CAPITAL MANAGEMENT

the quant pros

You Should Be *Concerned About Risk*

PAPERS 2013 Fall Workshop, September 13, 2013

Geoffrey Gerber, Ph.D., President & Chief Investment Officer

phone 724.942.2000 fax 724.942.2002

3244 Washington Road Suite 202 McMurray, PA 15317

twincapital.com

Outline

- Risk – A Financial Markets View
- Relationship Between Risk and Return
- Managing Downside Risk: Lowering Equity Volatility
- Investment Mandates & Risk Levels

TWIN CAPITAL MANAGEMENT

Risk
A Financial Markets View

- Risk Relates to Variability of Asset Returns and Ability to Fund Investor Goals
  - Variability Over Time Termed Volatility
  - Variability At a Point in Time Often Called Dispersion or Spread
- Risk Measures Are Usually Statistical Concepts; Risk Issues Are Broader in Scope
- Risk Can Be Viewed in Relative or Absolute Terms
- Risk Levels Have Investment Implications

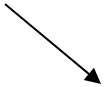
Risk Does Matter

The Mathematics of Compounding

It's Tougher to Get It Back

If You Lose	Then You Need
10%	11%
20%	25%
55%	122%
75%	300%
Of an investment …	**To get back to where you started**

Actual peak to trough decline in S&P 500 during recent bear market.



TWIN CAPITAL MANAGEMENT

Why Does Risk Matter?

A Simple Example

Two investment programs produce the same annual average return but with different levels of risk

Year	Investment A Annual Return	Investment B Annual Return
1	-6.0	-20.0
2	12.0	16.0
3	10.0	12.0
4	-7.0	-22.0
5	14.0	20.0
6	15.0	22.0
7	8.0	8.0
8	13.0	18.0
9	18.0	28.0
10	3.0	-2.0
11	10.0	12.0
12	6.0	4.0
13	-12.0	-32.0
14	18.0	28.0
15	-10.0	-28.0
16	21.0	34.0
17	23.0	38.0
18	7.0	6.0
19	5.0	2.0
20	12.0	16.0

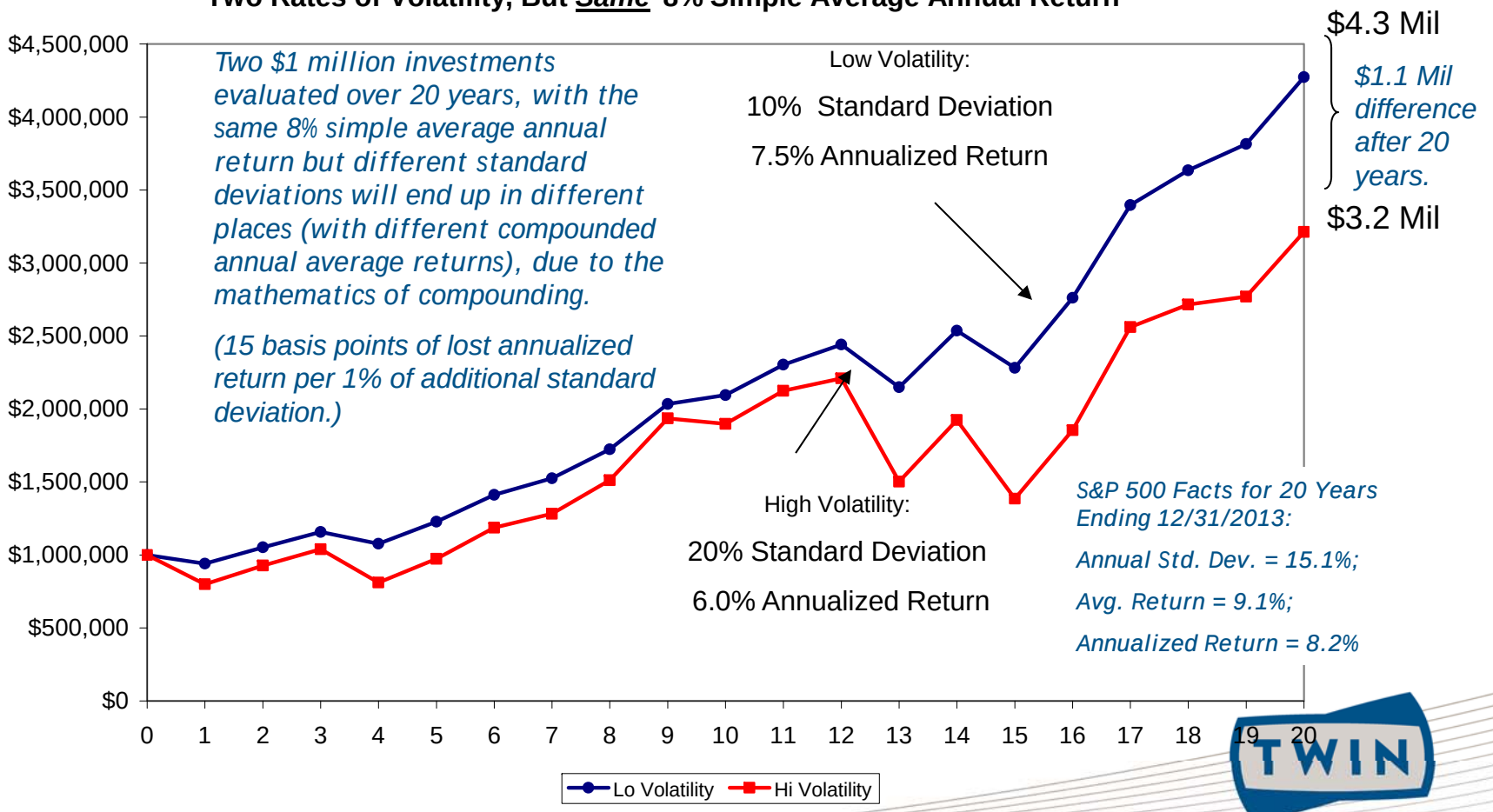
Average Annual Return is 8% for both Investments (A and B). The Standard Deviation of B (20%) is twice the volatility of A (10%).

While the average annual return is the same for the two investments, the annualized (or geometric) return is quite different.

TWIN CAPITAL MANAGEMENT

Standard Deviation Over Time (Volatility) is a Risk Measure; You Should Care About It

$1 Million Invested for 20 Years:
Two Rates of Volatility, But *Same* 8% Simple Average Annual Return



TWIN CAPITAL MANAGEMENT

Volatility Matters Because It Reduces Wealth

Year	Percent (%) Investment A Annual Return	Investment B Annual Return	Investment C Annual Return
1	-6.0	-20.0	-7.0
2	12.0	16.0	11.0
3	10.0	12.0	9.0
4	-7.0	-22.0	-8.0
5	14.0	20.0	13.0
6	15.0	22.0	14.0
7	8.0	8.0	7.0
8	13.0	18.0	12.0
9	18.0	28.0	17.0
10	3.0	-2.0	2.0
11	10.0	12.0	9.0
12	6.0	4.0	5.0
13	-12.0	-32.0	-13.0
14	18.0	28.0	17.0
15	-10.0	-28.0	-11.0
16	21.0	34.0	20.0
17	23.0	38.0	22.0
18	7.0	6.0	6.0
19	5.0	2.0	4.0
20	12.0	16.0	11.0
Average Annual Return	**8.0**	**8.0**	**7.0**
Standard Deviation of Annual Return	**10.1**	**20.1**	**10.1**
Geometric Annualized Return	**7.5**	**6.0**	**6.5**
Value of $1 Million Invested at End of 20-Years	**$4,273,985**	**$3,212,138**	**$3,542,465**

Average Annual Return is 8% for both Investments (A & B). The Standard Deviation of B (20%) is twice that of A (10%).

While the average annual return is the same for both investments, the annualized (or geometric) return is quite different.

While the Average Annual Return is lower for Investment C compared to B, the annualized return is actually greater due to Investment C's lower standard deviation.

TWIN CAPITAL MANAGEMENT

Relationship Between Risk & Return

Geometric Annualized Return = Average Annual Return – ½ (Standard Deviation of Return)^2

Investment A: $0.075 = 0.08 - \frac{1}{2}(.1)^2$

Investment B: $0.06 = 0.08 - \frac{1}{2}(.2)^2$

Investment A: $0.065 = 0.07 - \frac{1}{2}(.1)^2$

Lower Annual Standard Deviation Means Higher Geometric or Compounded Annual Return and Ending Wealth Level

Extreme Daily Changes Tend to Cluster

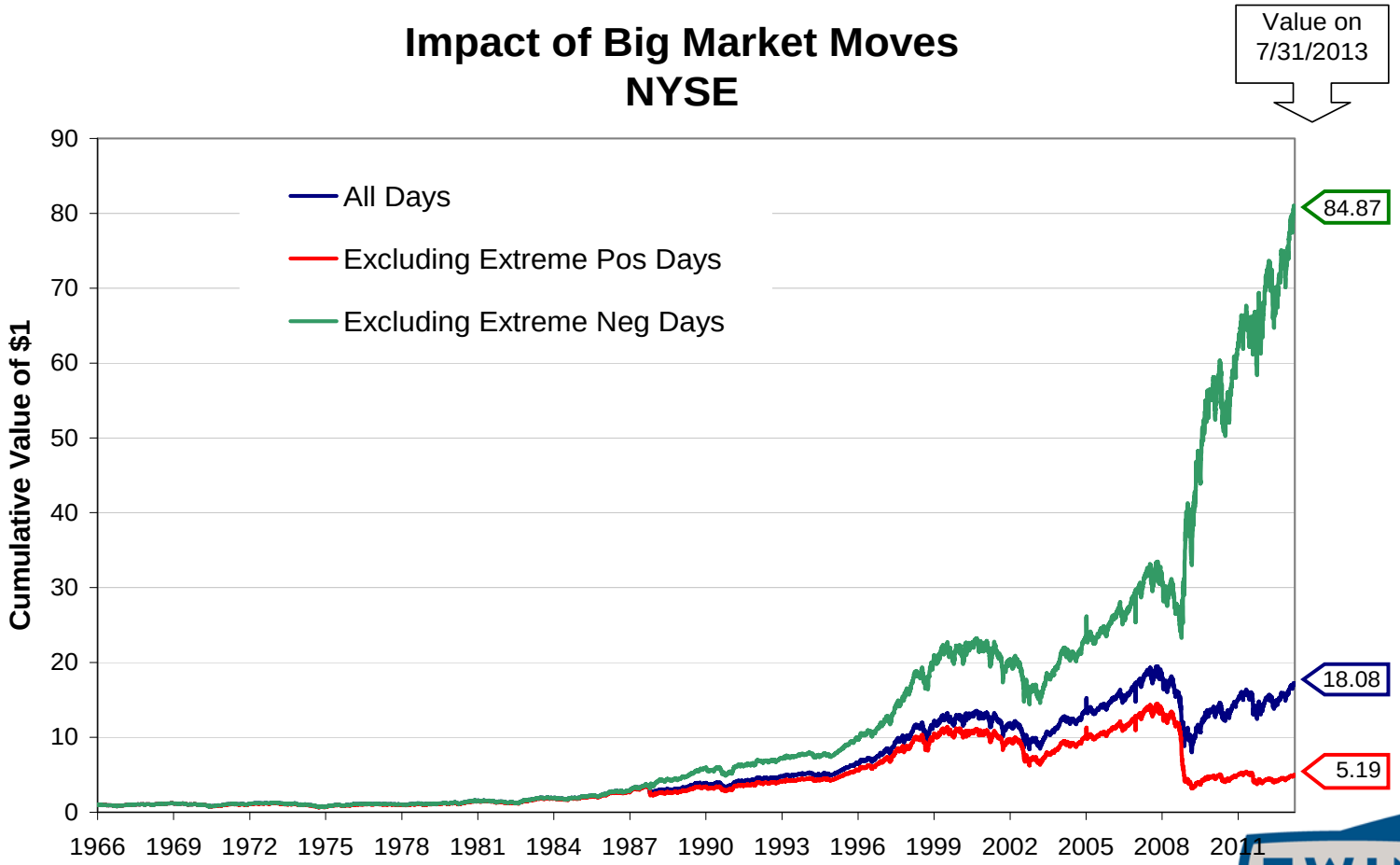
NYSE Composite Index - Daily Performance (Dividends Omitted)

	Best Days				Worst Days		
Rank	Date	Level	Change (%)	Rank	Date	Level	Change (%)
1	**13-Oct-2008**	6401.0	12.2	1	**19-Oct-1987**	1360.0	-19.2
2	**28-Oct-2008**	5733.4	10.3	2	**15-Oct-2008**	5760.0	-9.7
3	**21-Oct-1987**	1533.4	9.0	3	**1-Dec-2008**	5092.7	-9.0
4	**13-Nov-2008**	5715.8	7.4	4	**29-Sep-2008**	7204.0	-8.7
5	**23-Mar-2009**	5185.9	7.3	5	**26-Oct-1987**	1352.2	-8.1
6	**24-Nov-2008**	5313.8	7.1	6	**9-Oct-2008**	5810.0	-7.9
7	**21-Nov-2008**	4959.8	6.6	7	**20-Nov-2008**	4651.2	-7.2
8	**10-Mar-2009**	4499.4	6.5	8	**8-Aug-2011**	6896.0	-7.1
9	**20-Oct-2008**	6287.6	5.7	9	**22-Oct-2008**	5630.5	-7.0
10	**16-Dec-2008**	5805.0	5.6	10	**19-Nov-2008**	5012.0	-6.6
11	24-Jul-2002	4791.5	5.3	11	27-Oct-1997	4897.9	-6.6
12	**19-Sep-2008**	8187.1	5.3	12	31-Aug-1998	5081.7	-6.2
13	**9-Aug-2011**	7258.0	5.3	13	**20-Jan-2009**	5058.1	-6.1
14	27-May-1970	419.3	5.2	14	8-Jan-1988	1448.9	-6.1
15	29-Jul-2002	5125.2	5.2	15	13-Oct-1989	1962.1	-5.8
16	**10-May-2010**	7257.6	4.9	16	**6-Nov-2008**	5667.4	-5.7
17	16-Mar-2000	6708.4	4.9	17	**12-Nov-2008**	5320.7	-5.6
18	**4-Nov-2008**	6345.1	4.8	18	**2-Mar-2009**	4361.0	-5.5
19	**30-Nov-2011**	7484.5	4.7	19	**7-Oct-2008**	6388.4	-5.4
20	**11-Aug-2011**	7257.6	4.6	20	**4-Aug-2011**	7428.4	-5.4

In data from January 2, 1966 – July 31, 2013 29 of 40 of the most extreme days (identified in red) have occurred since September 15, 2008.

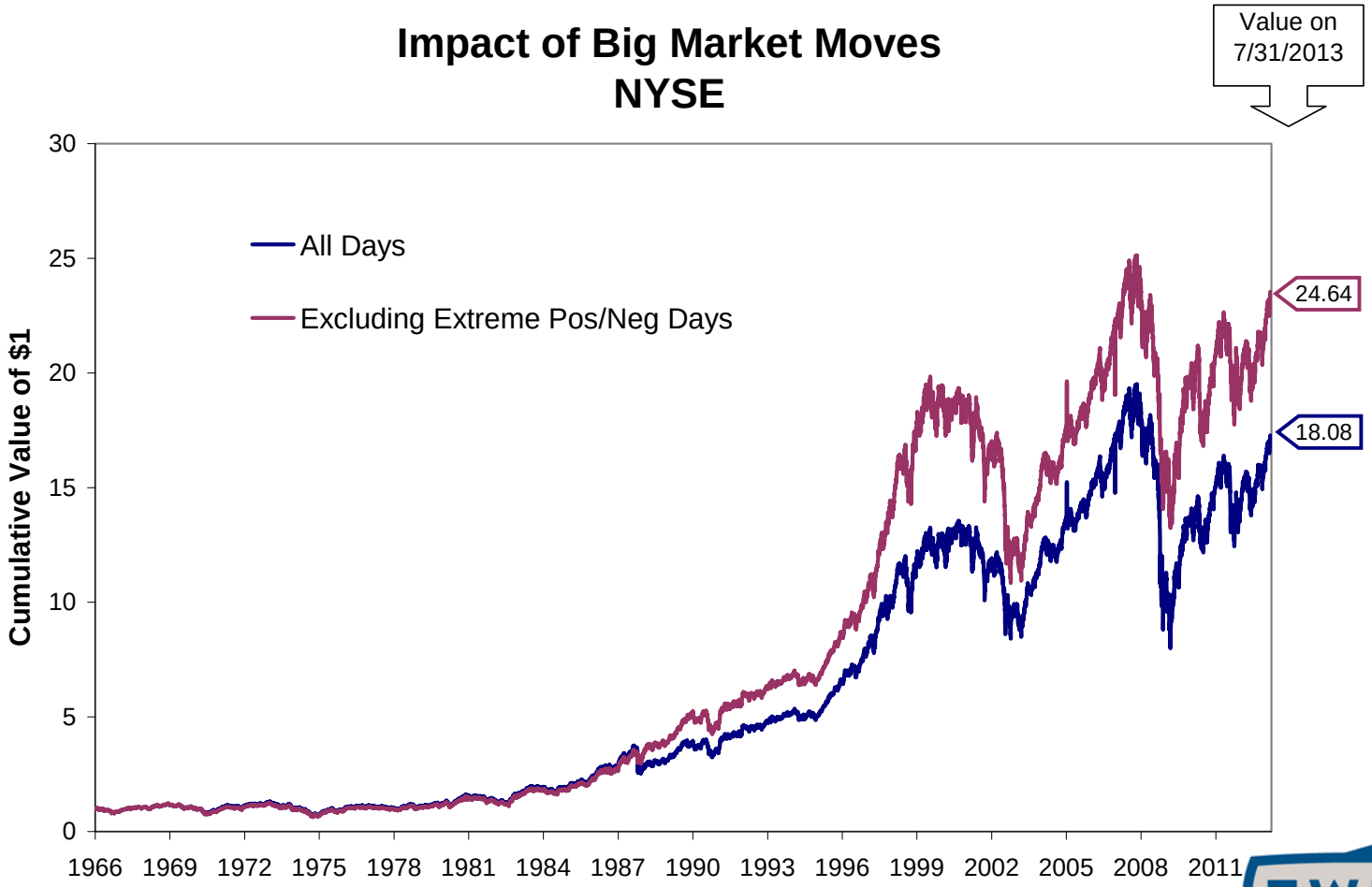
TWIN CAPITAL MANAGEMENT

Ending Investment Value Greatly Influenced By A Few Days



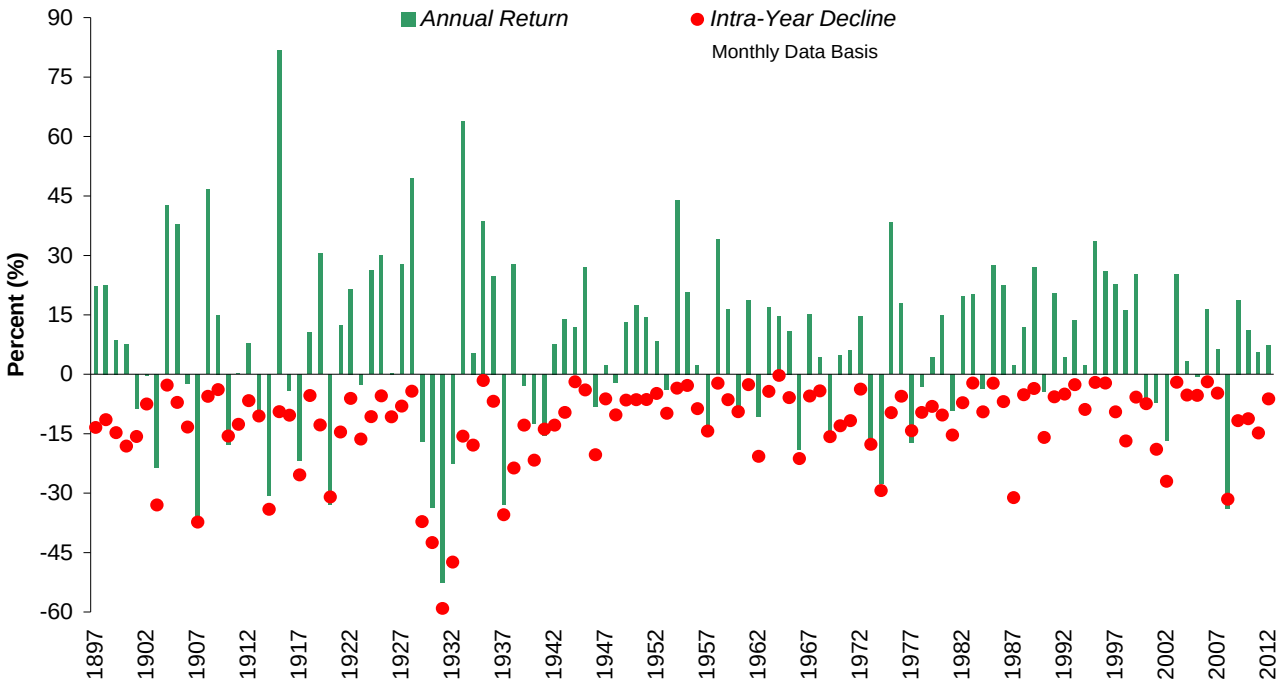
TWIN CAPITAL MANAGEMENT

Avoiding Good & Bad Days Boosts Ending Investment Value



Long History Shows Substantial Intra-Year Draw-downs

Annual Returns & Intra-Year Declines: Dow 30 Industrials
1897 - 2012

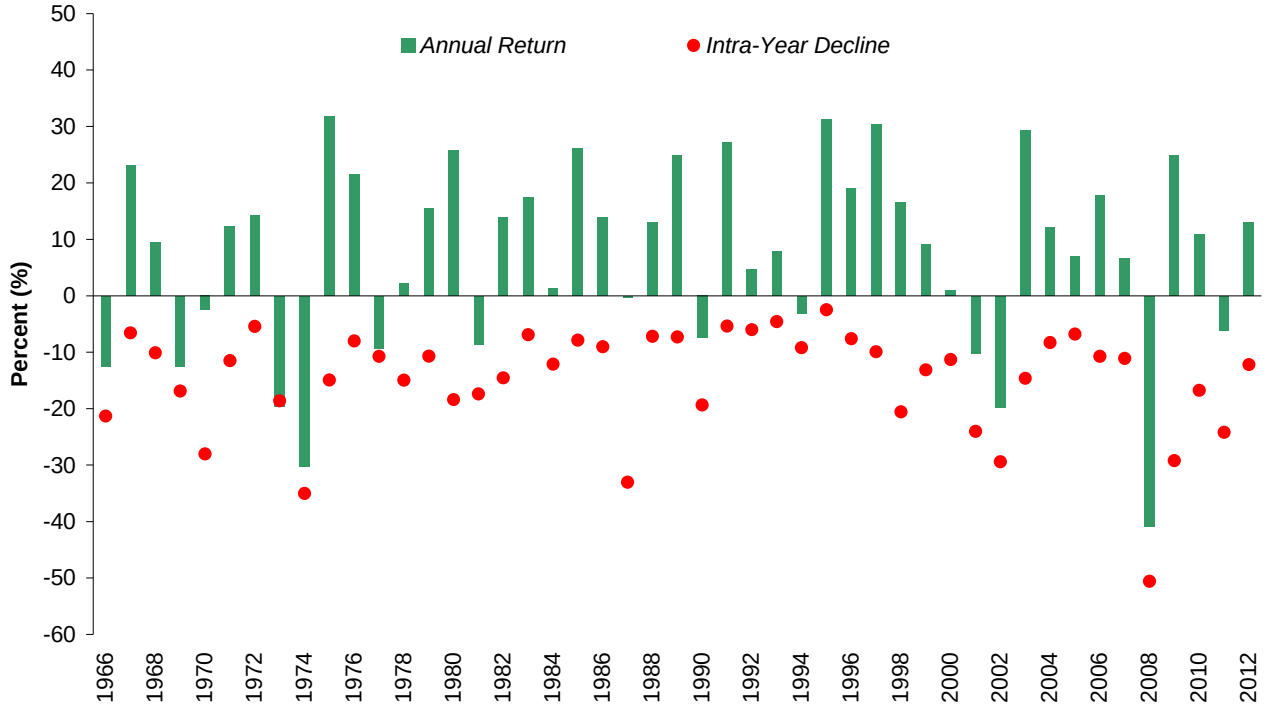


Intra-Year decline is defined as the maximum decline for up to a six-month period within a calendar year. The average such decline is 12.4% for the Dow 30 during the 116 years between 1897 & 2012, even though the average yearly return is positive (7.4%).

TWIN CAPITAL MANAGEMENT

Substantial Draw-downs Also Evident in Broader Market Indices

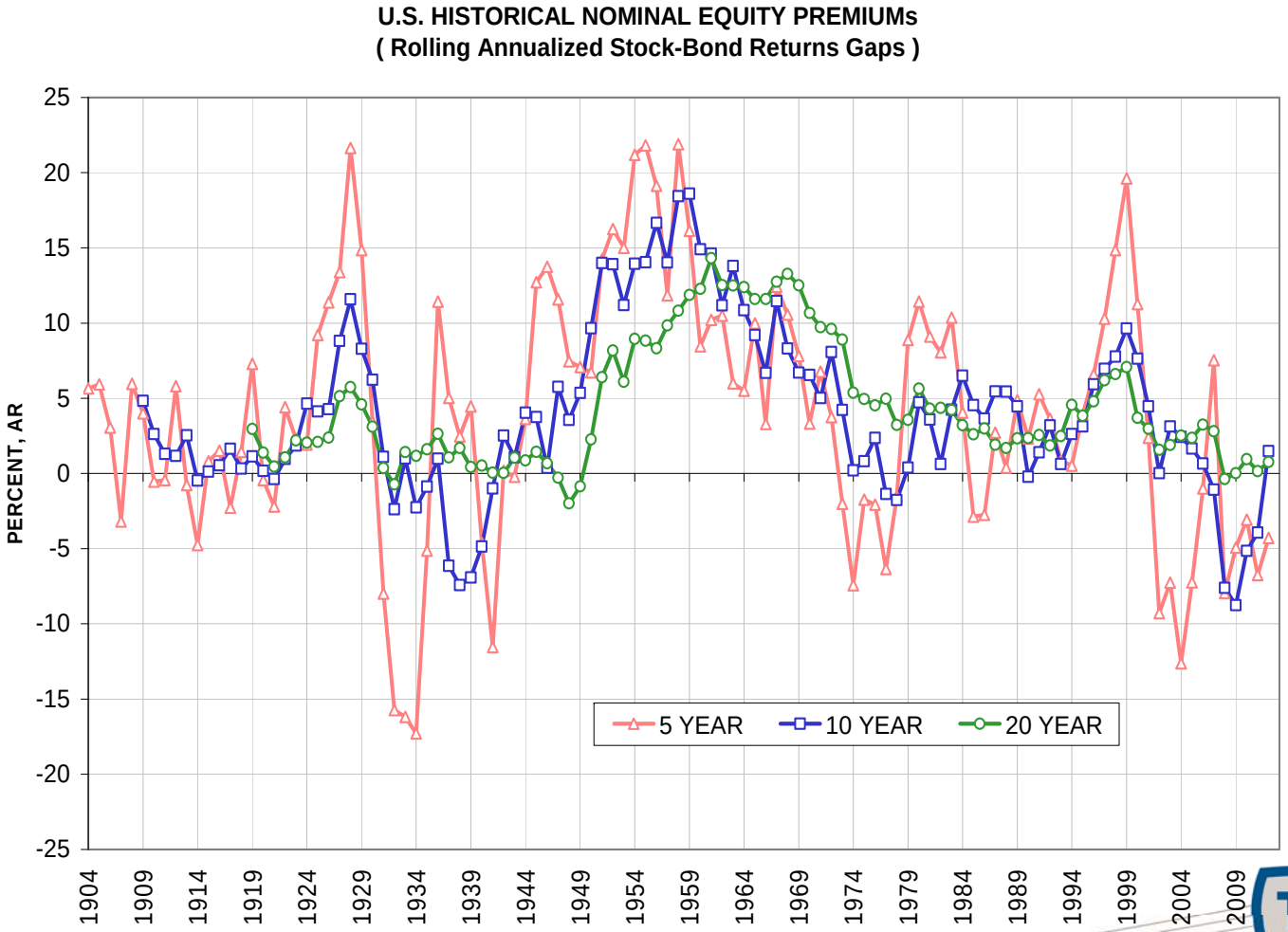
Annual Returns & Intra-Year Declines: NYSE Composite
1966 - 2012



Intra-Year decline using daily data is defined as the maximum decline for up to a 126-day period within a calendar year. The average such decline is 14.8% for the NYSE Composite between 1966 & 2012, even though the average yearly return is positive (6.1%).

TWIN CAPITAL MANAGEMENT

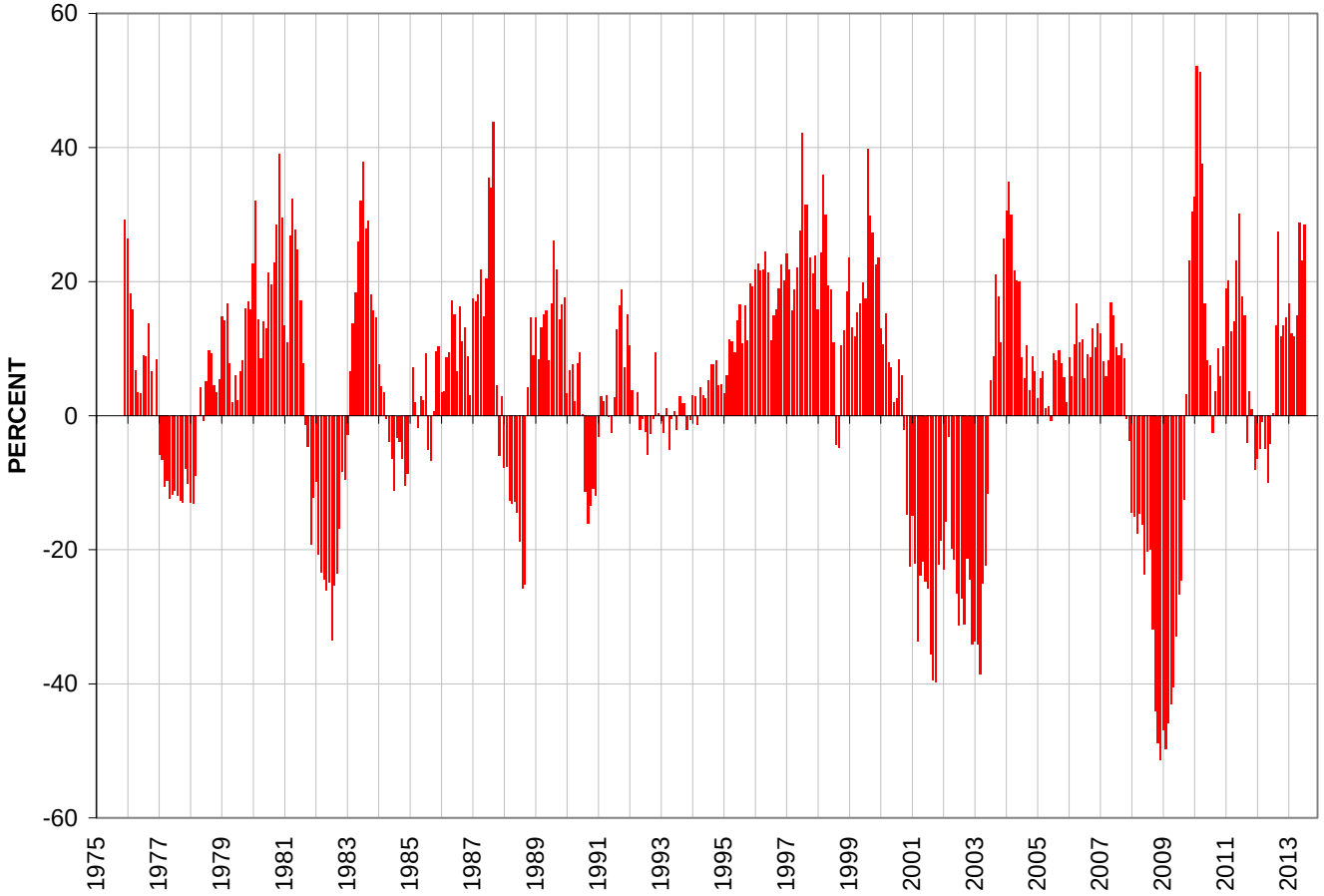
Negative Equity Premia Evident For Shorter-Term Periods



TWIN CAPITAL MANAGEMENT

Stock-Bond Return Gap

Rolling 12-Month Periods – Jan 1975-July 2013



TWIN CAPITAL MANAGEMENT

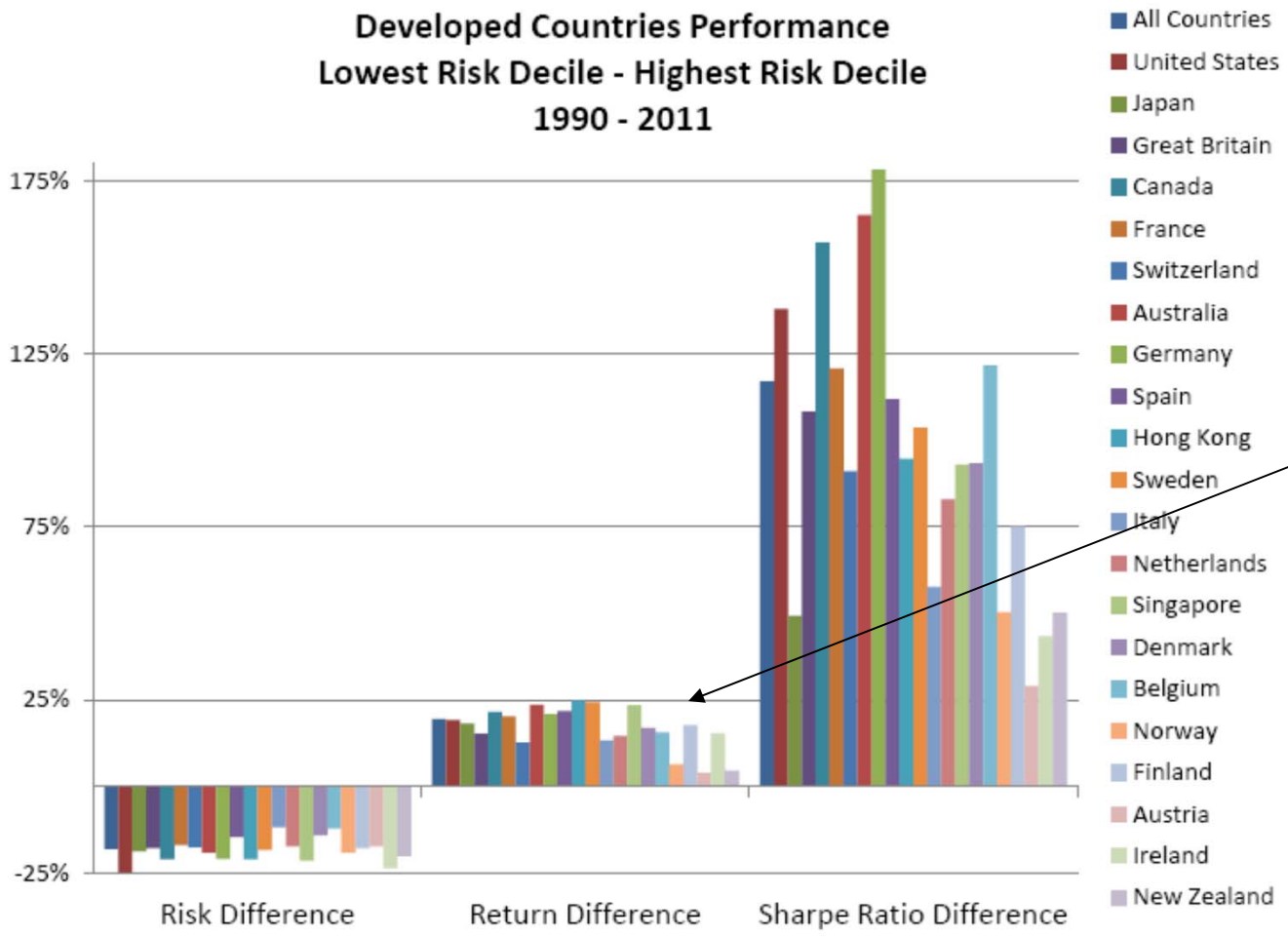
Investment Implications of Extremes

- Recent Extreme Ups and Downs Dramatically Raise Measured Risk
- Significant Changes to Ending Wealth Associated with Extreme Market Moves
- Difficult to Forecast Onset of Extreme Moves, Although Clustering Evident
- Use of Tranches when Making Allocation Changes Can Reduce Adverse Timing Effects
- Lowering Equity Volatility Exposure Offers Chance to Exploit Low-Volatility Anomaly and Reduce Risk

Low-Volatility Anomaly Facts

- Modern portfolio theory (CAP-M) states that investors who take on greater risk can expect to earn greater rewards
- An ever-growing collection of research disputes this fundamental relationship between expected risk and reward
  - Least-volatile stocks in the US and other global markets have produced higher average returns (+17%) historically compared to the highest-risk stocks (Baker & Haugen 2012)
  - Advantage of lower-volatility stocks exists using different measures of risk, sub-periods and capitalization tiers (Baker, Bradley & Wurgler 2011)
- Evidence suggests effect is stronger in more recent periods

Low-Volatility Anomaly Facts



Low-risk stocks have out-performed high-risk stocks over the past 20 years across all developed equity markets.

Source: N. Baker & R. Haugen, "Low Risk Stocks Outperform Within All Observable Markets of the World", 2012 (LowVolatilityStocks.com)

TWIN CAPITAL MANAGEMENT

Low-Volatility Anomaly Implementation

- Managed volatility strategies
  - Minimum-variance
  - Blended equity & fixed income approach (i.e., Risk Parity)
- Passive exposure via ETFs
  - LGLV (SPDR Russell 1000)
  - SPLV (PowerShares S&P 500)
- Low-volatility active equity strategies

Isolating Less Volatile Stocks

- Goal is to provide exposure to large-cap US stocks with a moderately long history of dividend ***payment and growth***.
  - Stocks capable of ***growing*** dividends provide a potential inflation hedge, especially when compared to fixed-coupon bonds.
  - Large, well-known companies with a rising dividend profile tend to be less risky, offering the potential to reduce volatility.
- Investable portfolio derived from regularly applying a series of dividend screening rules to large-cap equity market index constituents.
- Successful dividend investing is about more than chasing high yield!

Dividend Select Club

- Stocks in the S&P 500 with at least 10 years of history are screened to insure the latest indicated annual dividend is at least as large as the level one year ago, and strictly progressively increasing over intervals of prior 10, 5, 3 and 1 years.
- The indicated annual dividend must be less than recent reported trailing 12-month operating earnings and the 12-month forward consensus analyst earnings estimate**.**
- Stocks in the ***Dividend Select Club*** are reconstituted at each quarter-end based on current dividend & earnings trends.

The Dividend Select Club is a custom collection of companies with a rising dividend stream thought to be less at-risk than the stream from typical dividend-paying stocks.

TWIN CAPITAL MANAGEMENT

Dividend Select Club Portfolio Characteristics July 2013

Characteristic	Dividend Select Club	S&P 500	S&P 500 Value	Russell 3000
Holdings (#)	146	500	356	2923
Weighted Avg MCAP ($ Mil)	127,467.7	103,989.8	96,672.4	85,848.7
Dividend Yield (%)	2.9%	2.3%	2.7%	2.2%
Price-to-Earnings (Trail 12 mo) Ratio	16.4	18.1	12.6	16.2
Price-to-Book Ratio	5.2	4.4	3.3	4.3
Earnings Growth (%, Next 5 yrs)	9.6%	15.1%	13.9%	16.2%
MSCI-BARRA Predicted Beta (Relative to S&P 500)	0.863	1.000	1.039	1.031

The Dividend Select Club is currently less volatile (lower Beta), higher-yielding, and has higher average capitalization relative to other market benchmarks. Moreover, the TWIN Dividend Select Club has a higher Price-to-Book multiple than a Value index; it is not a "cheap" portfolio in that sense.

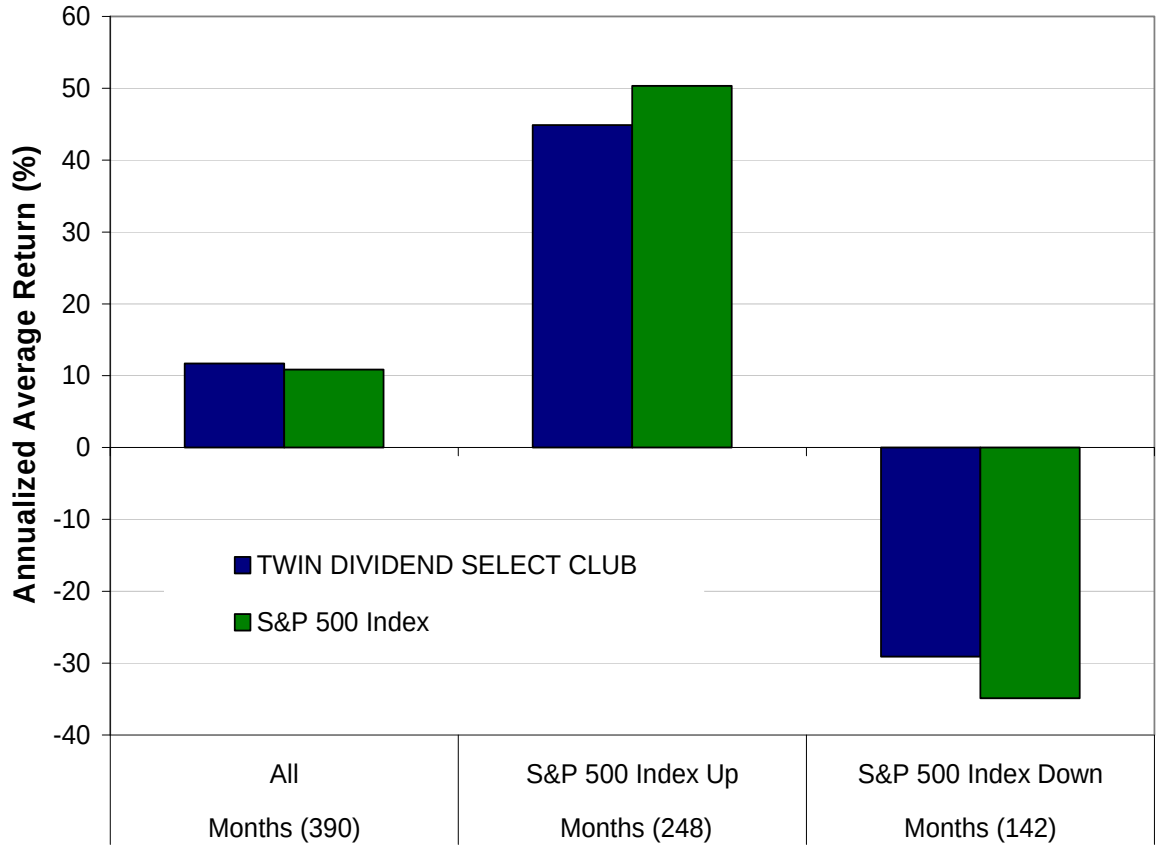
Stock Dividends Research Analysis

- Beginning in December 1980, assign every S&P 500 Index constituent into one of three groups:
  1. The ***Dividend Select Club*** members
  2. Companies that currently pay dividends but are not members of the "***Club***" (Weak Dividend Payers)
  3. Companies that do not currently pay dividends (Non-Dividend Payers)
- Reconstitute each group on a quarterly basis
- Calculate monthly returns for the three portfolio groups

*Key Result – While excess returns (relative to the S&P 500) vary, the **Dividend Select Club** members have consistently been the lowest-risk group.*

Dividend Select Club

Up and Down Market Capture -- Jan 1981:June 2013



The Dividend Select Club has historically captured 89% of the market's upside return and 83% of the downside return. Over 390 months (January 1981 – June 2013) the Club Portfolio has outpaced the S&P 500 Index by 0.8% annually.

Returns are hypothetical. See "HYPOTHETICAL RETURNS & PERFORMANCE" in the Disclosures for details.

TWIN CAPITAL MANAGEMENT

Top Holdings Comparison

Alternative Dividend Groups v. S&P 500

TOP 10 STOCKS

Dividend Select Club	Weak Dividend Payers	Non-Dividend Payers	S&P 500
EXXON MOBIL	APPLE	GOOGLE	EXXON MOBIL
MICROSOFT	GENERAL ELECTRIC	BERKSHIRE HATHAWAY	APPLE
WAL-MART	WELLS FARGO	AMAZON.COM	GOOGLE
JOHNSON & JOHNSON	J P MORGAN CHASE	GILEAD SCIENCES	MICROSOFT
CHEVRON	PFIZER	EBAY	BERKSHIRE HATHAWAY
IBM	CITIGROUP	AMER INTL GROUP	WAL-MART
PROCTER & GAMBLE	VISA	BIOGEN IDEC	JOHNSON & JOHNSON
AT&T	ORACLE	EXPRESS SCRIPTS	GENERAL ELECTRIC
COCA-COLA	PHILIP MORRIS	CELGENE	CHEVRON
VERIZON	MERCK	GENERAL MOTORS	WELLS FARGO

As of June 28, 2013, the Dividend Select Club includes 5 of the largest 10 stocks as ranked by market capitalization in the S&P 500.

Relative Excess Returns (%)

YEAR	***Dividend Select Club*** Stocks	Other Dividend-Paying Stocks	Non-Dividend-Paying Stocks	
1981	-3.3	5.5	-7.3	
1982	-2.6	0.6	10.9	
1983	-0.7	1.3	7.4	
1984	2.3	-0.7	-17.0	
1985	1.1	0.1	-10.0	
1986	3.7	1.4	-18.8	
1987	-2.0	1.0	7.0	
1988	-0.3	-0.2	-0.6	
1989	5.2	-2.7	-7.4	
1990	4.1	-1.4	-19.2	
1991	7.8	-9.2	1.4	
1992	-4.0	4.7	9.4	
1993	-7.2	7.6	7.1	
1994	0.9	-1.0	1.0	
1995	3.7	-3.4	-5.1	
1996	-0.6	1.7	-5.9	
1997	5.0	-7.1	-4.0	
1998	-3.8	-6.0	30.4	
1999	-11.4	-9.9	57.1	
2000	21.6	1.2	-26.4	
2001	4.6	1.6	-12.9	
2002	5.4	0.8	-13.8	
2003	-4.4	-0.2	17.2	
2004	-2.1	2.7	0.9	
2005	-2.0	4.7	-3.8	
2006	2.0	-0.2	-6.6	
2007	-2.6	1.2	3.1	
2008	6.6	-5.7	-3.9	
2009	-12.6	4.8	25.7	
2010	0.0	-0.4	2.2	
2011	8.8	-5.7	-8.8	
2012	-5.7	1.2	8.1	
2013	0.8	-1.5	4.5	<Through June

Including the effect of dividends, a hypothetical Dividend Select Club portfolio has out-performed portfolios of other dividend paying stocks and non-paying stocks among S&P 500 constituents on average over the past 30+ years.

Returns are monthly buy & hold, cap-weighted measures with large individual positions constrained to a 6% target maximum weight.

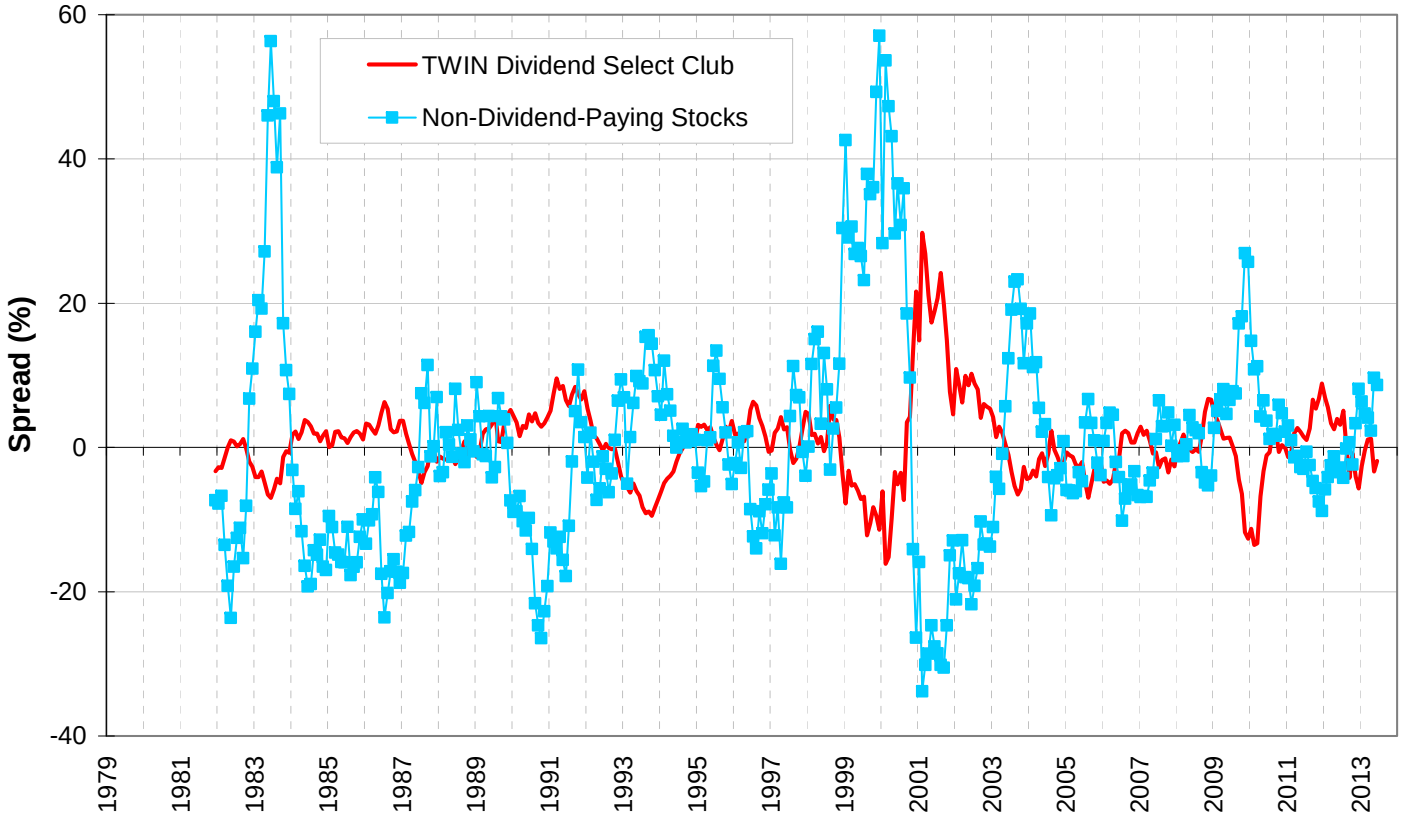
Best-performing segment each period is highlighted.

Returns are hypothetical. See "HYPOTHETICAL RETURNS & PERFORMANCE" in the Disclosures for details.

TWIN CAPITAL MANAGEMENT

Dividend Cycles

Trailing 12-Month Dividend Group Return Minus S&P 500 Return



Return gap in favor of stocks with a growing and covered dividend profile (Dividend Select Club) reached a multi-year high in late 2011 as investors fled risk. So far in 2013, a preference for riskier stocks has prevailed.

TWIN CAPITAL MANAGEMENT

Isolating the Impact of Dividends

S&P 500 Group Risk & Return (%)

Periods Ending June 2013

	TWIN Dividend Select Club Stocks	Other Dividend-Paying Stocks	Non-Dividend-Paying Stocks	S&P 500 Stocks
Annualized Returns Through Latest Period				
Jan-1981 --	11.68	10.47	9.55	10.90
Annualized Risk Through Latest Period				
Jan-1981 --	14.06	16.15	23.25	15.18
Annualized Returns Selected Periods				
1-YR	18.94	20.15	29.44	20.81
3-YR	19.50	16.71	19.26	18.50
5-YR	7.91	4.64	10.15	7.20
10-YR	7.03	7.21	8.70	7.41
Annualized Risk Selected Periods				
1-YR	6.91	6.82	10.36	6.76
3-YR	10.63	16.33	16.13	13.54
5-YR	15.16	21.79	20.73	18.22
10-YR	12.20	16.94	17.70	14.44

Breaking the S&P 500 into 3 non-overlapping groups (Dividend Select Club, Other Dividend-paying Stocks & Non-Paying Stocks) shows dramatically different performance.

A portfolio of Dividend Select Club stocks has had lower risk over longer horizons than portfolios built from the other groups and the S&P 500 as a whole.

Returns are hypothetical. See "HYPOTHETICAL RETURNS & PERFORMANCE" in the Disclosures for details

TWIN CAPITAL MANAGEMENT

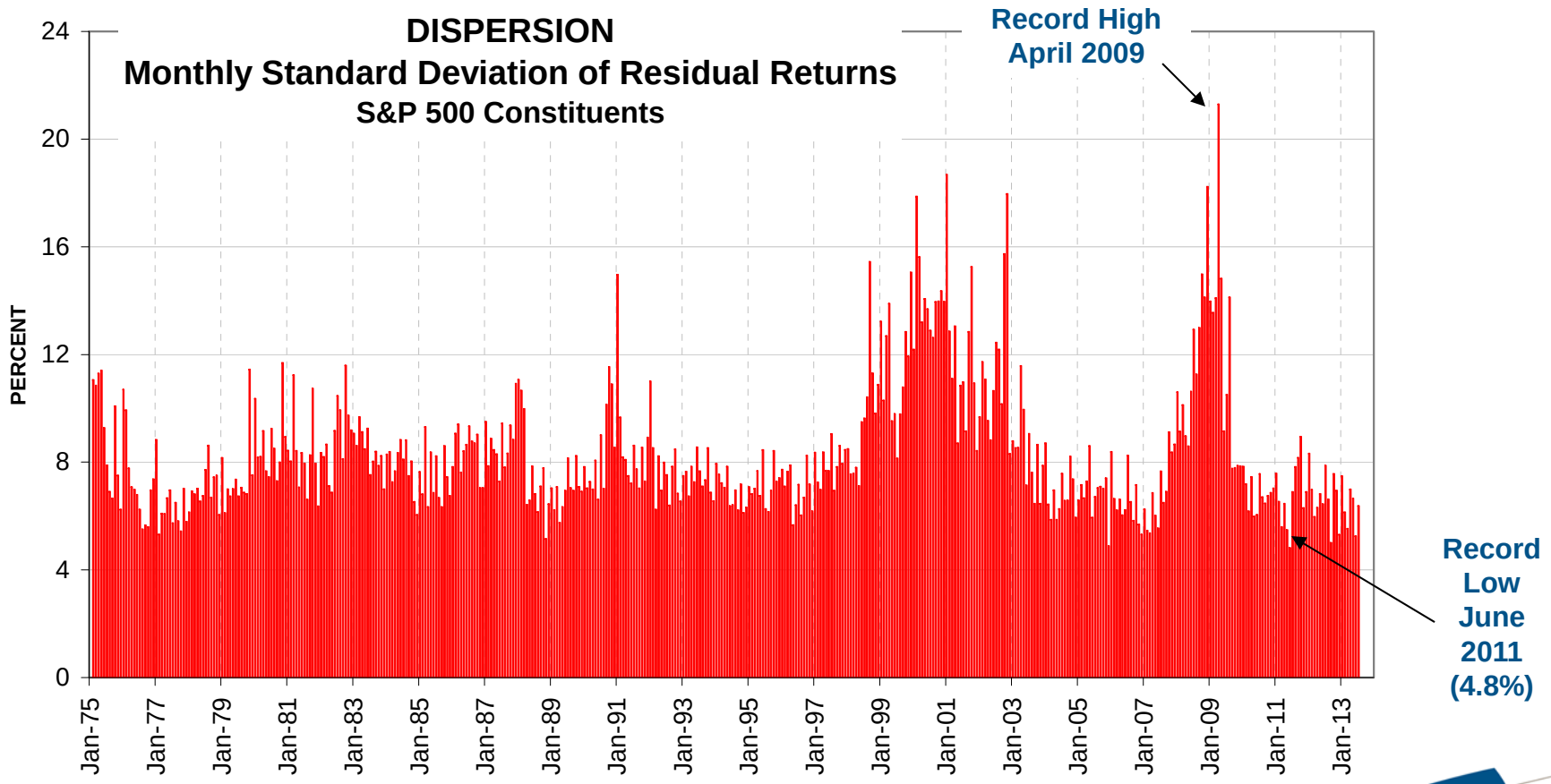
Investment Terms

- **Annualized Risk**: The variation of a portfolio's returns around its average return over an annual basis (measured by standard deviation).
- **Value-Added**: The difference between the manager's annualized return and the benchmark's (S&P 500) annualized return.
- **Tracking Error**: The annualized standard deviation of value-added, it measures the variation of a portfolio's returns relative to the benchmark. Managers with larger active bets tend to have return streams exhibiting higher tracking error.
  - A manager with a 5% tracking error can be expected to produce positive & negative value-added **in excess of 5% in 1 out of every 3 years**.
- **Information Ratio:** The ratio of annualized value-added to tracking error. **Higher Information Ratios tell us that the manager is adding more value per unit of active risk.** This is a very useful metric to determine whether a manager is skillful or not.

Investment Mandates & Risk Levels

Manager Mandate	Total Volatility	Active Risk
Passive	Equals Market	0.1% - 0.5%
Enhanced Index	Close to Market	1% - 2%
Active	At or Above Market	2% - 8%
Low-Volatility	Below Market	4% - 7%

Market Risk Remains Low



Dramatic spike in risk began in the summer of 2007; Level in June (5.3%) is extremely low by historical standards.

TWIN CAPITAL MANAGEMENT

S&P 500 Size Group Performance

S&P 500 TOTAL RETURNS (%) BY CAPITALIZATION DECILE

		TOP 50								BOTTOM 50
YEAR	S&P 500	1	2	3	4	5	6	7	8	9	10
1995	37.6	41.3	36.4	36.6	33.7	35.7	34.4	26.9	25.8	24.5	27.0
1996	23.0	26.9	23.0	18.8	18.4	23.8	15.4	12.9	16.0	22.7	20.2
1997	33.4	36.2	35.2	28.5	31.5	30.6	26.6	23.3	24.0	17.5	35.1
1998	28.6	40.7	25.7	21.6	10.1	11.8	10.2	5.3	8.2	2.8	-6.7
1999	21.0	23.9	34.3	8.4	-1.5	3.4	15.7	5.8	11.2	13.3	21.6
2000	-9.1	-18.7	-5.0	8.4	19.5	16.4	18.0	17.7	21.0	19.2	1.1
2001	-11.9	-14.5	-15.6	-21.6	-11.3	-0.2	2.1	8.7	18.7	29.5	30.4
2002	-22.1	-22.5	-26.2	-22.6	-20.6	-19.1	-10.8	-12.1	-20.9	-23.0	-6.3
2003	28.7	22.9	33.2	29.6	33.9	38.5	39.3	34.0	46.8	61.3	59.8
2004	10.9	5.7	13.3	12.2	22.6	22.4	24.1	17.1	16.5	17.6	18.8
2005	4.9	-0.3	8.5	9.2	10.0	15.1	10.7	18.5	9.3	4.7	2.7
2006	15.8	17.4	10.0	14.4	14.4	21.6	16.7	11.0	15.2	24.1	15.0
2007	5.5	6.4	7.8	9.6	2.2	7.5	2.9	2.2	-3.8	-9.2	-11.9
2008	-37.0	-32.7	-43.0	-37.2	-35.6	-44.0	-37.7	-38.6	-45.9	-42.8	-45.4
2009	26.5	18.6	27.5	29.3	39.3	37.1	41.8	36.9	43.2	88.6	90.2
2010	15.1	10.5	16.3	17.4	15.7	24.0	27.2	27.7	28.0	22.5	28.8
2011	2.1	4.0	-2.3	6.5	0.7	-3.0	1.8	-1.8	-1.4	3.7	-4.7
2012	16.0	15.4	17.3	16.8	13.9	20.2	17.1	17.1	15.7	16.2	26.4
2013	13.8	11.9	16.6	13.7	15.9	15.8	16.1	16.2	15.4	15.3	23.3
Annualized Average											
1995-2012	8.5	7.9	8.4	8.4	9.1	11.2	12.5	10.2	10.3	12.9	13.1

>Worst Performance Decile
>Best Performance Decile

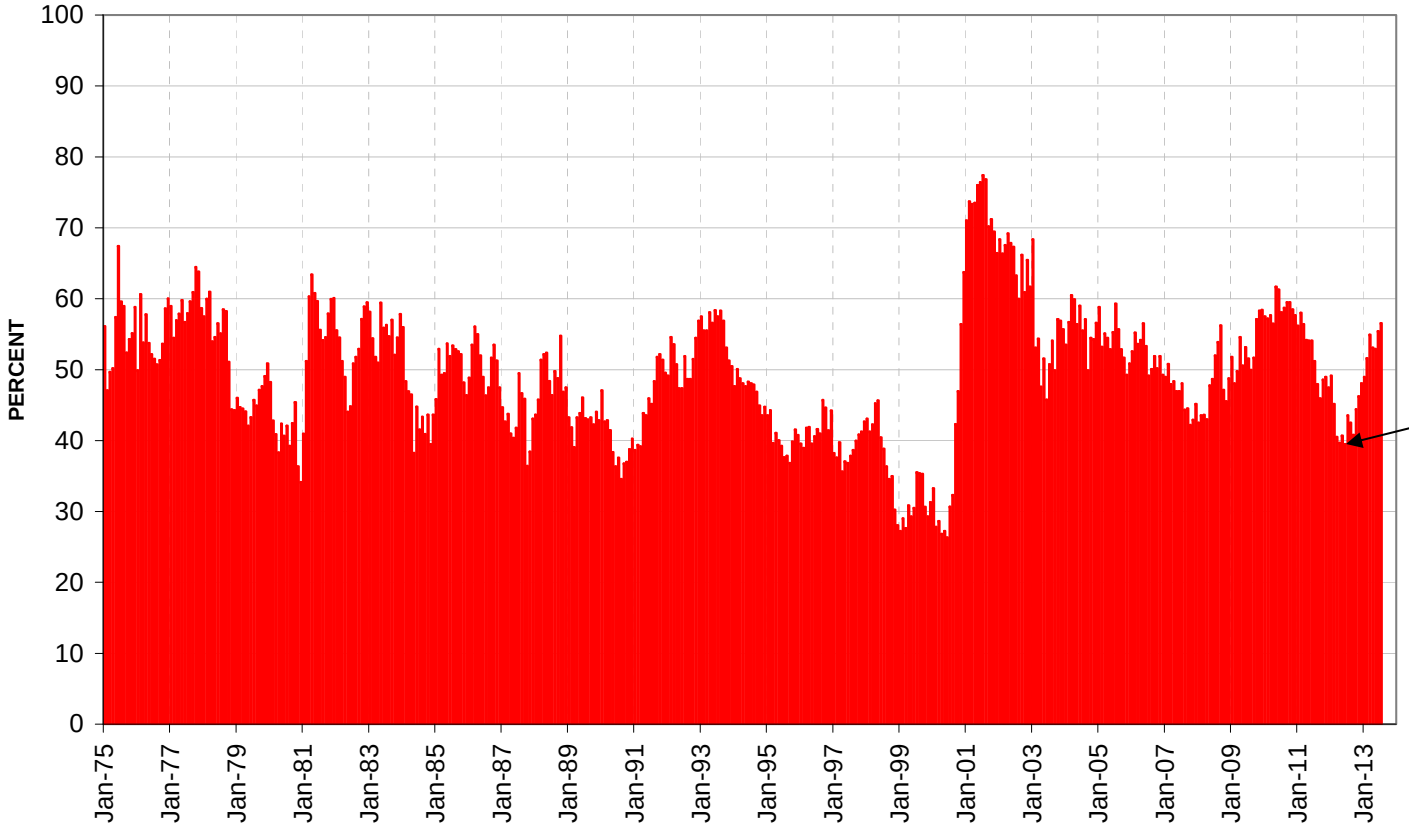
2013 YTD Through June 28, 2013

Performance of Largest 50 stocks in the S&P 500 has varied dramatically over the past 18 years.

TWIN CAPITAL MANAGEMENT

BREADTH - Market-Relative Advances % in S&P 500

Rolling 12-Month Basis

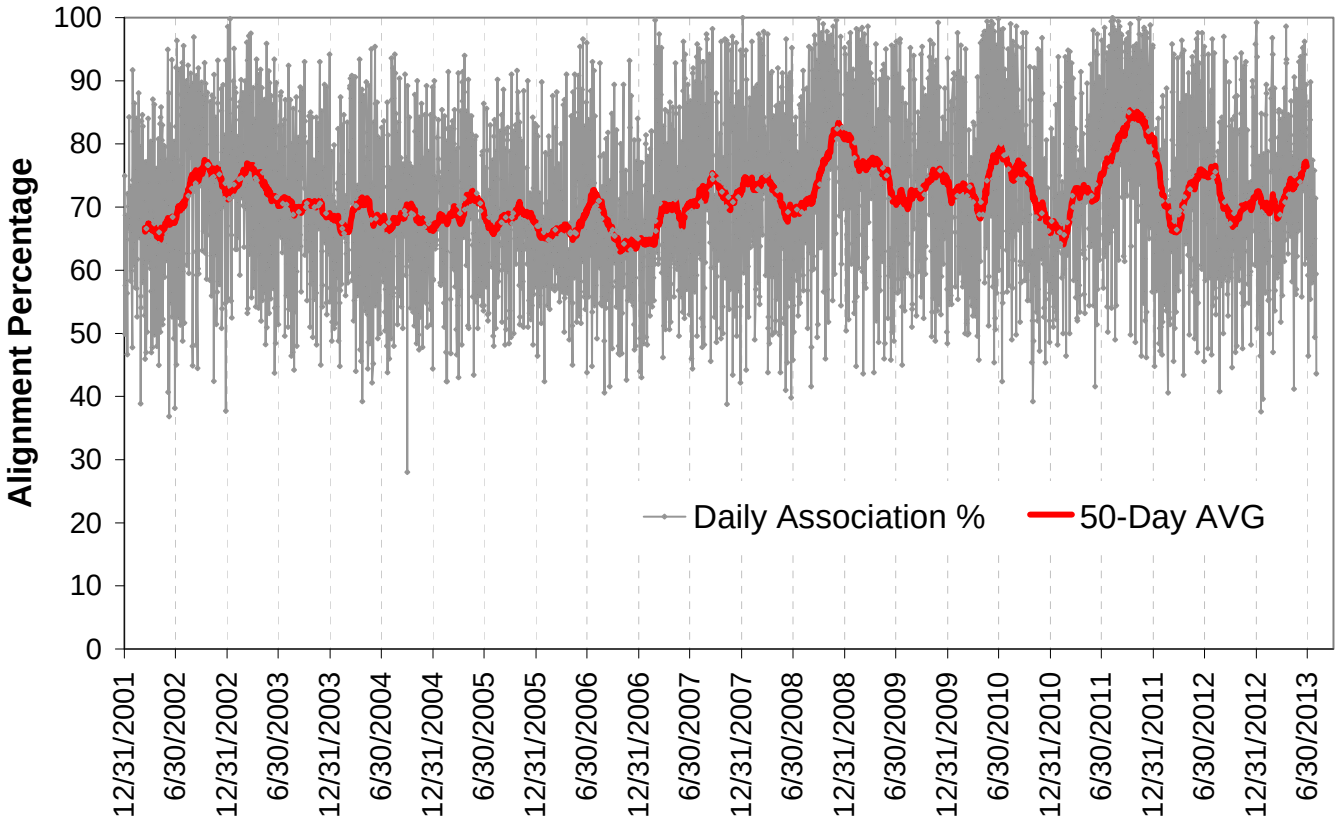


At recent low-point Breadth fell below 40%, lowest since mid-2000.

Market breadth, a measure of manager opportunity, interacts with risk. Breadth had been in a cyclical decline since late 2001, prior to rebounding in 2008. Decline began in mid-2010, followed by recent rebound.

TWIN CAPITAL MANAGEMENT

S&P 500 Daily Returns Directional Agreement Measure



A value of 100% means that on that day all 500 constituent stocks moved in the same direction (i.e. up or down) as the market index.

The recent increase in the 50-Day AVG suggests that macro-driven forces (in this case, Ben Bernanke's comments about slowing down the quantitative easing) are becoming more important to investors.

TWIN CAPITAL MANAGEMENT

Key Takeaways

- Returns volatility acts as drag on realized performance and long-run wealth levels.
- Low-volatility anomaly exists; increasing investor focus on managed volatility strategies.
- Appropriate dividend screening provides a way to identify lower-risk stocks and exploit anomaly.
- Information Ratio is a useful concept to measure a manager's risk-adjusted value-added and level of skill
- There is a difference between stock market volatility over time and stock dispersion at a point in time; although both can have significant impact on plan sponsor decisions and their investment returns

Important Disclosures

PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. INVESTMENTS ARE NOT GUARANTEED AND MAY LOSE VALUE.

TWIN Capital Management, Inc. ("TCM") is a registered investment advisor who started business in April 1990. Unless other wise noted, the performance of all indices and composites referenced herein include reinvested dividends and income. All indices referenced herein are passive, and do not reflect fees or expenses. Investors may not be able to invest in the indices directly. Graphs and charts included in this material are for informational purposes only and are not intended to serve as the basis for any investment decision.

MARKET DATA
Where market and/or index data is presented, it has been obtained from a variety of sources deemed reliable. These sources may include some or all of the following: Russell Investments, FactSet Research Systems, Ford Equity Research, and the US Treasury Department.
TCM assumes no responsibility for the accuracy of this data.

DEFINITIONS & CALCULATIONS
Annualized Returns are calculated as the compound geometric average monthly returns. The geometric average is the monthly average return that assumes the same rate of return every period to arrive at the equivalent compound growth rate reflected in the actual return data. The results are annualized by raising the sum of one plus the compound geometric average monthly return to the twelfth power and then subtracting one.
Standard Deviation measures the dispersion of uncertainty in a random variable (in this case, investment returns). The higher the volatility of investment returns, the higher the standard deviation will be in any given case. For this reason, standard deviation is often used as a measure of investment risk. Values are calculated by applying the traditional sample deviation formula to monthly return data, and then annualized by multiplying the result by the square root of twelve.

INDEX INFORMATION
The S&P 500 Index is a representative measure of 500 leading companies from leading industries; the index is a benchmark for the large-cap segment of U.S. equity market. Company weights in the index are proportional to firms' available market capitalization (price times available shares outstanding). A Committee at Standard and Poor's maintains the index with a focus on liquidity and investability. Style category breakpoints based on an objective scoring algorithm are used to assign fractions of the S&P 500 Index constituents' capitalization to value & growth sub-indices.

Important Disclosures

INDEX INFORMATION (Continued)

Russell Investments produces and maintains a family of U.S. equity indexes. In the determination of index membership, Russell calculates capitalization and style category breakpoint values based on ranks of U.S. common stocks at each annual reconstitution period using market value of freely-available outstanding shares (as of the last day of May each year). Stocks exceeding the breakpoint established for the largest 3,000 stocks become constituents in the Russell 3000 Index (with some adjustments to the constituent list to reduce category changes). Similarly, the largest approximately 1,000 stocks become the Russell 1000 Index; the next-largest approximately 2000 stocks become the Russell 2000 Index. The approximately 200 largest companies in the Russell 1000® Index become the Russell Top 200 Index. The stocks in the Russell Top 200 index typically account for approximately 75% of the aggregate market capitalization of the Russell 1000 Index. Style category breakpoints based on an objective scoring algorithm are used to assign fractions of the Russell 1000 Index constituents' capitalization to value & growth sub-indices.

The Dividend Select Club is a custom collection of companies with a rising dividend stream thought to be less at-risk than the stream from typical dividend-paying stocks. Stocks in the S&P 500 with at least 10 years of history are screened to insure the latest indicated annual dividend is at least as large as the level one year ago, and strictly progressively increasing over intervals of prior 10, 5, 3 and 1 years. In addition, the indicated annual dividend must be less than recent reported trailing 12-month operating earnings and the 12-month forward consensus analyst earnings estimate. The S&P 500 Index is a float-capitalization-weighted representative measure of leading large-cap companies created and maintained by Standard & Poor's. The Dividend Select Club is constructed and maintained by TCM as a hypothetical portfolio and is not a publicly available index. TCM reconstitutes the stocks in the Dividend Select Club at each quarter-end based on current dividend & earnings trends. Stock weights reflect market capitalization. Overly large weights are capped at a threshold for diversification purposes. While the stocks remain the same throughout the subsequent calendar quarter, the weight of each company in the benchmark is reset monthly based on the latest data at each month-end. Returns are computed using a bottom-up, buy and hold computation, based on prior month-end holdings in the Dividend Select Club portfolio. Stocks in the S&P 500 not in the Dividend Select Club at reconstitution are assigned to one of two distinct alternative group portfolios: Other Dividend Paying Stocks (provided the latest indicated annual dividend is strictly positive) or Non-Dividend Paying Stocks. Group weights and returns are constructed in an analogous manner to those of the Dividend Select Club.

Important Disclosures

HYPOTHETICAL RETURNS & PERFORMANCE

The long-run performance presented by TCM for the Dividend Select Club, other dividend-related groupings of stocks and other custom benchmarks is hypothetical. Prospective investors are advised to consider a number of important factors when reviewing this type of back-tested information. The reported performance was derived from the retroactive application of sets of rules with the benefit of hindsight. There are inherent limitations with this type of data (e.g., performance results do not represent actual trading) and results are sensitive to the period of analysis chosen. TCM did not offer the trading strategies throughout the entire periods presented and different economic conditions might have impacted the adviser's decision-making when using the rules to manage actual client accounts. While the sets of rules have been applied consistently to generate the latest results, these rules and associated trading strategies have evolved over time. The performance presented does not reflect the deduction of advisory fees, brokerage or other commissions, mutual fund exchange fees, and other expenses a client would have paid. Investors are reminded of the potential for loss as well as profit.