (0.9458333333333333)*(1.138461538461538)*(1.0344827586206897) – 1
= 1.11392572944297 – 1
= 0.11392572944297
⇨ **11.3925729442971%**

April 2013 to 30th September 2013, would be 21.0786123758%.