

Generating Better Risk-Adjusted Returns

Introduction and Risk-Adjusted Returns

Mutual Funds and ETFs

What is the difference?

Open-End Mutual Funds		ETFs
Investment Company Act of 1940	Registration	Investment Company Act of 1940
Passive or Active	Management Style	Passive or Active
Daily Net Asset Value (NAV)	Pricing	Continuous
Yes	Investment Minimums?	No
Maybe	Loads / Redemption Fees?	No
Can be higher	Expenses	Generally Lower
No*	Liquidity Issues	Potential

* Be aware of interval funds that often look like open-end mutual funds have limited liquidity.

Mutual Funds and ETFs

A Very Large Investment Universe

General classification:

- a) Equities – stocks of companies both in US and internationally
- b) Bonds – US Treasury, corporate, high-yield, muni, emerging market
- c) Hybrid – blend of stock and bonds (including balanced, target funds)
- d) Money Market – cash and cash equivalents
- e) Other – preferred stocks, options, futures, currency

Index funds:

- a) Equity indices - S&P 500, Russell 2000, Nasdaq, Dow 30
- b) Sector indices – utilities, banks, emerging markets
- c) Leveraged – track the multiple of a specified index (1x, 2x, 3x)
- d) Inverse – track the inverse of a specified index (-1x, -2x, -3x)

Investment objective:

- a) Income
- b) Growth
- c) Value

Market capitalization:

- a) Mega-Cap (>\$200 Billion)
- b) Large-Cap (> \$10 Billion to \$200 Billion)
- c) Mid-Cap (\$2 Billion to \$10 Billion)
- d) Small-Cap (\$250 Million to \$2 Billion)
- e) Micro-Cap (< \$ 250 Million)

Geographic funds:

- a) Domestic (US only)
- b) International (non-US)
- c) Global (anywhere in the world)
- d) Emerging and Frontier
- e) Regional (Europe, Asia, EMEA, Latin America)

Market sectors:

- a) Consumer – Discretionary, Staples
- b) Health Care – Drugs, Medical Devices, Biotechnology
- c) Technology – Internet, Computer Hardware, Software
- d) Real Estate – REITs, Home Builders

There is a large universe of mutual fund and ETF investment choices. As prudent investors, we need to understand the funds we are invested in to make good investment decisions. Read the prospectus before purchasing. Some funds may vary from their stated classification.

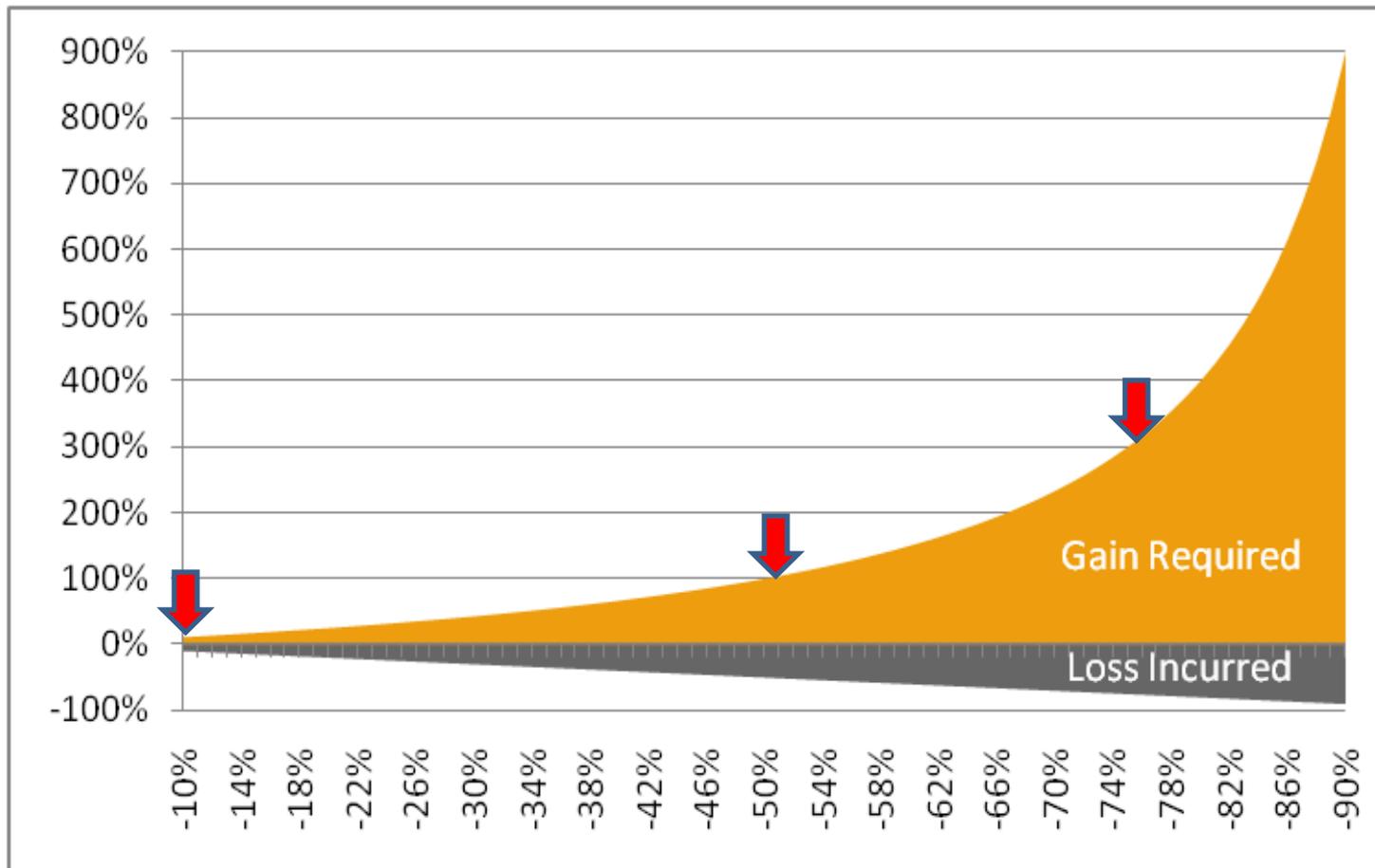
Risk Management

Know Your Tolerance for Risk

- What are your financial goals?
- What is your investing time horizon?
- What type of loss can you sustain?
- How much time do you have to manage your investments?

By understanding the type of investor you are, you can avoid unacceptable market declines and identify better risk-adjusted return opportunities.

What is Risk?



- Recovering from a steep loss is difficult and usually takes a long time. Steep declines are detrimental to an investor's ability to create wealth.
- Managing risk is critical to minimize losses.

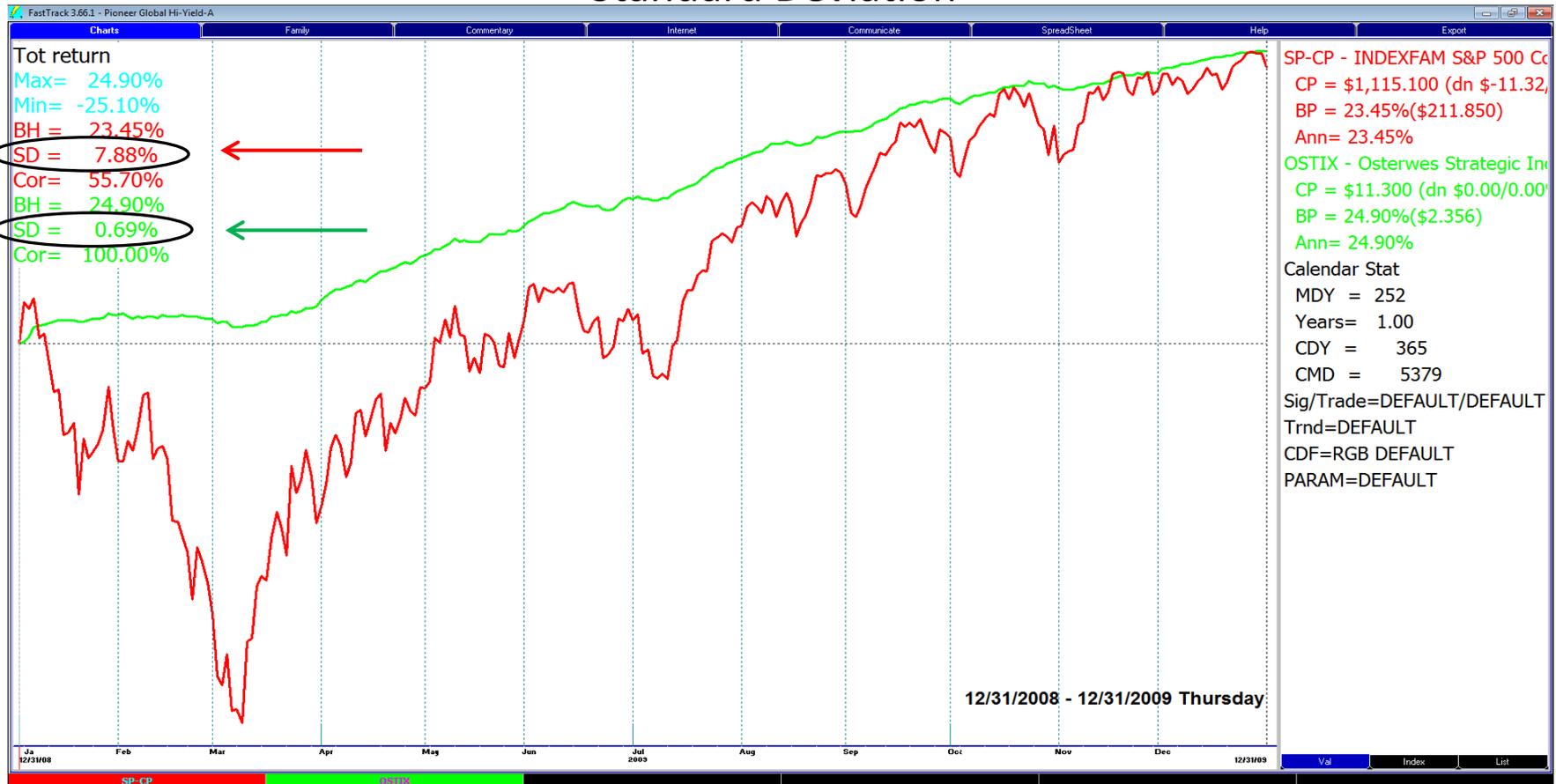
What is Risk?



- Which line is more risky? Why?

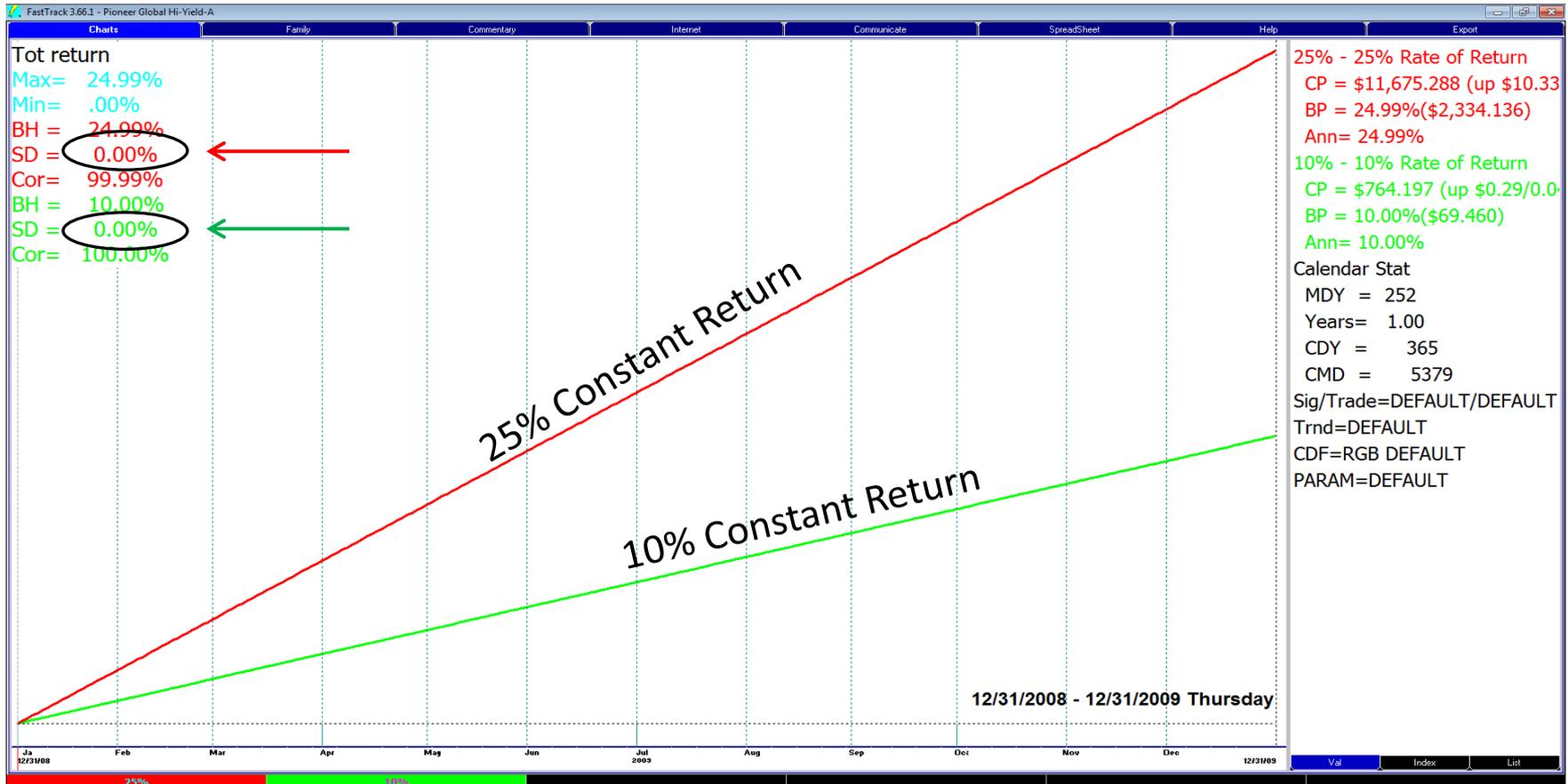
How Can We Measure Risk?

Standard Deviation



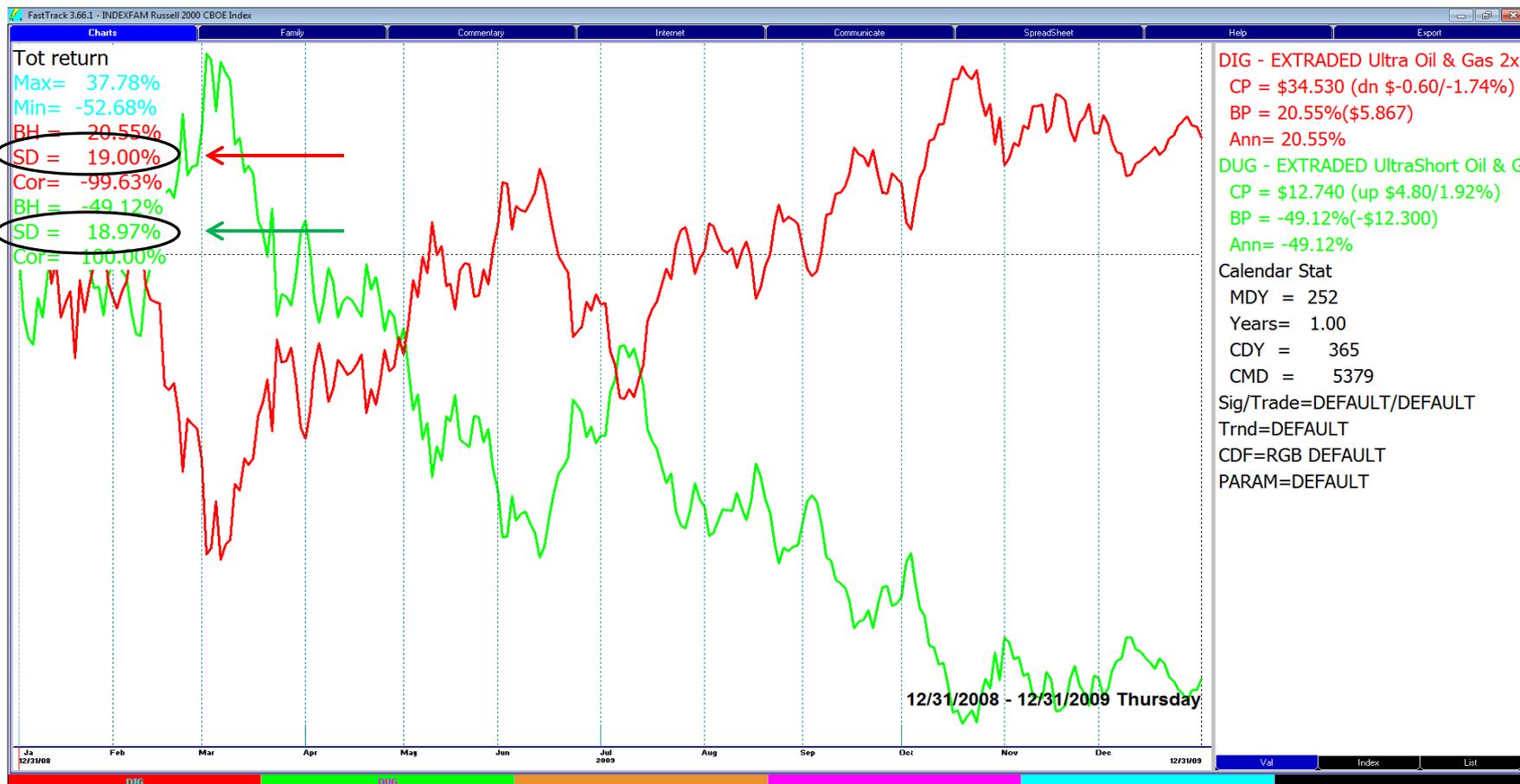
- Standard deviation is a measure of volatility; volatility implies risk.
- Can be found on many FastTrack charts including Total Return (T) and Price (P)
- Assuming two investment choices that were expected to provide the same return but one has a fraction of the expected risk, which investment would you select?

Limitations of Standard Deviation



- A constant return line is shown as a straight line on a log chart.
- By definition, a constant return line has a standard deviation of 0%.
- Standard deviation does not account for the strength of a trend.

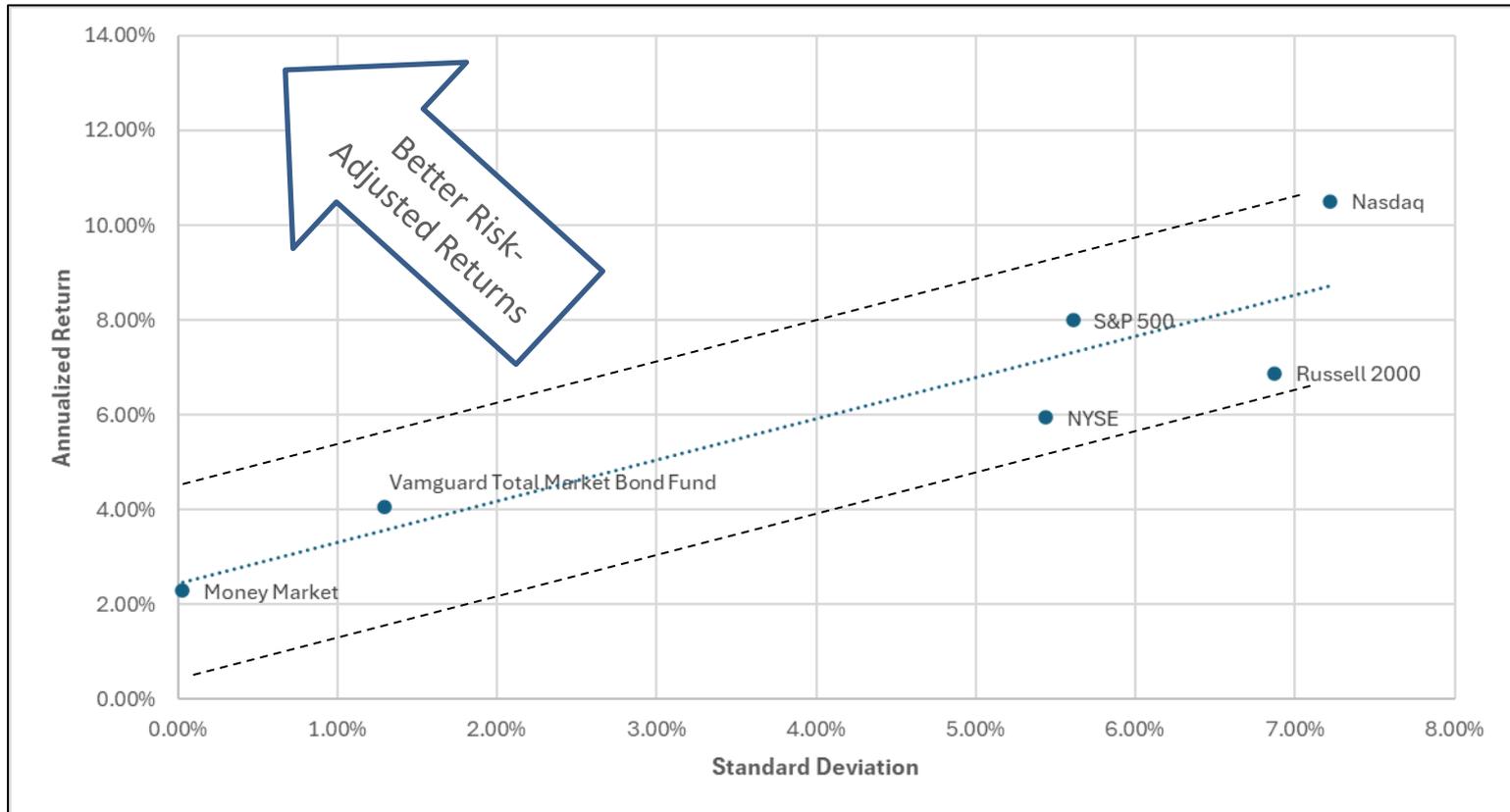
Limitations of Standard Deviation



- Standard deviation does not differentiate between upside and downside volatility.
- It is best to measure standard deviation in context of something else (i.e. return).

Risk vs. Reward

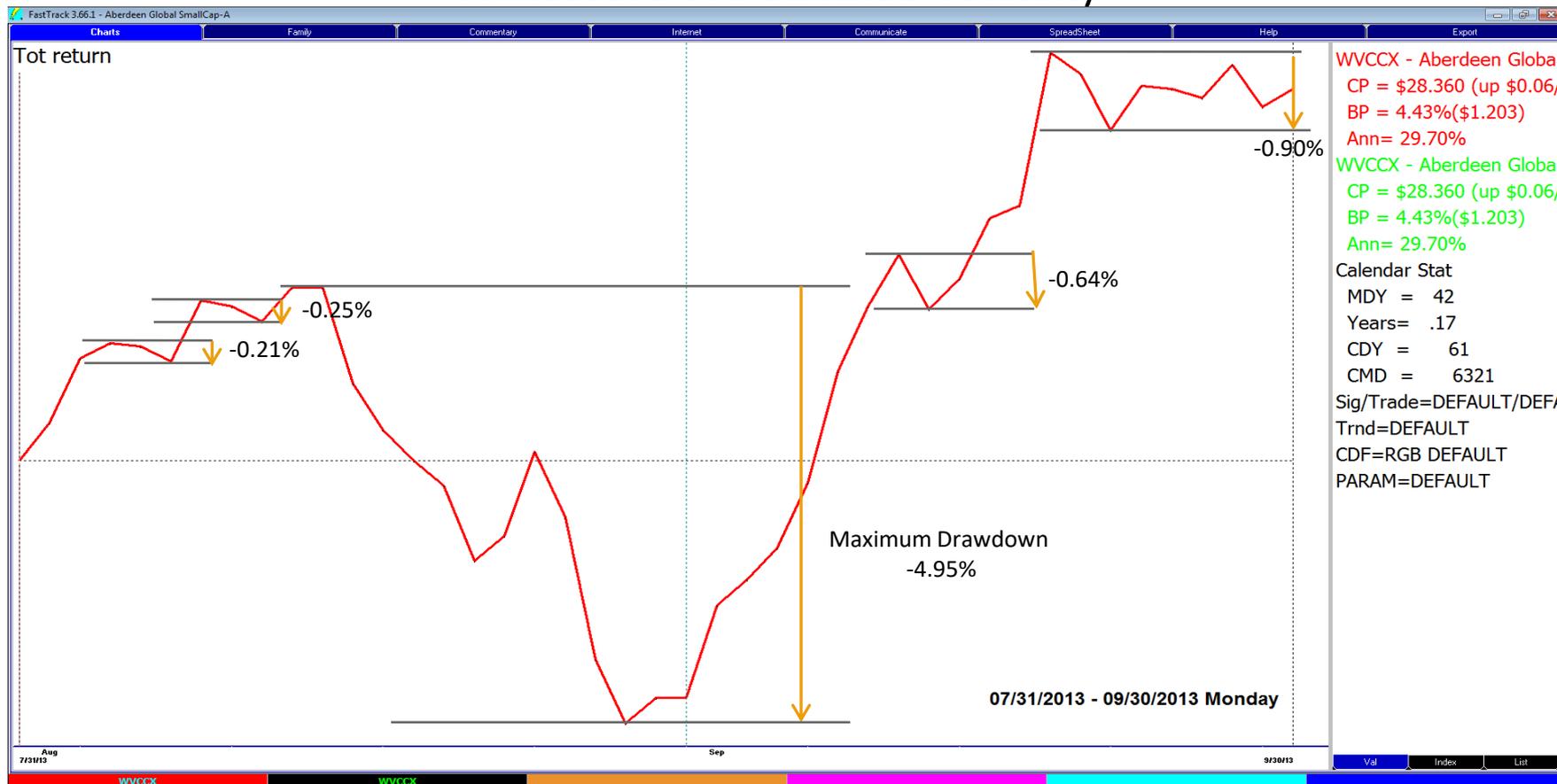
12/31/1996 – 12/31/2025



- Plotting standard deviation against annualized return provides investors the ability to visualize the trade-off between risk and return.
- Our goal as investors is to achieve returns outside the long-term, expected return channel.
- Most investors prefer lower volatility, higher returns (i.e. upper left-hand quadrant). These are called better risk-adjusted returns.

Drawdown

A Measure of Downside Volatility



- Most investors are concerned with downside volatility.
- Drawdown (or retracement) measures the % price decline from a peak to a trough. The maximum drawdown for WVCCX from 07/31/2013 – 09/30/2013 was 4.95%.
- Drawdown does not measure the duration of the decline.

Ulcer Index

- The Ulcer Index (UI) is a measure of risk that incorporates the depth and duration of drawdowns from a previous high.
- Calculation:
 - 1) Square the % Price Decline:** For each period, square the % price decline from the previous high.
 - 2) Calculate the Mean of the Squares:** Sum the values from Step 1 and divide by the number of periods.
 - 3) Calculate the Square Root:** Take the square root of the value from Step 2.
- The lower the ulcer index, the less volatile the fund.

Ulcer Index

Sample Calculation

The calculation of the Ulcer Index (UI) for WVCCX for a two month period is shown below.

Date	NAV	Drawdown		
		\$\$	Percent	% Squared
7/31/2013	27.54	0.00	0.00	0.00
8/1/2013	27.66	0.00	0.00	0.00
8/2/2013	27.87	0.00	0.00	0.00
8/5/2013	27.92	0.00	0.00	0.00
8/6/2013	27.91	0.01	0.04	0.00
8/7/2013	27.86	0.06	0.21	0.05
8/8/2013	28.06	0.00	0.00	0.00
8/9/2013	28.04	0.02	0.07	0.01
8/12/2013	27.99	0.07	0.25	0.06
8/13/2013	28.10	0.00	0.00	0.00
8/14/2013	28.10	0.00	0.00	0.00
8/15/2013	27.79	0.31	1.10	1.22
8/16/2013	27.64	0.46	1.64	2.68
8/19/2013	27.54	0.56	1.99	3.97
8/20/2013	27.46	0.64	2.28	5.19
8/21/2013	27.22	0.88	3.13	9.81
8/22/2013	27.30	0.80	2.85	8.11
8/23/2013	27.57	0.53	1.89	3.56
8/26/2013	27.36	0.74	2.63	6.94
8/27/2013	26.91	1.19	4.23	17.93
8/28/2013	26.71	1.39	4.95	24.47
8/29/2013	26.79	1.31	4.66	21.73
8/30/2013	26.79	1.31	4.66	21.73

Date	NAV	Drawdown		
		\$\$	Percent	% Squared
9/3/2013	27.08	1.02	3.63	13.18
9/4/2013	27.16	0.94	3.35	11.19
9/5/2013	27.26	0.84	2.99	8.94
9/6/2013	27.47	0.63	2.24	5.03
9/9/2013	27.83	0.27	0.96	0.92
9/10/2013	28.04	0.06	0.21	0.05
9/11/2013	28.21	0.00	0.00	0.00
9/12/2013	28.03	0.18	0.64	0.41
9/13/2013	28.13	0.08	0.28	0.08
9/16/2013	28.33	0.00	0.00	0.00
9/17/2013	28.37	0.00	0.00	0.00
9/18/2013	28.88	0.00	0.00	0.00
9/19/2013	28.81	0.07	0.24	0.06
9/20/2013	28.62	0.26	0.90	0.81
9/23/2013	28.77	0.11	0.38	0.15
9/24/2013	28.76	0.12	0.42	0.17
9/25/2013	28.73	0.15	0.52	0.27
9/26/2013	28.84	0.04	0.14	0.02
9/27/2013	28.70	0.18	0.62	0.39
9/30/2013	28.76	0.12	0.42	0.17
Sum of Squares				169.27
Average				4.03
Square Root (UI)				2.01

Ulcer Performance Index

- Ulcer Performance Index (UPI) is a risk-adjusted return that takes into account downside risk, duration of drawdowns and the strength of a return.

$$\text{UPI} = (\text{Annualized Total Return} - \text{Annualized Risk Free Return}) / \text{UI}$$

- Using WVCCX and Vanguards Money Market Fund (VMFXX) as the risk free return, we get:

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

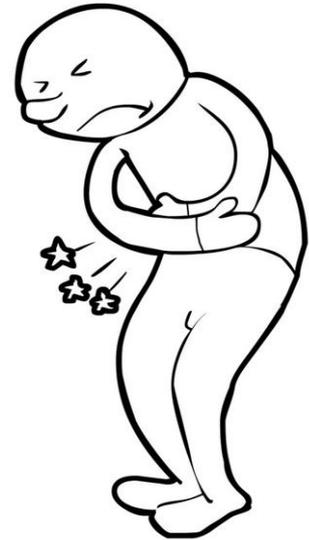
$$\text{UPI} = 14.75$$

- The higher the UPI, the better the risk-adjusted return.
- The Ulcer Index and the Ulcer Performance Index can be calculated in FastTrack using the spreadsheet tab.

Ulcer Index and Ulcer Performance Index

Ulcer Index (UI) is a downside volatility metric that incorporates depth and duration of drawdowns. Lower values represent less volatile investments.

Ulcer Performance Index (UPI) is a measure of trend strength that uses downside volatility. Higher values represent better risk-adjusted returns.



For a detailed handout on how to calculate the Ulcer Index and Ulcer Performance Index please visit:
www.rgbcapitalgroup.com/resources and select the UI-UPI Guide.

“The essence of investment management is the management of risks, not the management of returns.”
- Benjamin Graham

Summary

- Investors can control risk, but not returns.
- Focus on the downside risk factors that are important to you as an investor.
 - a) Drawdown (or retracement),
 - b) Ulcer Index (UI), and
 - c) Ulcer Performance Index.
- Be aware of the calculation period that you select. Those funds that produce good risk-adjusted returns in an uptrending market will not necessarily provide the best risk-adjusted returns in a market downtrend.
- Analyze how funds perform over different time periods.
- Don't rely on quantitative measurements alone. Look at the charts to make sure the fund is something that you want in your portfolio.



If you have any questions about the presentation, feel free to contact:

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