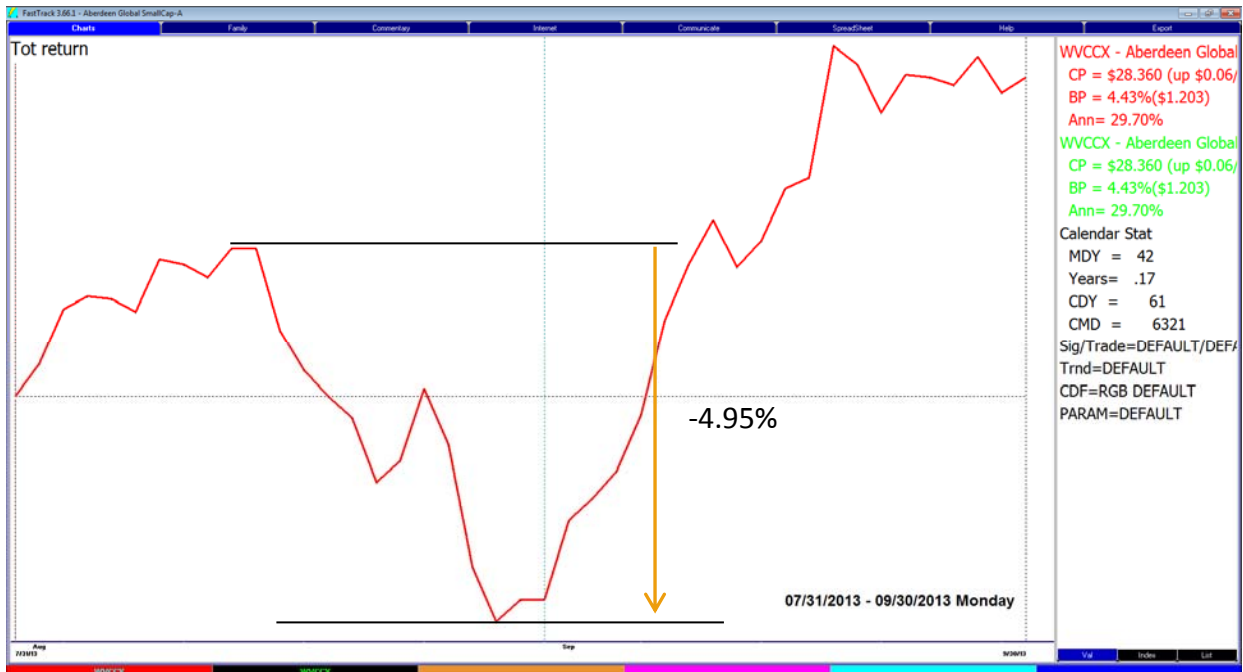


Ulcer Performance Index Guide
Prepared by Rob Bernstein (rob@rgbcapitalgroup.com)

The Ulcer Index was published by Peter Martin and Bryon McCann in *The Investors Guide to Fidelity Mutual Funds*. It is a measure of downside volatility of an investment by measuring the depth and duration of price declines from a previous high. The deeper the decline (i.e. depth) and the longer the investment is in a drawdown state (duration) the more the investment is penalized. I will use an example to help you understand how both the Ulcer Index (UI) and the Ulcer Performance Index (UPI) are calculated.

ULCER INDEX

The following chart is a two-month chart of the Aberdeen International Small Cap Fund (WVCCX) from July 31, 2013 through September 30, 2013. The maximum drawdown for WVCCX during this time was 4.95%.



The UI is calculated by squaring the percentage price decline from a previous high on a daily basis. The sum of the squares are averaged based on the number of periods. Taking the square root of that result will give you the UI. The lower the UI value the less volatile the investment.

Let's look at WVCCX as our example. On 8/5/2013 WVCCX made a new peak at 27.92. On 8/7/2013, the price of WVCCX was 27.86. It was down \$0.06 or 0.21% from its most recent peak. This can be seen on the chart on the next page. The % price decline is then squared to get 0.05.

This process is completed for each day during the calculation period. However, when price is reaching a new high, it is no longer in a drawdown state so the % price decline is zero.

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If we were to square the % price decline for each day, we would get the results in the following table.

Date	NAV	Previous High	Drawdown		
			\$\$	Percent	% Squared
7/31/2013	27.54	27.54	0.00	0.00	0.00
8/1/2013	27.66	27.66	0.00	0.00	0.00
8/2/2013	27.87	27.87	0.00	0.00	0.00
8/5/2013	27.92	27.92	0.00	0.00	0.00
8/6/2013	27.91	27.92	0.01	0.04	0.00
8/7/2013	27.86	27.92	0.06	0.21	0.05
8/8/2013	28.06	28.06	0.00	0.00	0.00
8/9/2013	28.04	28.06	0.02	0.07	0.01
8/12/2013	27.99	28.06	0.07	0.25	0.06
8/13/2013	28.10	28.10	0.00	0.00	0.00
8/14/2013	28.10	28.10	0.00	0.00	0.00
8/15/2013	27.79	28.10	0.31	1.10	1.22
8/16/2013	27.64	28.10	0.46	1.64	2.68
8/19/2013	27.54	28.10	0.56	1.99	3.97
8/20/2013	27.46	28.10	0.64	2.28	5.19
8/21/2013	27.22	28.10	0.88	3.13	9.81
8/22/2013	27.30	28.10	0.80	2.85	8.11
8/23/2013	27.57	28.10	0.53	1.89	3.56
8/26/2013	27.36	28.10	0.74	2.63	6.94
8/27/2013	26.91	28.10	1.19	4.23	17.93
8/28/2013	26.71	28.10	1.39	4.95	24.47
8/29/2013	26.79	28.10	1.31	4.66	21.73
8/30/2013	26.79	28.10	1.31	4.66	21.73
9/3/2013	27.08	28.10	1.02	3.63	13.18
9/4/2013	27.16	28.10	0.94	3.35	11.19
9/5/2013	27.26	28.10	0.84	2.99	8.94
9/6/2013	27.47	28.10	0.63	2.24	5.03
9/9/2013	27.83	28.10	0.27	0.96	0.92
9/10/2013	28.04	28.10	0.06	0.21	0.05
9/11/2013	28.21	28.21	0.00	0.00	0.00
9/12/2013	28.03	28.21	0.18	0.64	0.41
9/13/2013	28.13	28.21	0.08	0.28	0.08
9/16/2013	28.33	28.33	0.00	0.00	0.00
9/17/2013	28.37	28.37	0.00	0.00	0.00

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Date	NAV	Previous High	Drawdown		
			\$\$	Percent	% Squared
9/19/2013	28.81	28.88	0.07	0.24	0.06
9/20/2013	28.62	28.88	0.26	0.90	0.81
9/23/2013	28.77	28.88	0.11	0.38	0.15
9/24/2013	28.76	28.88	0.12	0.42	0.17
9/25/2013	28.73	28.88	0.15	0.52	0.27
9/26/2013	28.84	28.88	0.04	0.14	0.02
9/27/2013	28.70	28.88	0.18	0.62	0.39
9/30/2013	28.76	28.88	0.12	0.42	0.17
Sum of Squares					169.27
Average					4.03
Square Root (UI)					2.01

Add up the sum of the % Squared values (in this case 169.27) and take the average which results in 4.03. The square root of the average is the UI value.

By squaring the % price decline, those investments with larger drawdowns as well as longer duration drawdowns are penalized in the calculation and result in higher UI values. Remember, lower UI values represent investments with lower downside volatility.

ULCER PERFORMANCE INDEX

The Ulcer Performance Index (UPI) is a measure of risk-adjusted return. It provides you an indication of the additional return you receive over the risk-free rate per extra unit of risk. The calculation for UPI is:

$$UPI = (\text{Annualized Return} - \text{Annualized RiskFree Return}) / UI$$

I use Vanguard’s Money Market Fund (VMFXX) as the risk-free rate of return. Given current market conditions, this return is minimal. Plugging the annualized return in for WVCCX and VMFXX we get the following:

$$UPI = (\text{Annualized Return WVCCX} - \text{Annualized Return VMFXX}) / UI$$

$$UPI = (29.70\% - 0.05\%) / 2.01$$

$$UPI = 14.75$$

The larger the UPI value the better risk-adjusted return the investment is providing. However, the timeframe selected will impact the UPI values. An investment providing a good risk-adjusted return in an up trending market may not provide a good risk-adjusted return in a down trending market.

UPI is a good tool for filtering out investments with better risk-adjusted returns. However, it should not be used as the only tool. Considering an investor’s risk tolerance and financial goals are important, as well as, always looking at the chart prior to making an investment decision.