

Prevarication: Industry Statistical Studies that Distort Investors Perceptions

Prevarication: Evils of Market Timing

"Missing the market's best days can be a costly mistake."

Investment Period	Average Annual Total Return	Growth of \$10,000
Fully Invested	8.42%	\$22,400
Missing the 10 best days	3.41%	\$13,980
Missing the 15 best days	1.44%	\$11,536
Missing the 20 best days	-0.38%	\$ 9,629

(12/31/1996-12/29/2006)
ING Web Site, Stay Focused

What if you could miss the 10 worst days? How does that compare?

Investment Period	Average Annual Total Return	Growth of \$10,000
Fully Invested	8.42%	\$22,400
Missing the 10 best days	3.41%	\$13,980
Missing the 10 worst days	24.17%	\$70,200

Accurate numbers, Yes. Prevarication? It is impossible!

- In comparison, the odds of a winning lotto ticket, where you only have to pick 6#s from a universe of 42, are 1 in 5,000,000.
- The odds of picking (and missing) the best 10 days out of 2,550 trading days (ten years) are 1 out of 8.75 E35! (and how would you pronounce that number?)

Industry: Diversify, Buy & Hold

- Callan Periodic Table of Asset Classes
 - Annual Returns of 8 equity Asset Classes and 1 bond asset class.
- Prevarication: Mutual fund industry studies that distort the data.

The Callan Periodic Table
COMPARISON OF KEY INDICES

ANNUAL RETURNS 1985-2004

BEST-TO WORST-PERFORMING INDICES SINCE 1985

1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Small-Cap Value	15.2%	12.1%	18.5%	10.3%	14.7%	11.9%	16.2%	13.8%	17.4%	15.1%	19.3%	16.7%	20.5%	18.2%	22.1%	19.8%	23.6%	21.4%	25.2%
Large-Cap Value	12.8%	9.5%	15.2%	7.1%	11.3%	8.9%	13.6%	10.4%	14.8%	12.7%	16.9%	14.5%	18.7%	16.3%	20.1%	17.9%	21.7%	19.5%	23.3%
Mid-Cap Value	10.4%	7.2%	12.8%	4.9%	9.1%	6.7%	11.5%	8.3%	12.9%	10.2%	14.6%	11.8%	16.1%	13.7%	17.5%	15.4%	19.2%	17.0%	20.8%
Small-Cap Growth	8.9%	5.7%	11.3%	3.4%	7.6%	5.2%	10.1%	6.9%	11.7%	8.5%	13.2%	10.3%	14.9%	12.4%	16.2%	14.1%	17.9%	15.7%	19.5%
Large-Cap Growth	7.5%	4.3%	9.9%	2.0%	6.2%	3.8%	8.7%	5.5%	10.3%	7.1%	11.8%	8.6%	13.4%	10.9%	14.7%	12.6%	16.4%	14.2%	18.0%
Mid-Cap Growth	6.1%	2.9%	8.5%	0.6%	4.8%	2.4%	7.3%	4.1%	9.7%	5.9%	10.5%	7.7%	12.3%	9.8%	13.6%	11.5%	15.3%	13.1%	16.9%
Small-Cap Bond	4.7%	1.5%	7.1%	-0.2%	3.5%	1.1%	6.0%	2.8%	8.4%	3.6%	10.2%	7.0%	11.8%	9.3%	13.1%	11.0%	14.8%	12.6%	16.4%
Large-Cap Bond	3.3%	0.1%	5.7%	-1.4%	2.1%	-0.1%	4.6%	1.4%	7.0%	2.2%	9.0%	5.8%	10.6%	8.1%	11.9%	9.8%	13.6%	11.4%	15.2%
Mid-Cap Bond	1.9%	-1.3%	4.3%	-2.7%	0.6%	-1.2%	3.1%	-0.1%	5.5%	0.3%	7.3%	4.1%	8.9%	6.4%	10.2%	8.1%	11.9%	9.7%	13.5%
Small-Cap Cash	0.5%	-2.7%	2.9%	-4.1%	-0.4%	-2.6%	1.7%	-0.3%	4.1%	-0.5%	5.9%	2.7%	7.5%	5.0%	8.8%	6.7%	10.5%	8.3%	12.1%
Large-Cap Cash	-0.9%	-3.1%	1.5%	-5.5%	-1.8%	-4.2%	0.3%	-1.1%	2.7%	-1.3%	4.5%	1.3%	6.1%	3.6%	7.4%	5.3%	9.1%	6.9%	10.7%
Mid-Cap Cash	-2.3%	-4.5%	0.1%	-7.9%	-3.2%	-6.6%	1.1%	-1.5%	1.1%	-2.9%	1.7%	3.5%	1.0%	4.8%	2.7%	6.5%	4.3%	8.1%	5.9%
Small-Cap Int'l	11.1%	8.0%	14.5%	5.8%	10.2%	7.4%	12.7%	10.3%	14.9%	12.6%	16.8%	14.2%	18.4%	16.1%	19.9%	17.6%	21.4%	19.2%	23.0%
Large-Cap Int'l	9.7%	6.6%	13.1%	4.4%	8.9%	6.1%	11.4%	9.0%	13.6%	11.3%	15.5%	12.8%	17.0%	14.7%	18.5%	16.2%	20.0%	17.8%	21.6%
Mid-Cap Int'l	8.3%	5.2%	11.7%	3.0%	7.5%	4.7%	10.0%	7.6%	12.2%	9.9%	14.1%	11.4%	15.6%	13.3%	17.1%	14.8%	18.6%	16.4%	20.2%
Small-Cap Divd	6.9%	3.8%	10.3%	1.6%	6.1%	3.3%	8.6%	5.4%	10.0%	6.8%	12.5%	9.6%	14.0%	11.7%	15.5%	13.4%	17.2%	15.0%	18.8%
Large-Cap Divd	5.5%	2.4%	8.9%	0.2%	4.7%	1.9%	7.2%	4.0%	8.6%	5.8%	11.3%	8.4%	12.8%	10.5%	14.3%	12.2%	16.0%	13.8%	17.6%
Mid-Cap Divd	4.1%	1.0%	7.5%	-1.2%	3.3%	0.5%	5.8%	2.6%	7.2%	4.0%	10.7%	7.8%	12.2%	9.9%	13.7%	11.6%	15.4%	13.2%	17.0%
Small-Cap Energy	13.5%	10.4%	16.9%	8.2%	11.7%	8.9%	14.0%	11.6%	16.2%	13.8%	18.0%	15.6%	19.8%	17.4%	21.2%	18.9%	22.7%	20.5%	24.3%
Large-Cap Energy	12.1%	9.0%	15.5%	6.8%	10.3%	7.5%	12.8%	10.4%	15.0%	12.6%	16.8%	14.4%	18.6%	16.2%	20.0%	17.7%	21.5%	19.3%	23.1%
Mid-Cap Energy	10.7%	7.6%	14.1%	5.4%	8.9%	6.1%	11.4%	9.0%	13.6%	11.3%	15.5%	12.8%	17.0%	14.7%	18.5%	16.2%	20.0%	17.8%	21.6%
Small-Cap Tech	16.9%	13.8%	20.3%	11.6%	14.1%	11.3%	16.4%	14.0%	19.1%	16.7%	20.9%	18.5%	22.7%	20.3%	24.1%	21.8%	25.6%	23.4%	27.2%
Large-Cap Tech	15.5%	12.4%	18.9%	10.2%	12.7%	9.9%	15.0%	12.6%	17.2%	14.8%	19.0%	16.6%	20.8%	18.4%	22.2%	19.9%	23.7%	21.5%	25.3%
Mid-Cap Tech	14.1%	11.0%	17.5%	8.8%	11.3%	8.5%	13.6%	11.2%	15.8%	13.4%	17.6%	15.2%	19.4%	17.0%	20.8%	18.5%	22.3%	20.1%	23.9%
Small-Cap Health	12.7%	9.6%	16.1%	7.4%	9.9%	7.1%	12.2%	9.8%	14.4%	12.0%	16.2%	13.8%	18.0%	15.6%	19.4%	17.1%	20.9%	18.7%	22.5%
Large-Cap Health	11.3%	8.2%	14.7%	6.0%	8.5%	5.7%	10.8%	8.4%	13.0%	10.6%	14.8%	12.4%	16.6%	14.2%	18.0%	15.7%	19.5%	17.3%	21.1%
Mid-Cap Health	9.9%	6.8%	13.3%	4.6%	7.1%	4.3%	9.3%	6.9%	11.5%	9.1%	13.7%	11.3%	15.5%	13.1%	16.9%	14.6%	18.4%	16.2%	20.0%
Small-Cap Consumer	8.5%	5.4%	11.9%	3.2%	5.7%	2.9%	8.0%	5.6%	10.2%	7.8%	12.4%	9.9%	14.1%	11.7%	15.5%	13.4%	17.2%	15.0%	18.8%
Large-Cap Consumer	7.1%	4.0%	10.5%	1.8%	4.3%	1.5%	6.6%	4.2%	8.8%	5.0%	11.6%	8.7%	13.0%	10.6%	14.4%	12.1%	15.9%	13.7%	17.5%
Mid-Cap Consumer	5.7%	2.6%	9.1%	0.4%	2.9%	0.1%	5.1%	2.7%	6.5%	3.3%	10.1%	7.2%	11.5%	9.1%	12.9%	10.8%	14.6%	12.4%	16.2%
Small-Cap Real Estate	4.3%	1.2%	7.7%	-0.4%	1.1%	-1.1%	3.4%	0.2%	4.8%	1.8%	6.6%	3.7%	8.0%	5.6%	9.4%	7.3%	11.1%	8.9%	12.7%
Large-Cap Real Estate	2.9%	-0.2%	6.3%	-1.8%	0.7%	-1.5%	2.0%	-0.1%	3.4%	0.4%	5.2%	2.3%	6.6%	4.1%	7.9%	5.8%	9.6%	7.4%	11.2%
Mid-Cap Real Estate	1.5%	-1.6%	4.9%	-3.2%	-0.8%	-2.0%	0.5%	-0.5%	1.9%	-0.3%	3.7%	0.8%	5.1%	2.6%	6.4%	4.3%	8.1%	5.9%	9.7%
Small-Cap Int'l	11.1%	8.0%	14.5%	5.8%	10.2%	7.4%	12.7%	10.3%	14.9%	12.6%	16.8%	14.2%	18.4%	16.1%	19.9%	17.6%	21.4%	19.2%	23.0%
Large-Cap Int'l	9.7%	6.6%	13.1%	4.4%	8.9%	6.1%	11.4%	9.0%	13.6%	11.3%	15.5%	12.8%	17.0%	14.7%	18.5%	16.2%	20.0%	17.8%	21.6%
Mid-Cap Int'l	8.3%	5.2%	11.7%	3.0%	7.5%	4.7%	10.0%	7.6%	12.2%	9.9%	14.1%	11.4%	15.6%	13.3%	17.1%	14.8%	18.6%	16.4%	20.2%
Small-Cap Divd	6.9%	3.8%	10.3%	1.6%	6.1%	3.3%	8.6%	5.4%	10.0%	6.8%	12.5%	9.6%	14.0%	11.7%	15.5%	13.4%	17.2%	15.0%	18.8%
Large-Cap Divd	5.5%	2.4%	8.9%	0.2%	4.7%	1.9%	7.2%	4.0%	8.6%	5.8%	11.3%	8.4%	12.8%	10.5%	14.3%	12.2%	16.0%	13.8%	17.6%
Mid-Cap Divd	4.1%	1.0%	7.5%	-1.2%	3.3%	0.5%	5.8%	2.6%	7.2%	4.0%	10.7%	7.8%	12.2%	9.9%	13.7%	11.6%	15.4%	13.2%	17.0%
Small-Cap Energy	13.5%	10.4%	16.9%	8.2%	11.7%	8.9%	14.0%	11.6%	16.2%	13.8%	18.0%	15.6%	19.8%	17.4%	21.2%	18.9%	22.7%	20.5%	24.3%
Large-Cap Energy	12.1%	9.0%	15.5%	6.8%	10.3%	7.5%	12.8%	10.4%	15.0%	12.6%	16.8%	14.4%	18.6%	16.2%	20.0%	17.7%	21.5%	19.3%	23.1%
Mid-Cap Energy	10.7%	7.6%	14.1%	5.4%	8.9%	6.1%	11.4%	9.0%	13.6%	11.3%	15.5%	12.8%	17.0%	14.7%	18.5%	16.2%	20.0%	17.8%	21.6%
Small-Cap Tech	16.9%	13.8%	20.3%	11.6%	14.1%	11.3%	16.4%	14.0%	19.1%	16.7%	20.9%	18.5%	22.7%	20.3%	24.1%	21.8%	25.6%	23.4%	27.2%
Large-Cap Tech	15.5%	12.4%	18.9%	10.2%	12.7%	9.9%	15.0%	12.6%	17.2%	14.8%	19.0%	16.6%	20.8%	18.4%	22.2%	19.9%	23.7%	21.5%	25.3%
Mid-Cap Tech	14.1%	11.0%	17.5%	8.8%	11.3%	8.5%	13.6%	11.2%	15.8%	13.4%	17.6%	15.2%	19.4%	17.0%	20.8%	18.5%	22.3%	20.1%	23.9%
Small-Cap Health	12.7%	9.6%	16.1%	7.4%	9.9%	7.1%	12.2%	9.8%	14.4%	12.0%	16.2%	13.8%	18.0%	15.6%	19.4%	17.1%	20.9%	18.7%	22.5%
Large-Cap Health	11.3%	8.2%	14.7%	6.0%	8.5%	5.7%	10.8%	8.4%	13.0%	10.6%	14.8%	12.4%	16.6%	14.2%	18.0%	15.7%	19.5%	17.3%	21.1%
Mid-Cap Health	9.9%	6.8%	13.3%	4.6%	7.1%	4.3%	9.3%	6.9%	11.5%	9.1%	13.7%	11.3%	15.5%	13.1%	16.9%	14.6%	18.4%	16.2%	20.0%
Small-Cap Consumer	8.5%	5.4%	11.9%	3.2%	5.7%	2.9%	8.0%	5.6%	10.2%	7.8%	12.4%	9.9%	14.1%	11.7%	15.5%	13.4%	17.2%	15.0%	18.8%
Large-Cap Consumer	7.1%	4.0%	10.5%	1.8%	4.3%	1.5%	6.6%	4.2%	8.8%	5.0%	11.6%	8.7%	13.0%	10.6%	14.4%	12.1%	15.9%	13.7%	17.5%
Mid-Cap Consumer	5.7%	2.6%	9.1%	0.4%	2.9%	0.1%	5.1%	2.7%	6.5%	3.3%	10.1%	7.2%	11.5%	9.1%	12.9%	10.8%	14.6%	12.4%	16.2%
Small-Cap Real Estate	4.3%	1.2%	7.7%	-0.4%	1.1%	-1.1%	3.4%	0.2%	4.8%	1.8%	6.6%	3.7%	8.0%	5.6%	9.4%	7.3%	11.1%	8.9%	12.7%
Large-Cap Real Estate	2.9%	-0.2%	6.3%	-1.8%	0.7%	-1.5%	2.0%	-0.1%	3.4%	0.4%	5.2%	2.3%	6.6%	4.1%	7.9%	5.8%	9.6%	7.4%	11.2%
Mid-Cap Real Estate	1.5%	-1.6%	4.9%	-3.2%	-0.8%	-2.0%	0.5%	-0.5%	1.9%	-0.3%	3.7%	0.8%	5.1%	2.6%	6.4%	4.3%	8.1%	5.9%	9.7%

■ S&P 500 Index measures the performance of large-capitalization U.S. stocks.
 ■ S&P Mid-Cap 400 Index measures the performance of all medium-capitalization stocks.
 ■ S&P Small-Cap 600 Index measures the performance of the growth style of issuing companies U.S. stocks.
 ■ S&P Divd 100 Value Index measures the performance of the value style of issuing U.S. stocks.
 ■ Russell 2000 Index measures the performance of small-capitalization U.S. stocks.
 ■ Russell 2000 Value Index measures the performance of the value style of issuing U.S. stocks.
 ■ Russell 2000 Growth Index measures the performance of the growth style of issuing companies U.S. stocks.
 ■ Russell 2000 Energy Index measures the performance of the energy sector of U.S. stocks.
 ■ Russell 2000 Tech Index measures the performance of the technology sector of U.S. stocks.
 ■ Russell 2000 Health Index measures the performance of the health care sector of U.S. stocks.
 ■ Russell 2000 Consumer Index measures the performance of the consumer goods sector of U.S. stocks.
 ■ Russell 2000 Real Estate Index measures the performance of the real estate sector of U.S. stocks.
 ■ Russell 2000 Int'l Index measures the performance of international U.S. stocks.
 ■ Russell 2000 Divd Index measures the performance of the dividend-paying U.S. stocks.
 ■ Russell 2000 Energy Index measures the performance of the energy sector of U.S. stocks.
 ■ Russell 2000 Tech Index measures the performance of the technology sector of U.S. stocks.
 ■ Russell 2000 Health Index measures the performance of the health care sector of U.S. stocks.
 ■ Russell 2000 Consumer Index measures the performance of the consumer goods sector of U.S. stocks.
 ■ Russell 2000 Real Estate Index measures the performance of the real estate sector of U.S. stocks.
 ■ Russell 2000 Int'l Index measures the performance of international U.S. stocks.
 ■ Russell 2000 Divd Index measures the performance of the dividend-paying U.S. stocks.

Mutual Fund Questionnaire: What Works Best?

1. Buy last years laggard (bottom fishing by buying last years worst performing asset class)?
2. Buy last years leader (chasing performance)?
3. Or buy all asset classes equally - diversify?

(using 8 equity asset classes and 1 bond asset class)
Fidelity Investments

Answer: Diversification May Increase Your Returns (12/31/84-12/31/04) Fidelity Investments

Strategy	Value
Laggard	\$522,000
Diversify	\$749,000
Leader	\$559,000

Success of Relative Strength Investing with Similar Asset Classes

- Prevarication: Fidelity mixed bonds and equities together, very different asset classes.
- However, if you only compare equities to equities, than the answers to the 3 same Questions becomes very different.

Lesson: be careful what you add into your universe that you are studying!


Strategy	Value
Laggard	\$522,000
Diversify	\$749,000
Leader: Equity & Bond	\$559,000
Leader: Equity Only	\$1,608,000

Comparing Only Equities Adds Value

1. Relative strength (buying the leader, the asset class with momentum) adds value.
2. It also works if you use 6 equity classes, 5, 4, 3 or 2, but they all have to be equity asset classes.
3. Another investment concept: avoiding the laggard can also improve portfolio performance.


How to diversify for increased performance?

1. Overweight the leaders.
2. Underweight the laggards.
3. Practice relative strength analysis quarterly for better returns.



Statistical Prevarication Exists

- What is being done by the industry is unfortunate. Using a person's trust in numbers to mislead.
 - Market timing is not bad. The probability of missing the 10 best days is impossible.
 - Separating asset classes (bonds from equities) and applying relative strength adds value over simply diversifying.
- How you group, and how you present is important.



Thank You

Marshall L. Schield, Founder and Director of Research

STIR Research, is a leading provider of flexible asset allocation research: identifying leading asset classes for portfolio inclusion and avoiding portfolio performance sapping laggards for exclusion with the ability to change the asset mix based on evolving market conditions.

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