

San Diego Chapter AAI – Risk Management SIG

The Power of Low-Volatility Funds and Strategic Use of Margin

Presented by
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Upcoming Events

Meetings are held in person at the Good Samaritan Church in La Jolla, CA.

A live broadcast is also available for those that live outside the San Diego geographic area.

Upcoming Meeting Dates



October 19, 2024 – “Maintaining High Performance Mutual Fund Portfolios”, presented by Janet Brown, Investment Advisor and Managing Director, FundX



November 9, 2024 – “10 Key Lessons for Retirement Success”, Christine Benz, Director of Personal Finance and Retirement Planning, Morningstar, Inc.



January 11, 2025 – “2025 Economic Update” presented by Andrew Reilly, Market Director, Principal Global Investors



Current calendar can be found at www.aaiisandiego.com

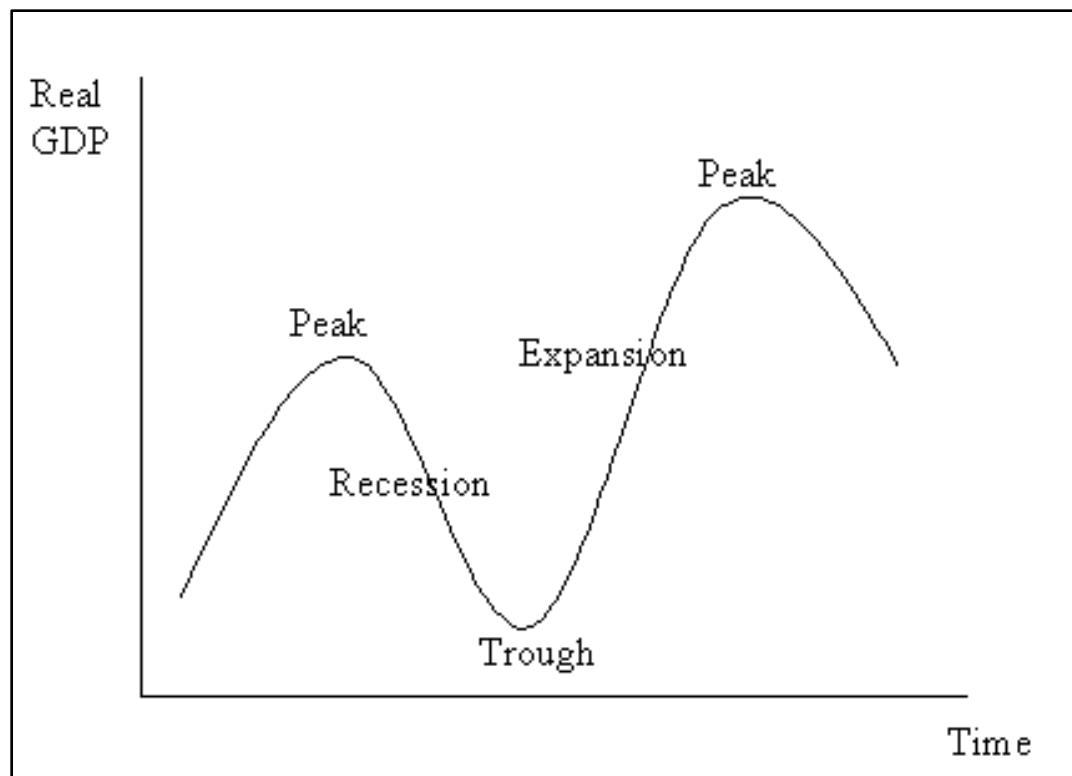
Today's Agenda

- The Business Cycle
- Review:
 - a) Risk-Adjusted Returns
 - b) Moving Average Timing
- Strategic Use of Margin

The Business Cycle

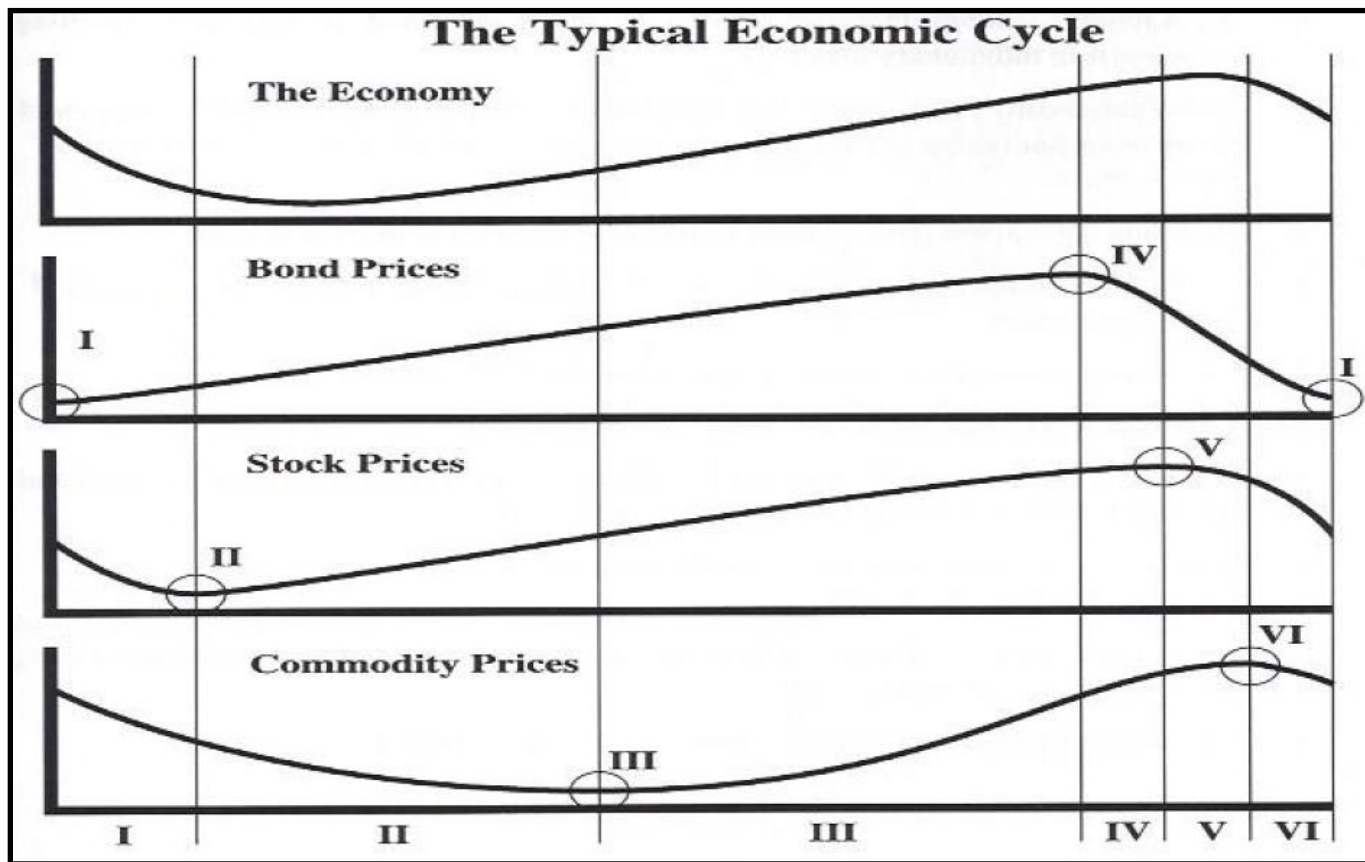
The Typical Business Cycle

Economic history shows that there is a repeating pattern of prosperity and recession. This repeating cycle is known as the business cycle.



The Typical Business Cycle

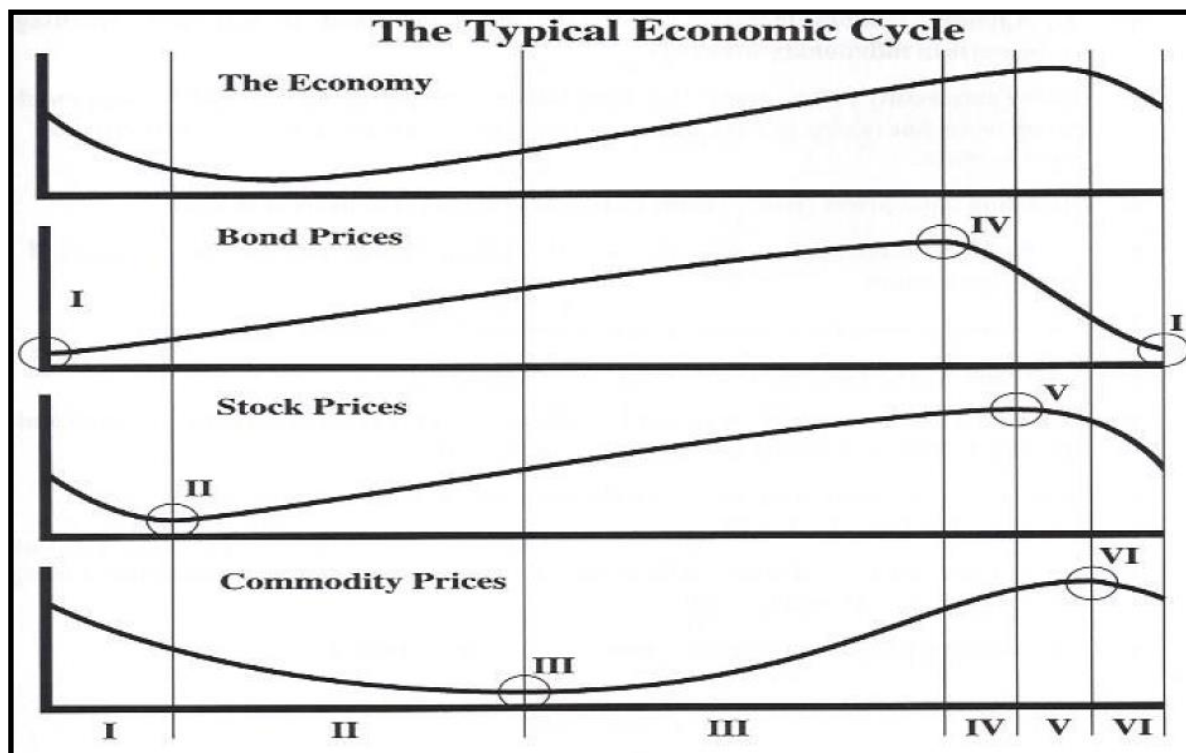
As Described by Martin Pring in *The All-Season Investor*



Source: Michael Price

- An understanding of how different asset classes behave during different stages of the business cycle can provide additional support for tactical investment decision making.

Business Cycle – Impact on Different Asset Classes



Source: Michael Price

Stage I – Bonds Bottom

- Bullish for bonds
- Bearish for stocks
- Bearish for commodities

Stage III – Commodities Bottom

- Bullish for bonds
- Bullish for stocks
- Bullish for commodities

Stage V – Stocks Top

- Bearish for bonds
- Bearish for Stocks
- Bullish for commodities

Stage II – Stocks Bottom

- Bullish for bonds
- Bullish for stocks
- Bearish for commodities

Stage IV – Bond Prices Top

- Bearish for bonds
- Bullish for stocks
- Bullish for commodities

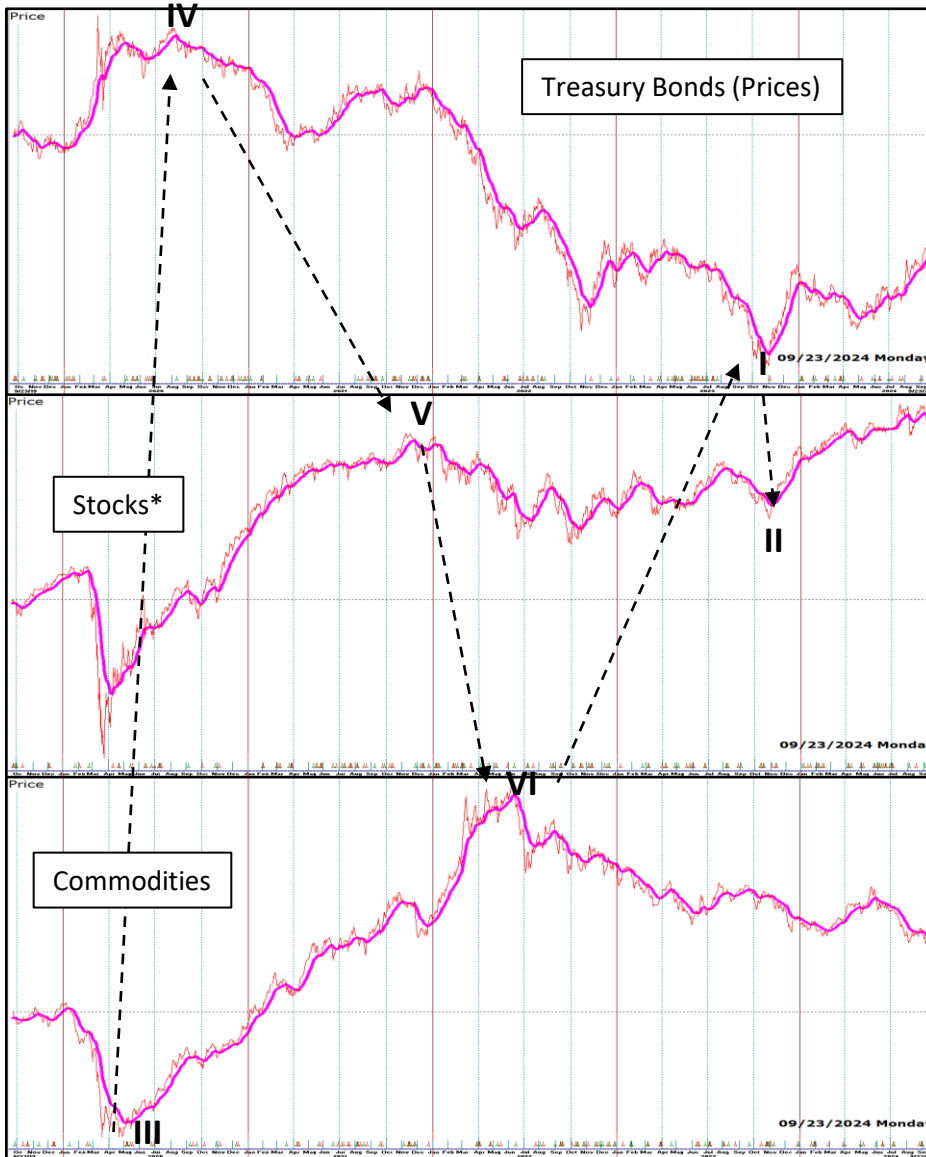
Stage VI – Commodities Top

- Bearish for bonds
- Bearish for stocks
- Bearish for commodities

Tracking the Business Cycle

- The average business cycle lasts approximately four to five years although this can vary considerably.
- The business cycle is far from perfect.
 - a) Some stages may not happen in sequence.
 - b) Some stages may be skipped.
- It is impossible to know with any certainty which stage we are in.
- Stage II is the easiest time to make money.
- Stage III can be the most profitable time for aggressive investors.
- Late stages (stages V and VI) are dangerous for both conservative and aggressive investors.
- Focus on the trend; using a 21-day (one-month) moving average tends to filter out some of the day-to-day noise.

The Current Business Cycle - Five-Year Charts



Bonds prices have bottomed and are starting to trend up.

Stocks declined in 2022 and, after an extended bottoming process, resumed trending up at the end of 2023.

Clearly, commodities are in a long-term decline.

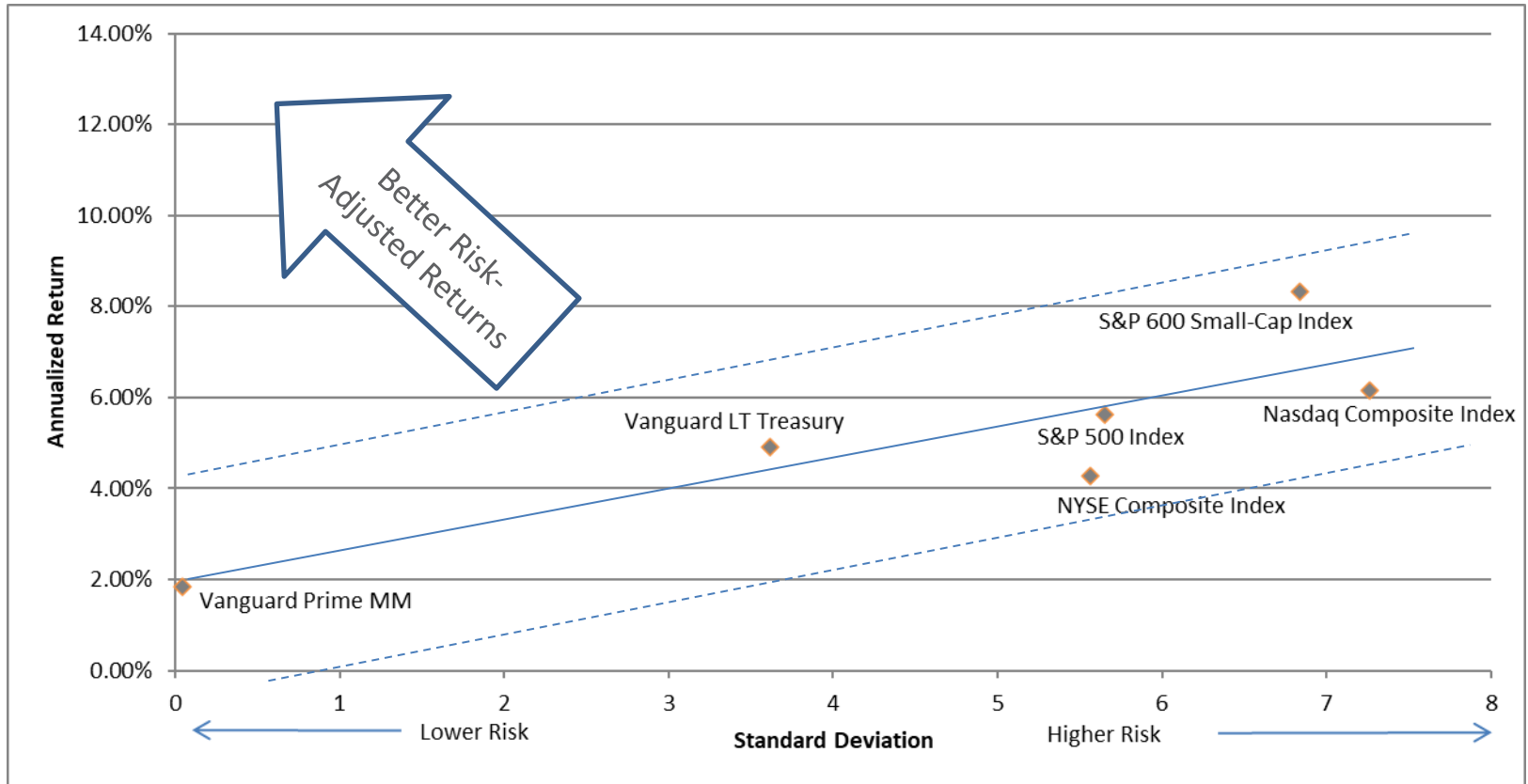
A market that is bullish for both bonds and stocks, and bearish for commodities indicates that we are likely in a Stage II market environment.

* Equal weighting of S&P 400, S&P 500 and S&P 600.

Review:
Risk-Adjusted Returns
Moving Average Timing

Risk vs. Reward

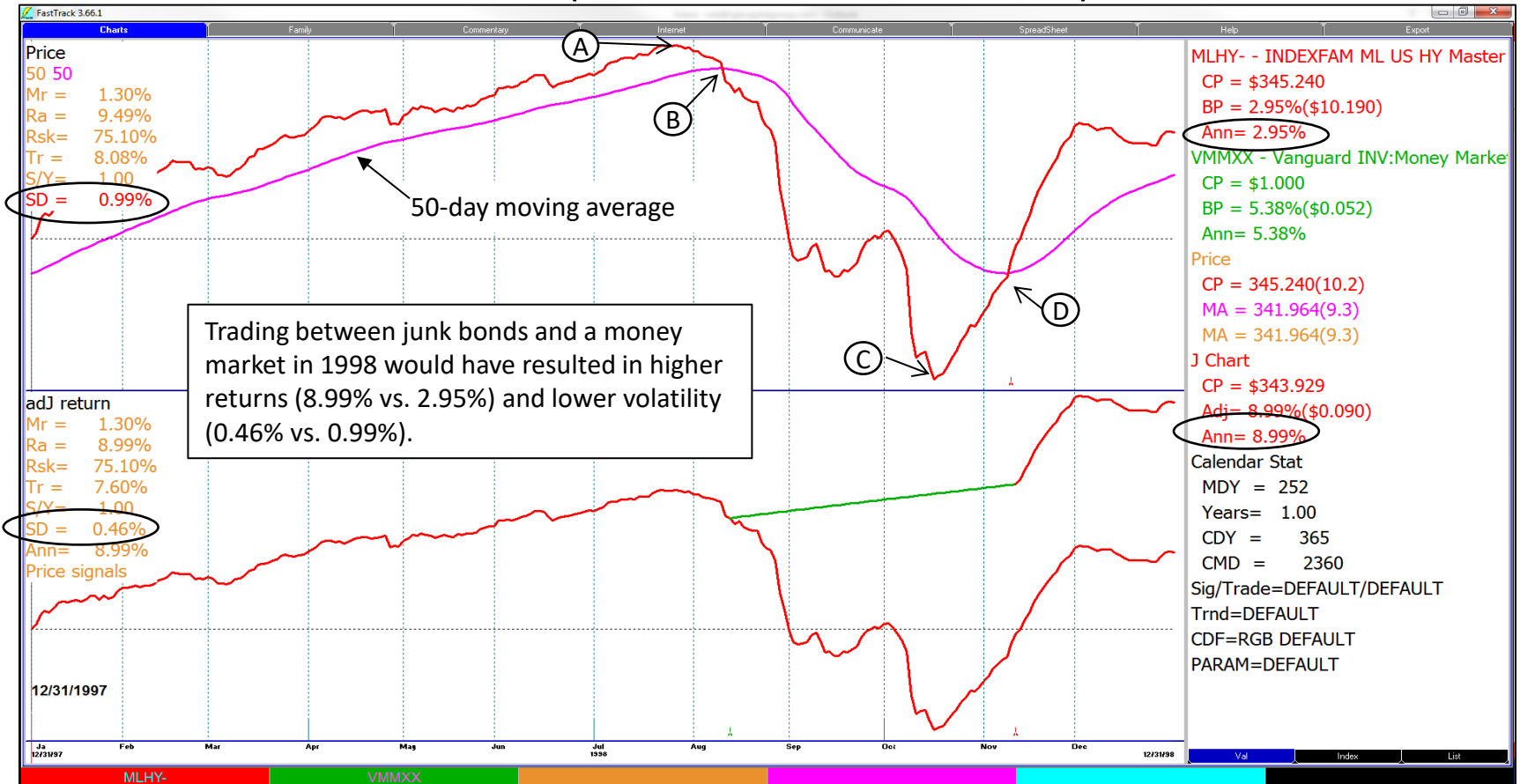
12/31/1999 – 8/31/2024



Our goal as investors is to achieve returns outside the long-term, expected return channel by striving for better risk-adjusted returns (i.e. upper left-hand quadrant).

Moving Average Timing

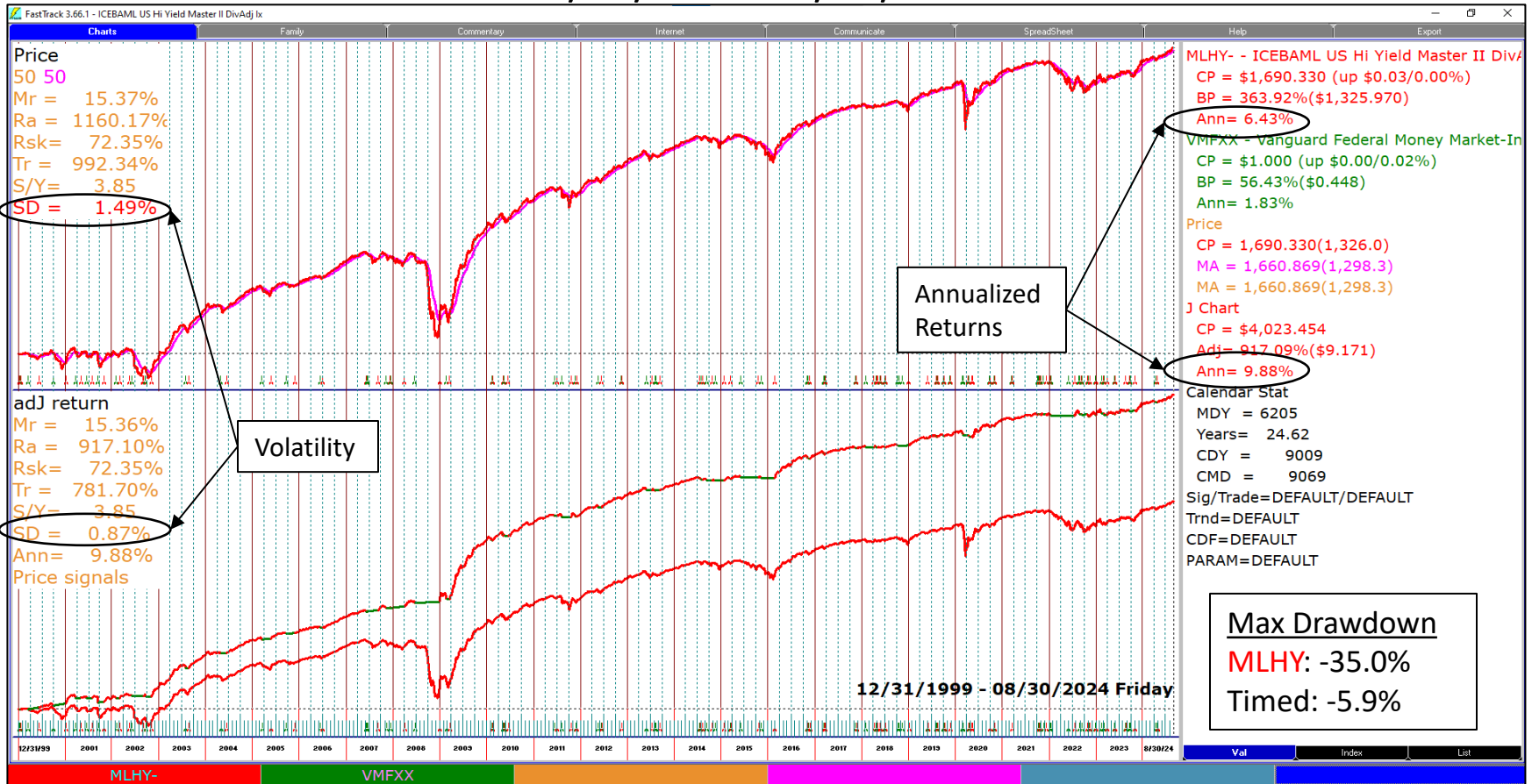
MLHY- (12/31/1997 – 12/31/1998)



- Moving average timing can provide appropriate entry and exit points when investing in junk bonds.
- The timed drawdown (A→B) was -1.0%; the total drawdown (A→C) was -8.7%.
- During 1998, a 50-day moving average would have increased returns and reduced overall volatility/drawdown.

Moving Average Timing

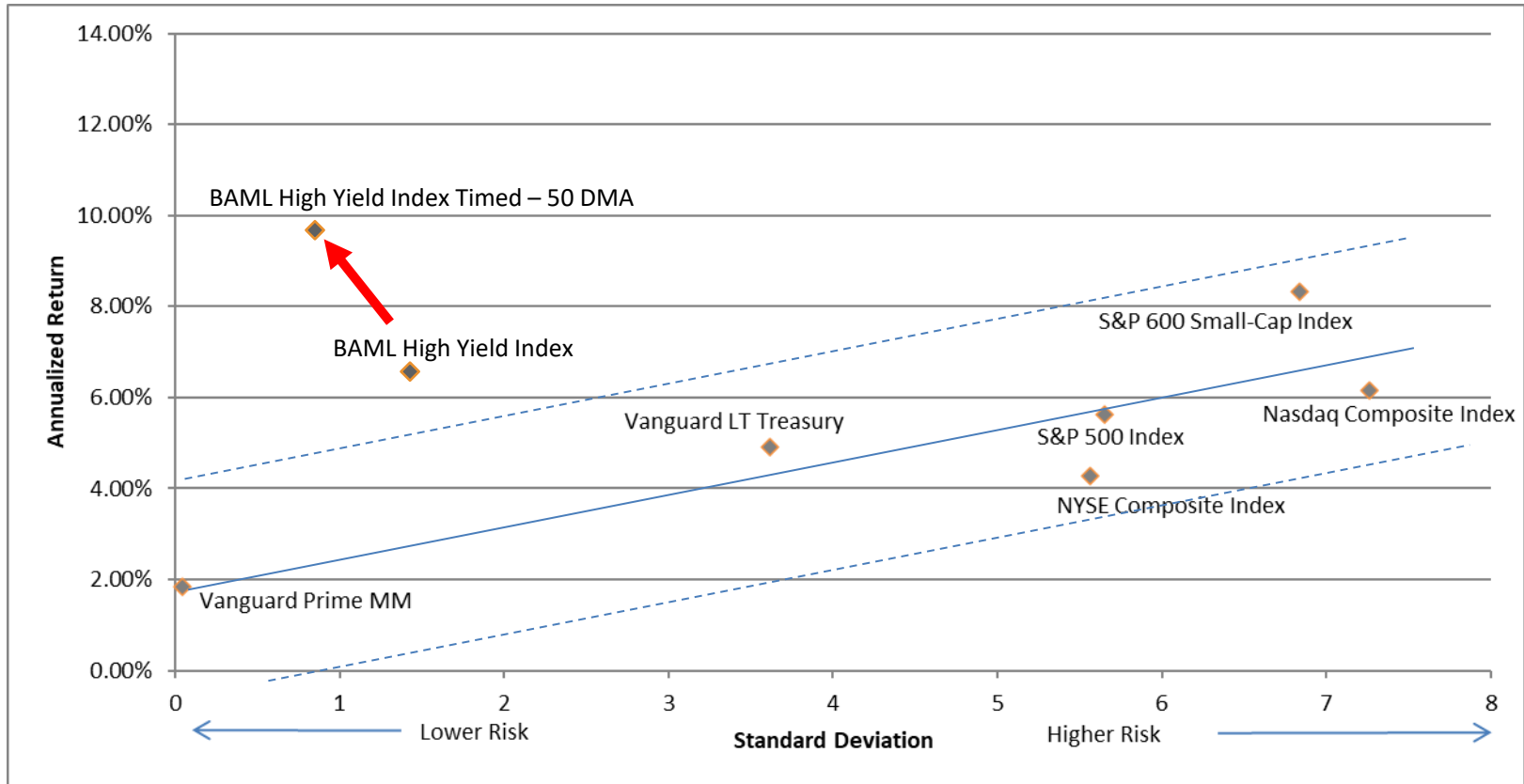
12/31/1999 – 8/31/2024



- Over the last 25 years, using a 50-day moving average has resulted in higher annualized returns and lower volatility.
- The maximum drawdown for the timed strategy is less than 6%.

Risk vs. Reward

12/31/1999 – 8/31/2024



Our goal as investors is to achieve returns outside the long-term, expected return channel by striving for better risk-adjusted returns (i.e. upper left-hand quadrant).

Strategic Use of Margin

Margin

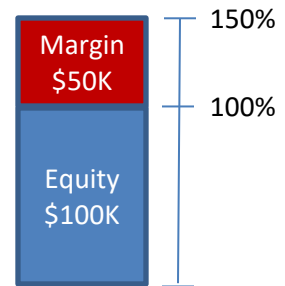
Basic Concepts

- Margin is a type of leverage.
- Buying on margin is the process of purchasing securities with cash borrowed from a broker, using the securities in your portfolio as collateral.
- When the investments are liquidated, the investor pays back the amount borrowed and keeps any gains (or absorbs losses).
- The use of margin will always increase volatility. The incremental increase in volatility is dependent on the underlying volatility of the portfolio. All other things being equal, the higher the volatility of the underlying portfolio, the higher the incremental level of risk will be for a given level of margin.
- Margin can be a powerful tool if used correctly, however it may not be appropriate for all investors.

Margin

Basic Concepts

- Lets assume an investor has \$100K portfolio (equity). The investor then borrows \$50K at 6% which is also invested in the market.
- The investor is 150% invested:
 - 100% Equity
 - 50% Margin
- The annual cost of margin is $\$50K * 6\%$ or \$3K per year.



Calculating the Impact of Margin on Risk and Returns

It is important to understand the impact of margin on volatility and returns.

- **Volatility** - The Standard Deviation (SD) of a margined position can be calculated by:

$$SD_{Margined} = SD_{Unmargined} \times (1 + Margin \%)$$

- **Returns** - Estimating the annualized return (AR) on a margined position can be calculated by :

$$AR_{Margined} = AR_{Unmargined} \times (1 + Margin \%) - (Margin \% * Cost\ of\ Margin)$$

Calculating the Impact of Margin on Risk and Returns

Assuming 150% Invested (100% Equity / 50% Borrowed)

SD Unmargined	Margin %	SD Margined ⁽¹⁾
0.0%	50%	0.0%
0.5%	50%	0.8%
1.0%	50%	1.5%
2.5%	50%	3.8%
3.0%	50%	4.5%
3.5%	50%	5.3%
4.0%	50%	6.0%
4.5%	50%	6.8%
5.0%	50%	7.5%
5.5%	50%	8.3%
6.0%	50%	9.0%

$$^{(1)}SD_M = SD_{UM} * (1 + \text{Margin } \%)$$

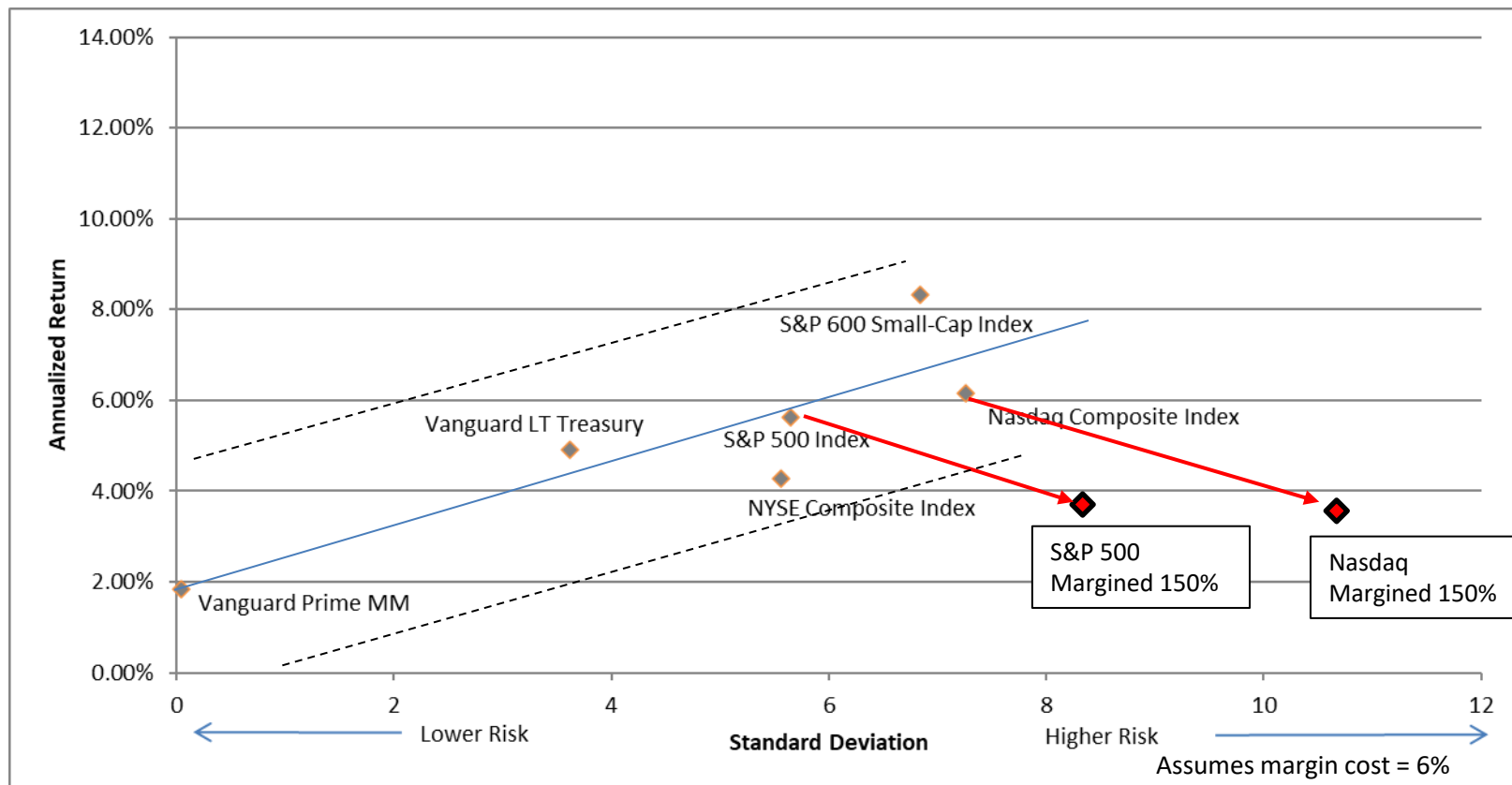
Estimated Return Unmargined	Margin %	Cost of Margin	Estimated Return Margined ⁽²⁾
25%	50%	6%	34.50%
20%	50%	6%	27.00%
15%	50%	6%	19.50%
10%	50%	6%	12.00%
5%	50%	6%	4.50%
0%	50%	6%	-3.00%
-5%	50%	6%	-10.50%
-10%	50%	6%	-18.00%
-15%	50%	6%	-25.50%
-20%	50%	6%	-33.00%
-25%	50%	6%	-40.50%

$$^{(2)} \text{Return}_M = \text{Return}_{UM} * (1 + \text{Margin } \%) - (\text{Margin } \% * \text{Cost of Margin})$$

- The use of margin will always increase volatility.
- Using margin is most beneficial when the unmargined return exceeds the cost of borrowing.
- Using the annualized return and standard deviation in FastTrack, you can calculate the impact of margin on risk and return.

Impact of Margin on High Volatility Investments

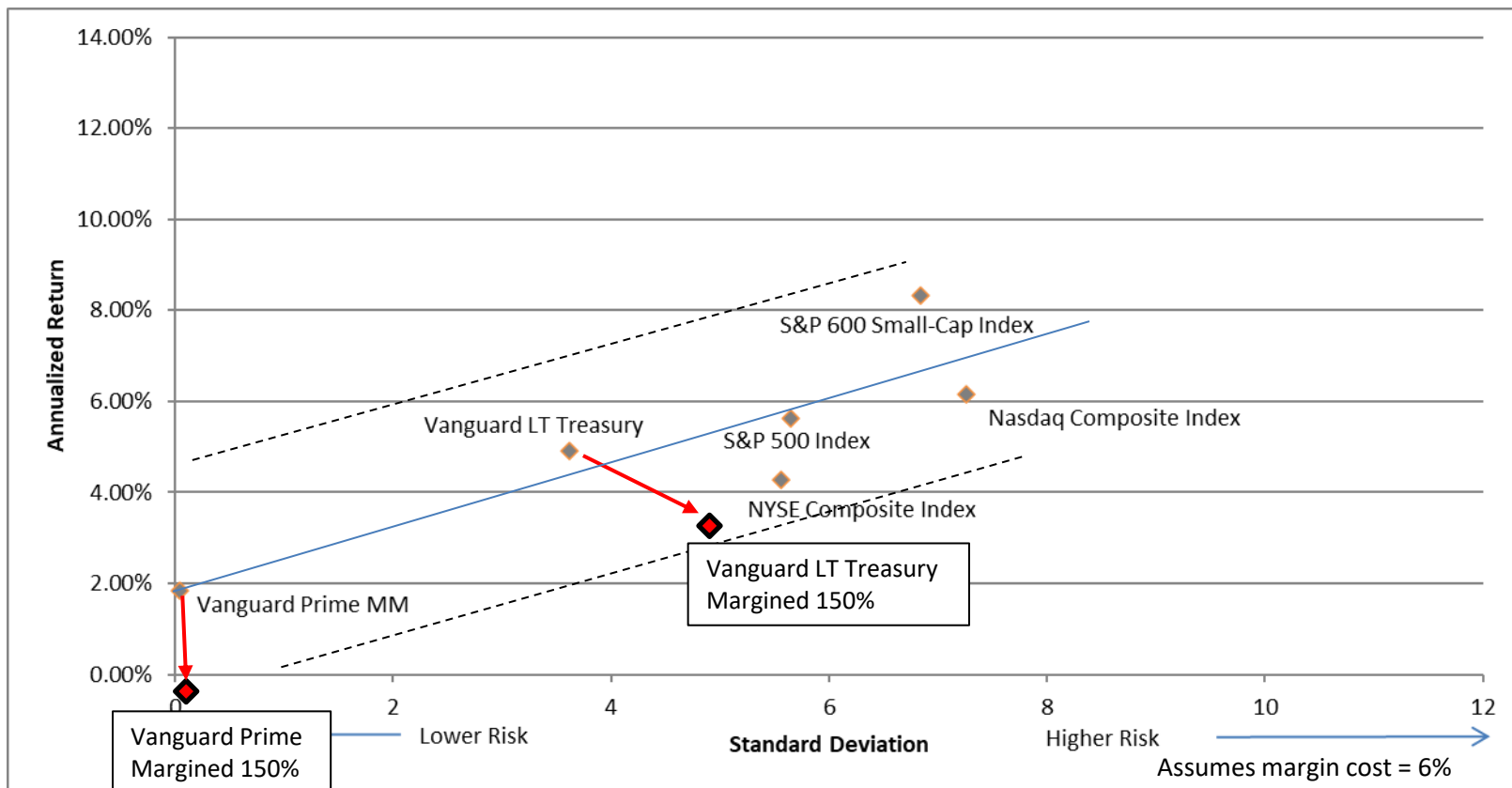
Risk vs. Reward (12/31/1999 – 8/31/2024)



- The use of margin on higher volatility portfolios will generally result in significantly higher volatility without a commensurate increase in return.
- This is inconsistent with most investors' desire to reduce risk and increase return.
- Understand the volatility of your portfolio before using margin!!

Impact of Margin on Low Volatility Investments

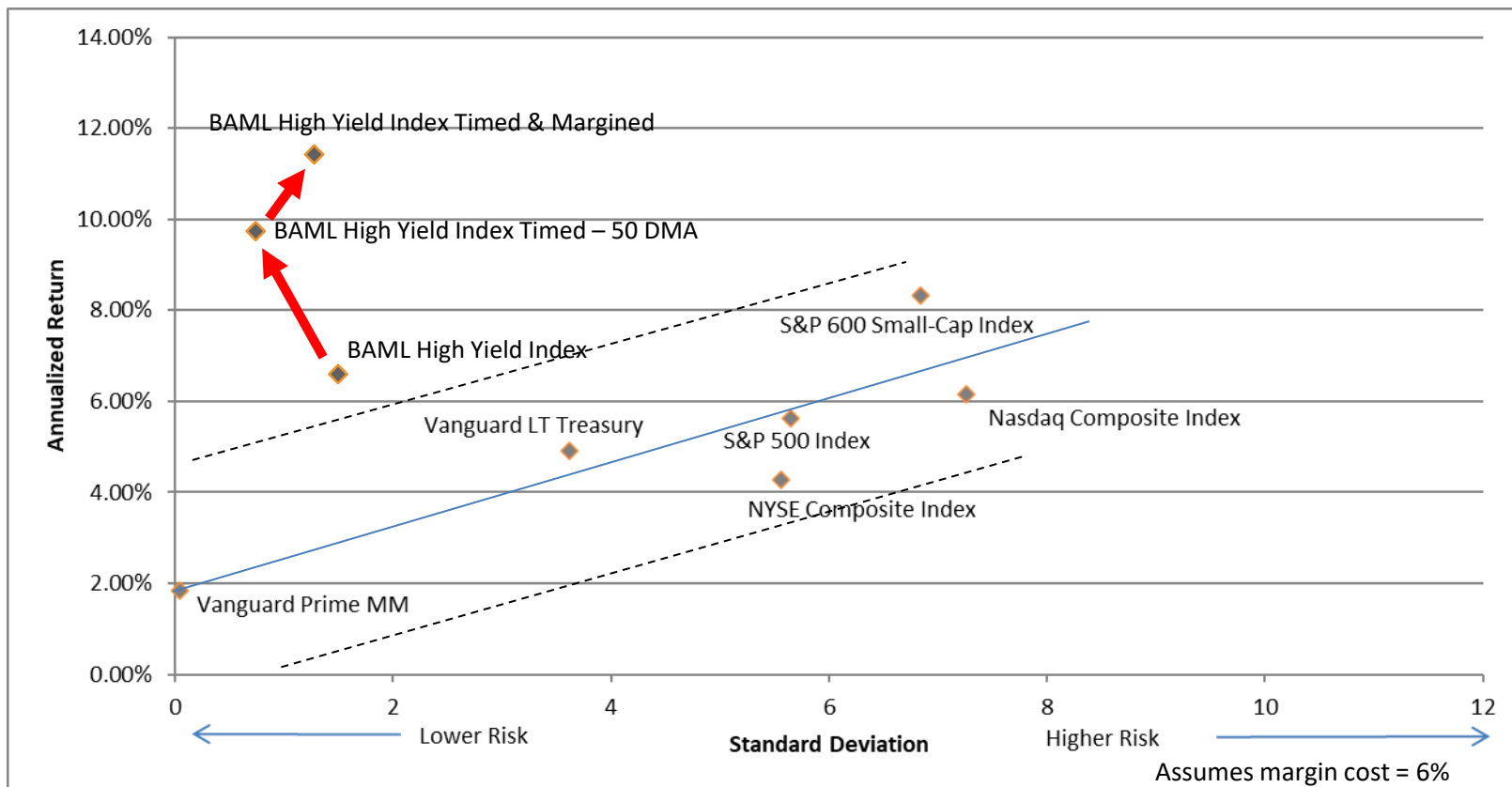
Risk vs. Reward (12/31/1999 – 8/31/2024)



- The use of margin on low volatility, low return portfolios will generally result in higher volatility and/or lower returns.
- Using margin on low volatility, low return portfolios is generally inconsistent with investors desire to move into the upper left-hand quadrant of this chart.

Using Margin on Good Risk-Adjusted Return Investments

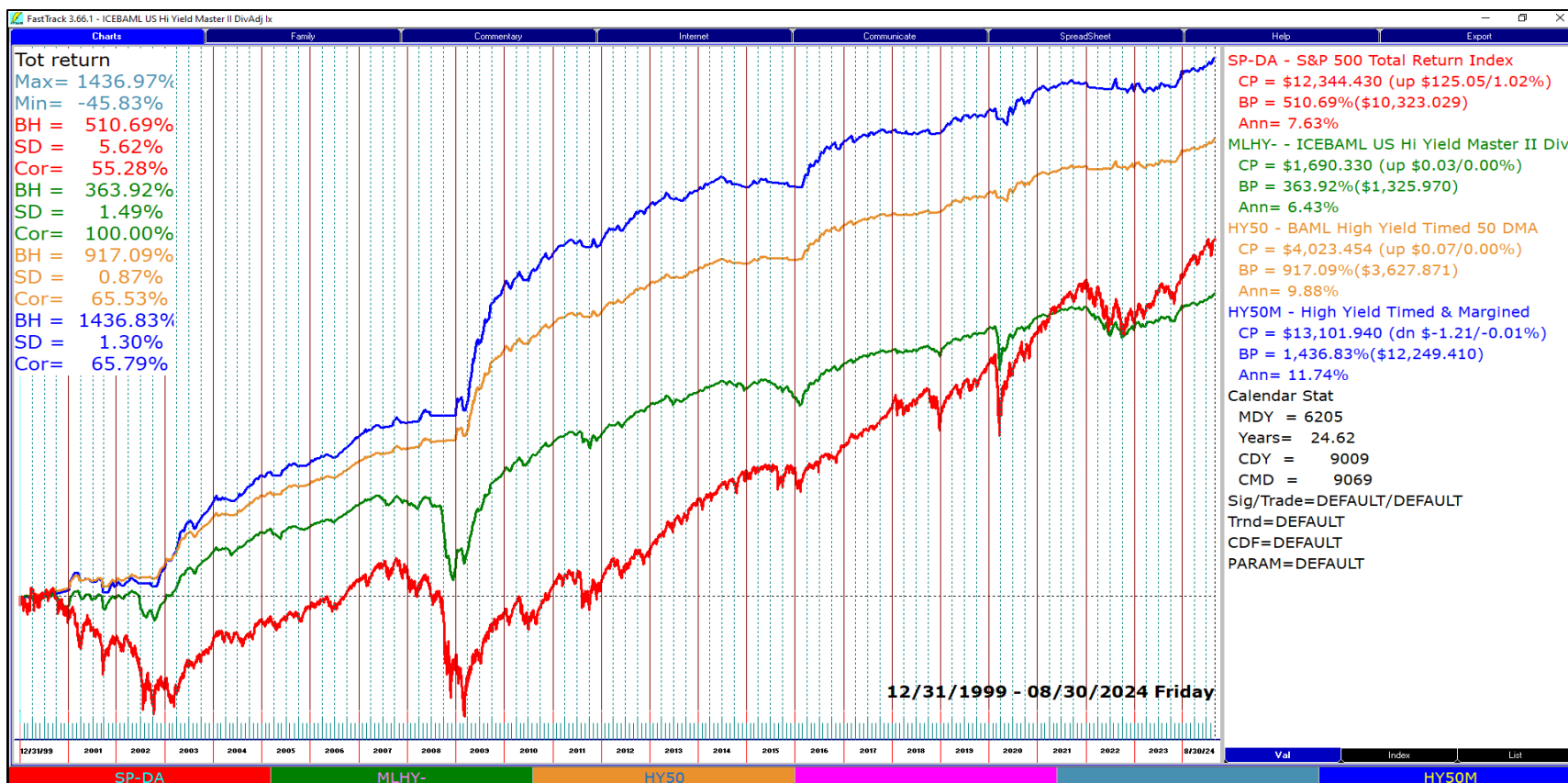
Risk vs. Reward (12/31/1999 – 8/31/2024)



- The impact of using margin on good risk-adjusted return portfolios has a positive impact on returns while only creating a slightly more volatile portfolio.
- This is consistent with most investors' desire to reduce risk and increase return.
- Understanding the underlying volatility characteristics of your portfolio is paramount to using margin.

Junk Bonds – Timed and Margined

12/31/1999 – 8/31/2024

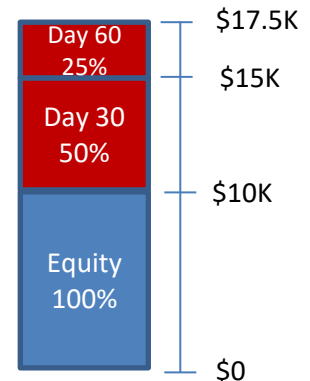
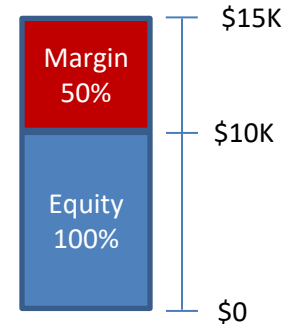
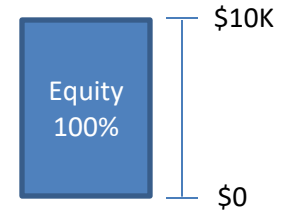


	Ann Ret	SD	UI	UPI	Max DD
S&P 500 Index – Dividend Adjusted (SP-DA)	7.63%	5.62%	16.56	0.42	-55.3%
ML High Yield Master II Index (MLHY-)	6.43%	1.49%	5.64	1.01	-35.0%
MLHY Index Timed w/ 50-day MA (HY50)	9.88%	0.87%	1.28	7.14	-5.9%
MLHY Index Timed & Margined	11.74%	1.30%	2.64	4.16	-10.2%

Understanding Margin

Using Margin on Mutual Funds

- Day 1: Purchase mutual funds with 100% investor equity. No borrowing.
- Day 30: After 30 days, you can use the mutual fund positions purchased on Day 1 as collateral for borrowing from your broker. Generally, you can borrow up to 50% of the initial equity invested.
- Day 60: The mutual funds purchased on Day 30 are now “seasoned” and eligible to be used as collateral for additional borrowing. You can borrow another 25% (50% of the 50% purchased on Day 30). You are now 175% invested. You have \$17.5K invested in the market with an original equity amount of \$10K.
- Theoretically, you can move towards a 200% invested (100% equity and 100% margin).



Understanding Margin

Margin Maintenance Value

- Margin Maintenance Value (MMV) is the equity % of the portfolio. It is calculated as:

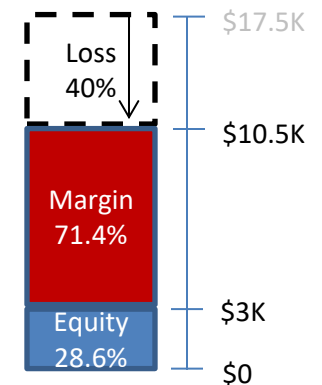
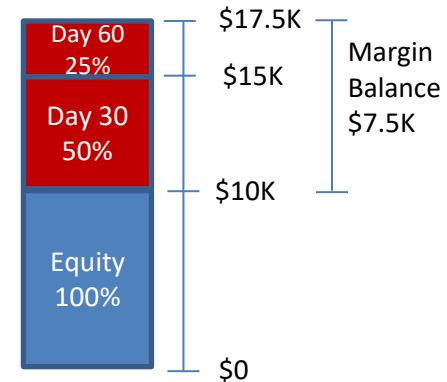
$$\text{MMV} = \frac{\text{Market Value} - \text{Margin Balance}}{\text{Market Value}}$$

- On Day 60 in the previous example, the MMV would be:

$$\text{MMV} = \frac{\text{Market Value} - \text{Margin Balance}}{\text{Market Value}} = \frac{\$17.5\text{K} - \$7.5\text{K}}{\$17.5\text{K}} = 57.1\%$$

- Most brokers require a MMV greater than 30% to be maintained. Otherwise, a margin call may be issued.
- In our example, a 40% portfolio decline would create a decline in the margin maintenance value (MMV) below 30%. This would likely create a margin call.

$$\text{MMV} = \frac{\text{Market Value} - \text{Margin Balance}}{\text{Market Value}} = \frac{\$10.5\text{K} - \$7.5\text{K}}{\$10.5\text{K}} = 28.6\%$$



Impact of Market Declines on Margin Maintenance Values

Assumes 200% invested (100% equity / 100% borrowing)

Portfolio Decline	Market Value	Margin Balance	Equity Value	Margin Maintenance Value (MMV) ¹
0%	20,000	10,000	10,000	50.00%
5%	19,000	10,000	9,000	47.37%
10%	18,000	10,000	8,000	44.44%
15%	17,000	10,000	7,000	41.18%
20%	16,000	10,000	6,000	37.50%
25%	15,000	10,000	5,000	33.33%
30%	14,000	10,000	4,000	28.57%
35%	13,000	10,000	3,000	23.08%
40%	12,000	10,000	2,000	16.67%
45%	11,000	10,000	1,000	9.09%
50%	10,000	10,000	0	0.00%

¹MMV = (Market Value – Margin Balance) / Market Value

- This example involves a highly leveraged portfolio that is 200% invested. A portfolio decline of over 25% will create a situation where the margin maintenance value (MMV) falls below 30%, creating a margin call with most brokers.
- How do you think a disciplined investment approach involving the timing of junk bond (or other low volatility) mutual funds would perform in a margined portfolio?

Summary

- Margin may not be appropriate for all investors.
- If you are not experienced with margin, use it gradually.
- Use margin with low volatility portfolios.
- Margining a low volatility portfolio can be less volatile than a non-margined portfolio of equity investments or even a balanced (bond/equity) portfolio.
- Use margin to purchase investments with an expected rate of return that is more than two times the margin rate.
- Mutual funds are not immediately marginable; they must be held in your account for 30 days for investors to use them to borrow against. Consider doing exchanges within a fund family to keep of mutual fund holdings “seasoned”.
- Junk bond ETFs are usually immediately marginable, however they are more volatile.
- Margin is available in non-qualified accounts; using margin in qualified (tax-deferred or tax free) accounts can create UBTI (Unrelated Business Taxable Income).