



BUCKINGHAM
STRATEGIC WEALTH

WHAT TO DO WHEN AN INVESTMENT STRATEGY PERFORMS POORLY

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Investment Principles

- /// Markets are highly efficient.
- /// All risky assets should have similar risk-adjusted returns, similar Sharpe ratios.*
- /// Portfolios should be broadly diversified across unique/independent sources of risk.
 - /// Traditional portfolios are dominated by single risk.

*The Sharpe Ratio is a measure of the risk-adjusted return of an investment. A higher ratio indicates a greater return for a unit of risk. The Sharpe Ratio is calculated as the average annual portfolio return less the average annual risk-free rate (one-month T-bills) divided by the portfolio's annualized standard deviation.

Beta Dominates the Risk of the Typical Portfolio

- /// Typical Portfolio: 60% Stocks/40% Bonds
- /// Equity Volatility 20%
- /// Buckingham Bond Portfolio (4-5 Year Average Maturity) Volatility 5%
- /// Equity Risk: $60 \times 20 = 1200$ + Bond Risk: $40 \times 5 = 200$
- /// Total Risk: $1200 + 200 = 1400$
- /// Percentage Equity Risk: $1200/1400 = 86\%$

**“DIVERSIFICATION FOR INVESTORS, LIKE
CELIBACY FOR TEENAGERS, IS A
CONCEPT BOTH EASY TO UNDERSTAND
AND HARD TO PRACTICE.”**

James Gipson

S&P Underperformed One-Month Treasury Bills

15 Years

1929-1943

17 Years

1966-1982

13 years

2000-2012

Forward-Looking Odds of a Negative Return (%)

| | 1-Year | 3-Year | 5-Year | 10-Year | 20-Year |
|-----------------------|--------|--------|--------|---------|---------|
| Beta | 34 | 24 | 18 | 10 | 3 |
| Size | 41 | 34 | 30 | 23 | 15 |
| Value | 37 | 28 | 23 | 15 | 7 |
| Momentum | 28 | 15 | 9 | 3 | 0 |
| Profitability* | 36 | 27 | 22 | 14 | 6 |
| Quality** | 31 | 19 | 13 | 6 | 1 |
| P1 | 23 | 11 | 5 | 1 | 0 |
| P2* | 18 | 5 | 2 | 0 | 0 |
| P3** | 13 | 2 | 1 | 0 | 0 |

Data for Market (Beta), Size, Value, Momentum, and Profitability is based on annual premiums from the Ken French Data Library. Quality is based on monthly data from AQR, and compounded to approximate an annual premium. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio nor do indices represent results of actual trading. Information from sources deemed reliable, but its accuracy cannot be guaranteed. Performance is historical and does not guarantee future results. Total return includes reinvestment of dividends. See "Portfolio Factor Allocations" slide for constructions. *1964-2018 & **1958-2018 time frames are used for P2 & P3 respectively due to availability of data. Odds of underperformance assume a normal distribution.

**“A STRATEGY SHOULD BE JUDGED IN
TERMS OF ITS QUALITY AND
PRUDENCE BEFORE, NOT AFTER, ITS
OUTCOME IS KNOWN.”**

Nassim Nicholas Taleb,
“Fooled by Randomness”

Confusing Strategy with Outcome

2008-2019 Provides Test

| Fund | 2008-2019 Annualized Return (%) |
|--|---------------------------------|
| Domestic | |
| Vanguard 500 Index (VFIAX) | 9.1 |
| Vanguard Value Index (VVIAX) | 7.9 |
| Vanguard Small Cap Index (VSMAX) | 9.3 |
| Vanguard Small Cap Value Index (VISVX) | 8.6 |
| International | |
| Vanguard Developed Markets Index (VTMGX) | 2.3 |
| Vanguard Emerging Markets Index (VEIEX) | 1.2 |

Data from www.portfoliovisualizer.com

The Good Side of Tracking Variance

| Fund | 2000-2007 Annualized Return (%) |
|--|--|
| Domestic | |
| Vanguard 500 Index (VFIAX) | 3.3 |
| Vanguard Value Index (VVIAX) | 4.9 |
| Vanguard Small Cap Index (VSMAX) | 8.9 |
| Vanguard Small Cap Value Index (VISVX) | 10.0 |
| International | |
| Vanguard Developed Markets Index (VTMGX) | 8.3 |
| Vanguard Emerging Markets Index (VEIEX) | 22.9 |

Data from www.portfoliovisualizer.com

The Bad Side of Tracking Variance

| Fund | 1995-1999 Annualized Return (%) |
|---|--|
| Domestic | |
| Vanguard 500 Index (VFIAX) | 28.5 |
| Vanguard Value Index (VVIAX) | 22.8 |
| Vanguard Small Cap Index (NAESX) | 17.8 |
| International | |
| MSCI EAFE Index (Gross Dividends) | 13.2 |
| MSCI Emerging Markets Index (Gross Dividends) | 2.0 |

Data from www.portfoliovisualizer.com

Relativism and Recency: The Enemy of Investors



Relativism

The performance of a portfolio relative to some index.

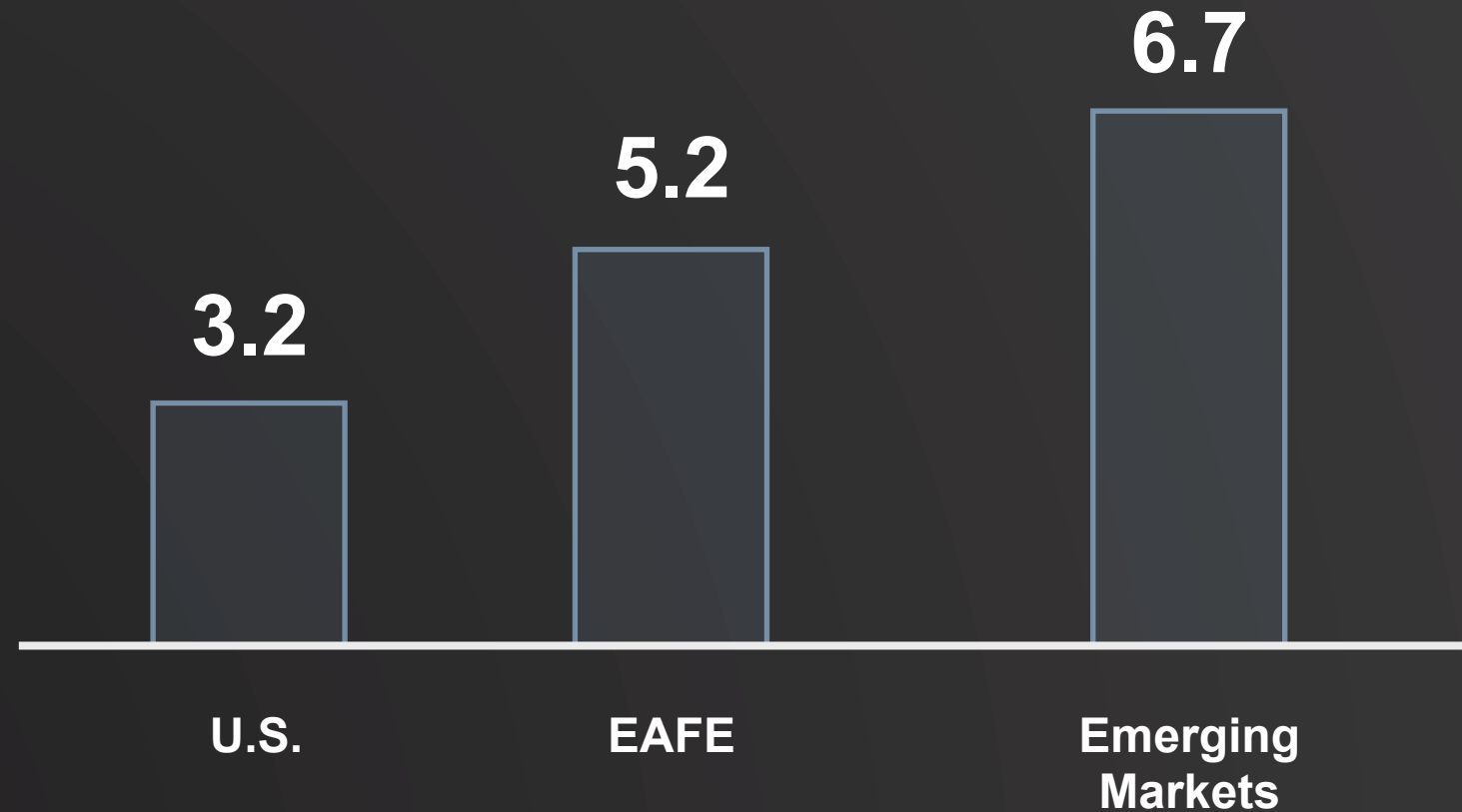


Recency

Focusing on the most recent returns, projecting them into the future, while ignoring long-term historical evidence.

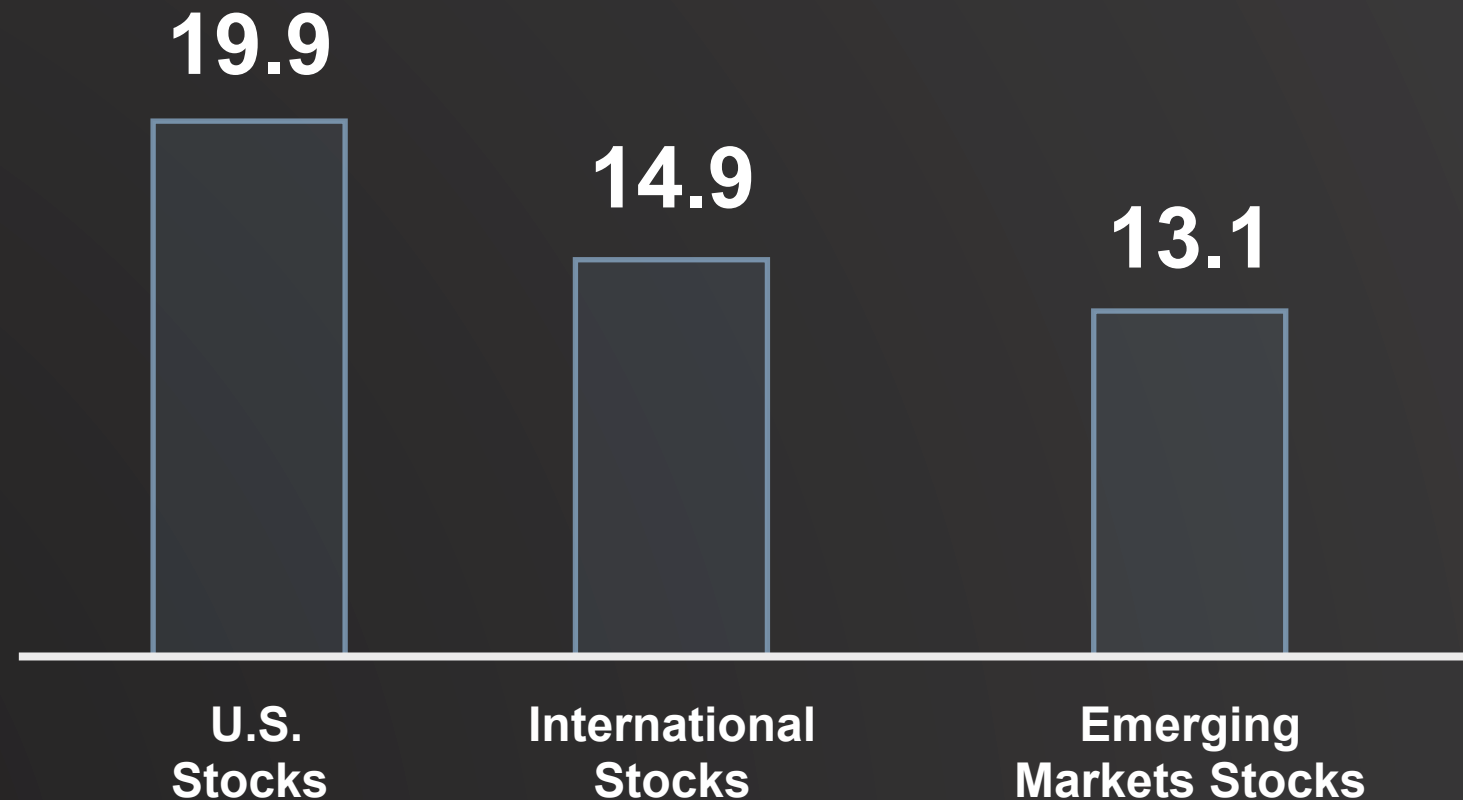
Valuations: The Best Predictor of Long-Term Returns

Shiller CAPE 10 Earnings Yield: December 2019



Valuations: The Best Predictor Returns

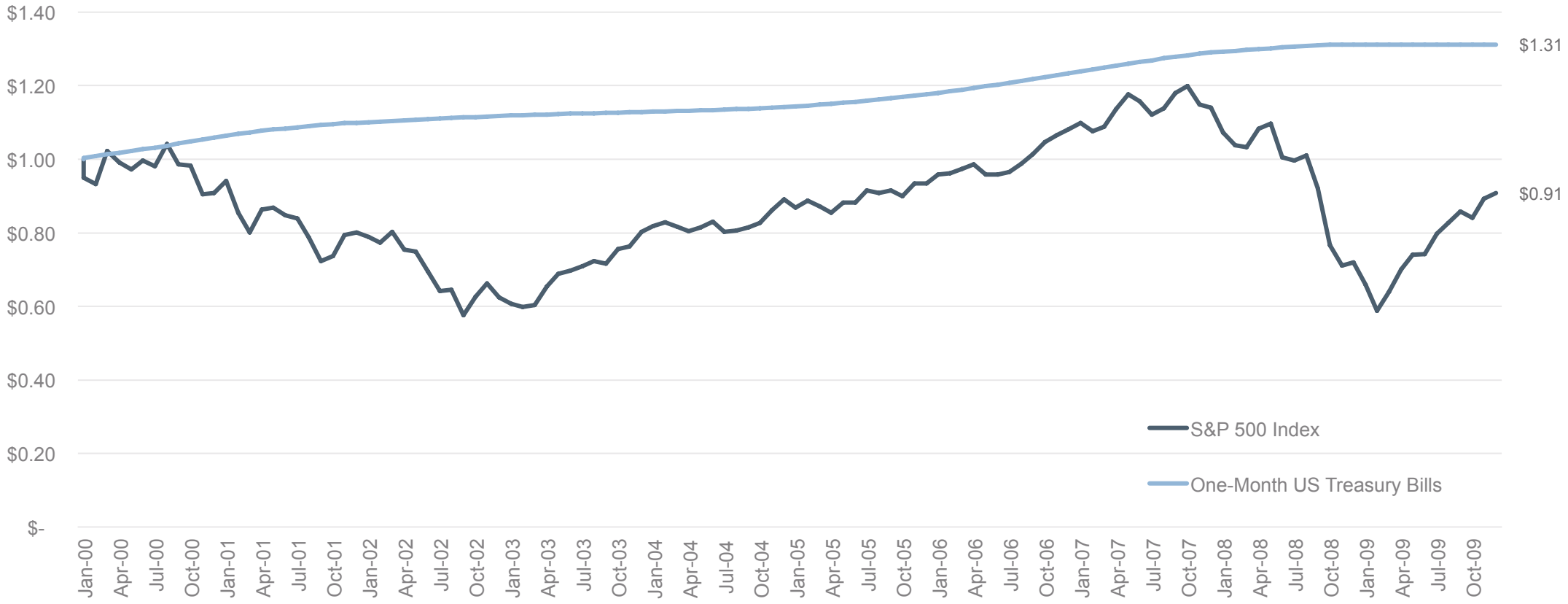
Price-to-Earnings Ratios: November 2019



Data from Morningstar as of 11/30/2019. U.S. Stocks represented by Vanguard U.S. Total Stock Market Index Fund. International Stocks represented by Vanguard FTSE Developed Markets Index Fund. Emerging Markets Stocks represented by Vanguard Emerging Markets Index Fund.

Impatience

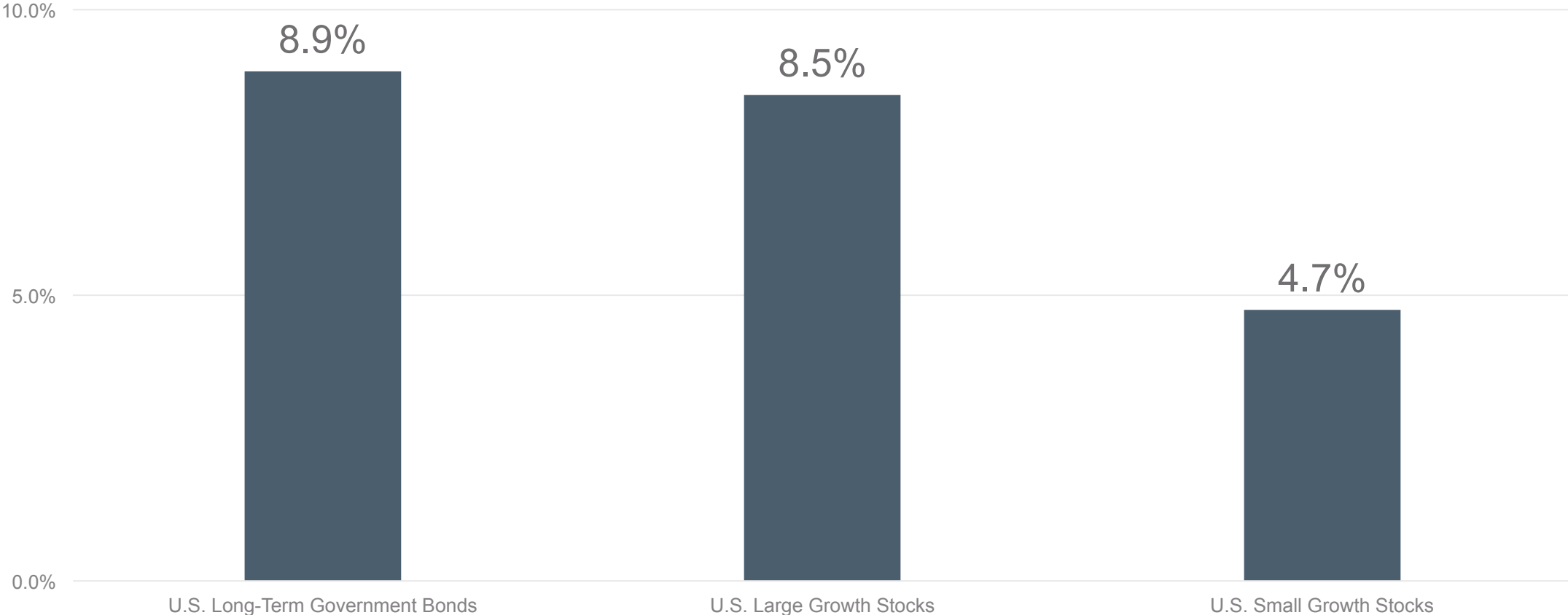
Growth of \$1: January 2000 to December 2009



Data from Morningstar as of 6/30/2019

Impatience (continued)

Annualized Return: January 1969 to December 2008



Data from Morningstar. U.S. Long-Term Government Bonds are U.S. 20-year government bonds. U.S. Large Growth Stocks are Fama/French U.S. Large Growth Research index. U.S. Small Growth Stocks are Fama/French U.S. Small Growth Research Index.

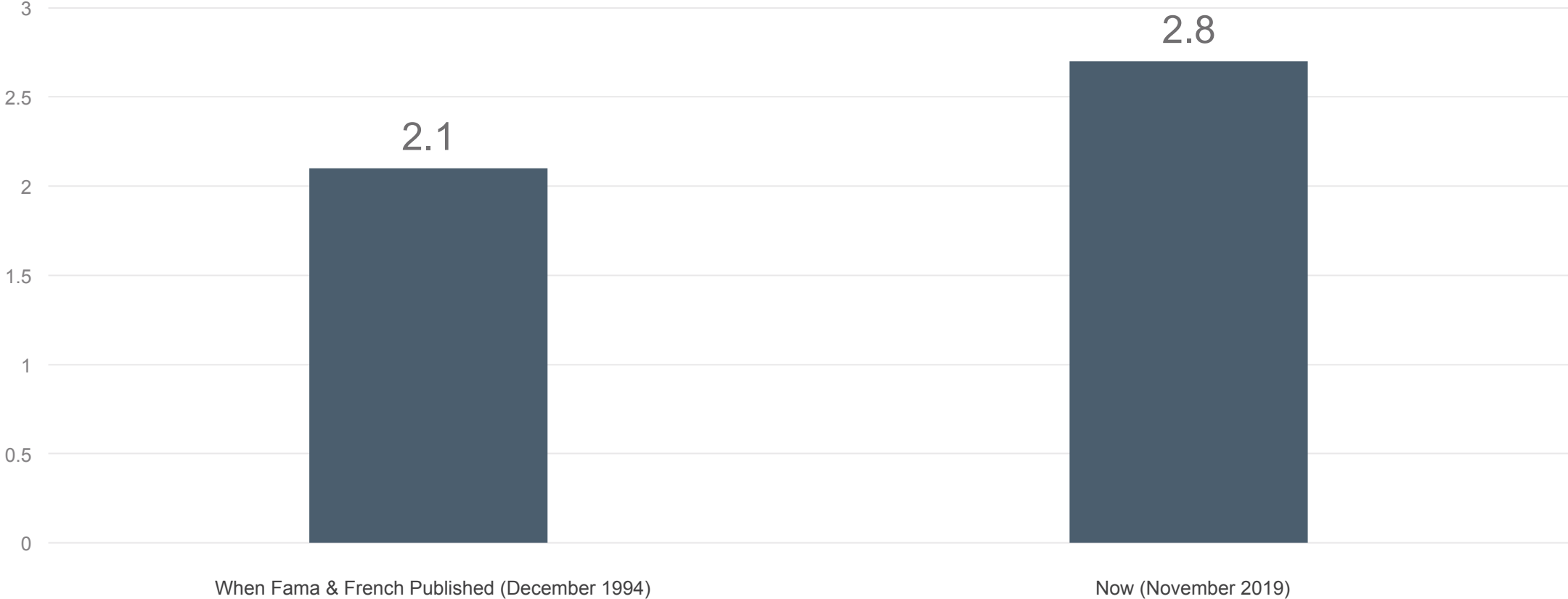
How Long Is Enough to Determine if Strategy Works?

To Have Confidence a Strategy Must Have Evidence of Premium and:

- /// **Persistence** over long periods of time and across economic regimes
- /// **Pervasiveness** across sectors, countries, geographic regions and even asset classes
- /// **Robustness** to various definitions
- /// **Implementability**, surviving transactions costs
- /// **Intuitive** risk- or behavioral- based explanations

Has Value Become Overcrowded?

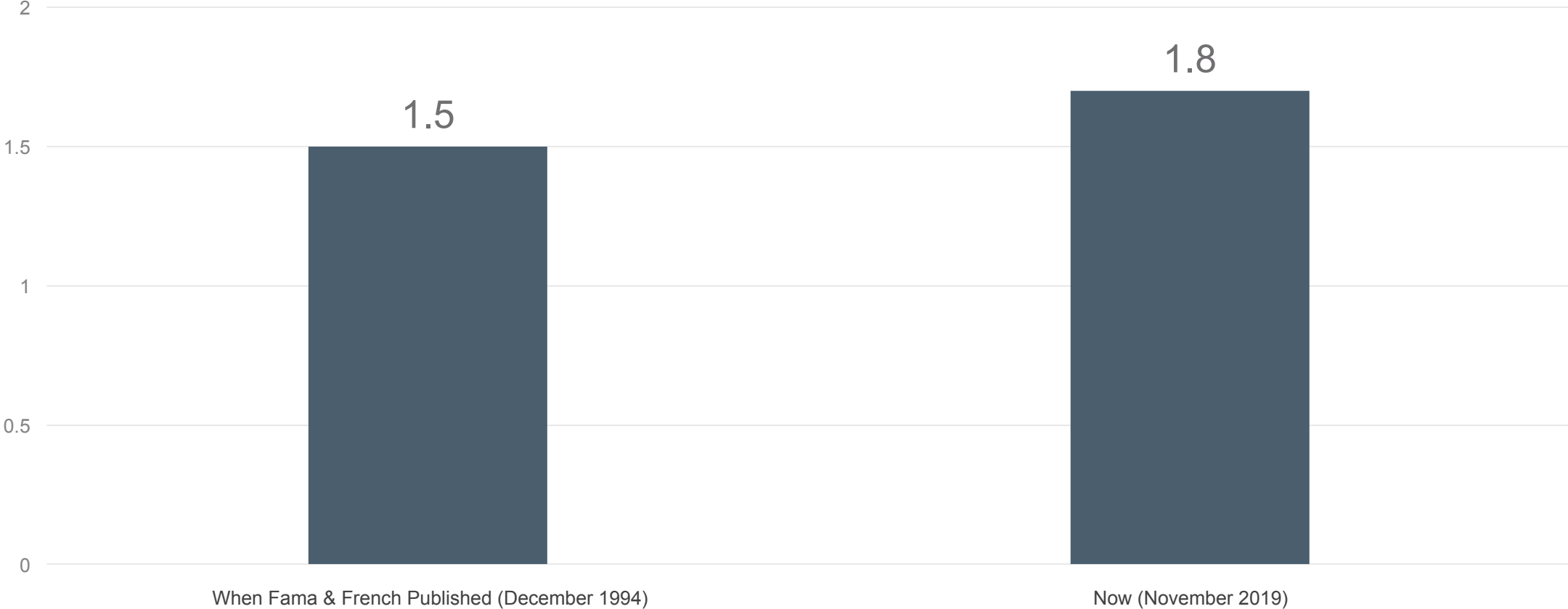
Relative Price-to-Book Ratio: U.S. Large Growth v. U.S. Large Value



Sources: Dimensional & Morningstar. Now (November 2019) calculated by comparing the P/B ratio of Vanguard Growth Index ETF VUG (6.5) to the P/B ratio of Vanguard Value Index ETF VTV (2.3).

Has Value Become Overcrowded?

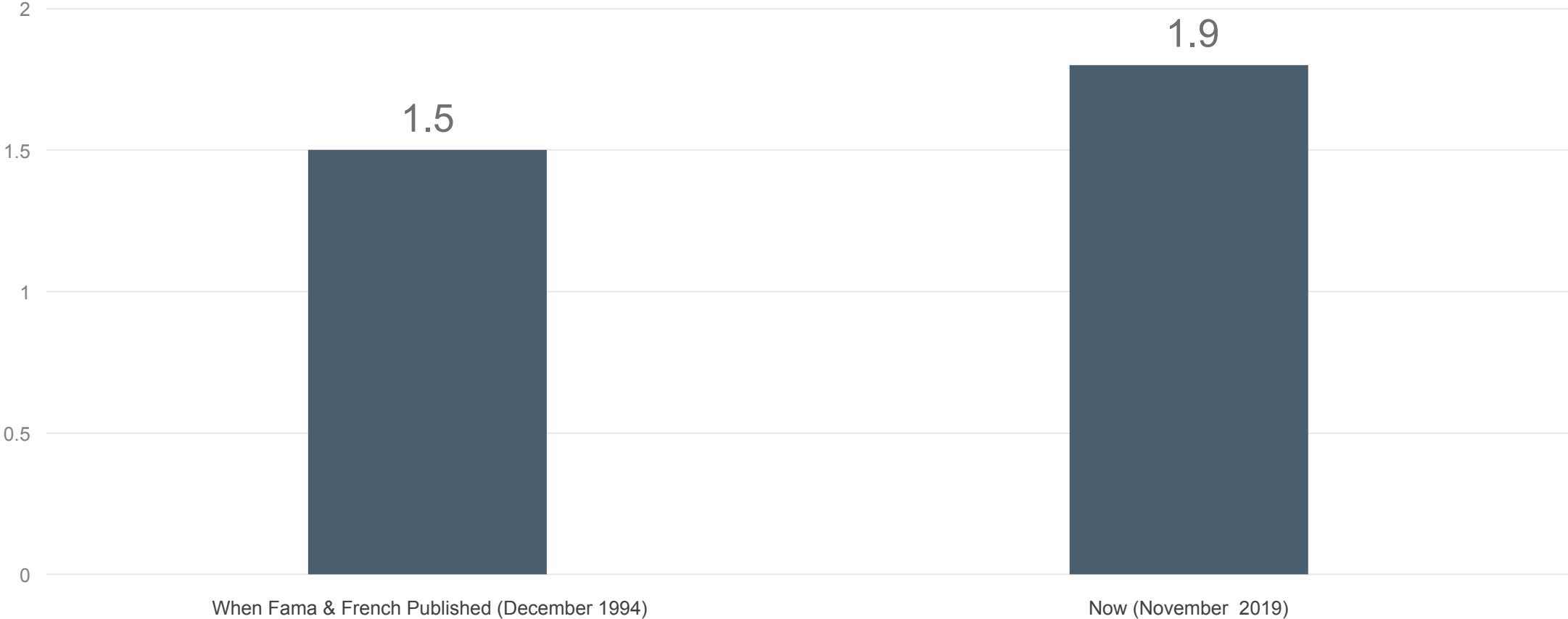
Relative Price-to-Earnings Ratio: U.S. Large Growth v. U.S. Large Value



Sources: Dimensional & Morningstar. Now (November 2019) calculated by comparing the P/E ratio of Vanguard Growth Index ETF VUG (27.7) to the P/E ratio of Vanguard Value Index ETF VTV (15.3).

Has Value Become Overcrowded?

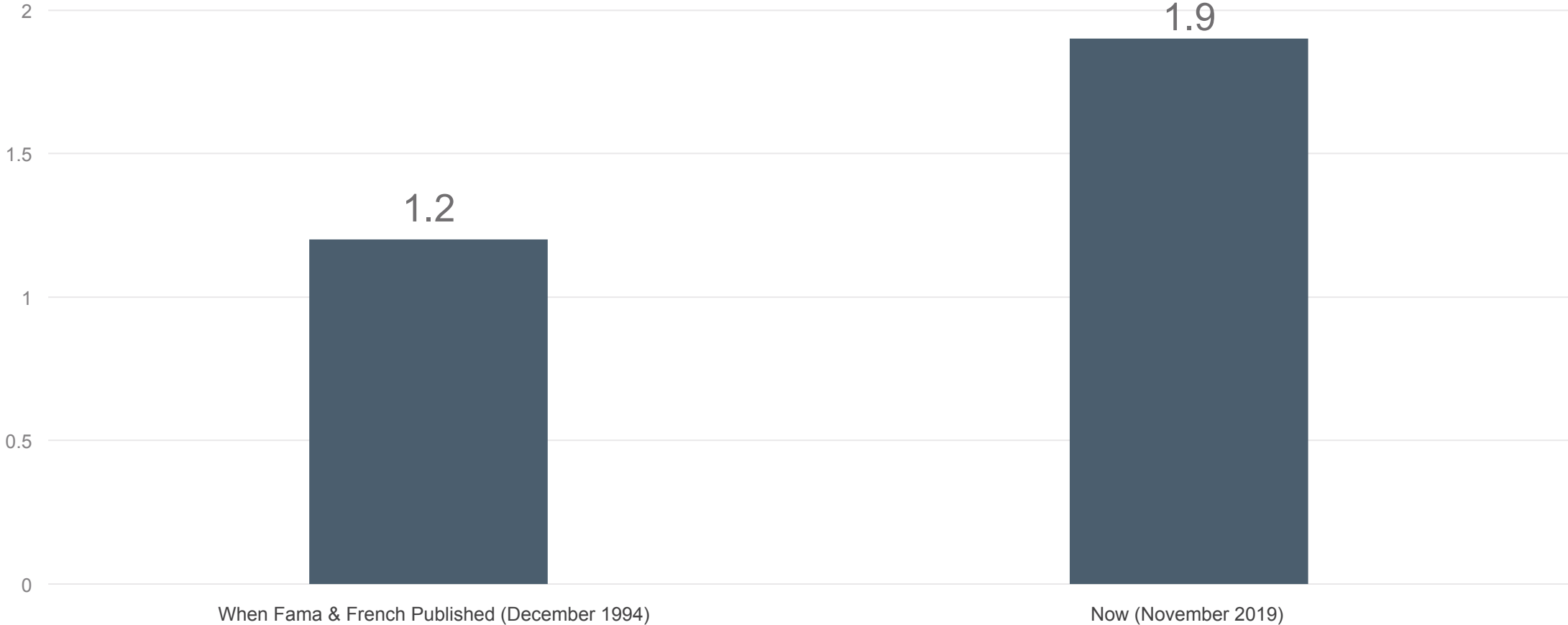
Relative Price-to-Book Ratio: U.S. Small Growth v. U.S. Small Value



Sources: Dimensional & Morningstar. Now November 2019) calculated by comparing the P/B ratio of Vanguard Small Growth Index ETF (3.1) to the P/B ratio of Vanguard Small Value Index ETF VBR (1.6).

Has Value Become Overcrowded?

Relative Price-to-Earnings Ratio: U.S. Small Growth v. U.S. Small Value



Sources: Dimensional & Morningstar. Now (November 2019) calculated by comparing the P/E ratio of Vanguard Small Growth Index ETF VBK (27.3) to the P/E ratio of Vanguard Small Value Index ETF VBR (14.5).

Core Investment Strategy Principles

- /// Market highly efficient
- /// All risky assets should have similar risk-adjusted returns
- /// Portfolios should be broadly diversified across unique/independent sources of risk

Sources:

*Dimensional

**Morningstar

“INDIVIDUAL DECISIONS CAN BE BADLY THOUGHT THROUGH, AND YET BE SUCCESSFUL, OR EXCEEDINGLY WELL THOUGHT THROUGH, BUT BE UNSUCCESSFUL, BECAUSE THE RECOGNIZED POSSIBILITY OF FAILURE IN FACT OCCURS. BUT OVER TIME, MORE THOUGHTFUL DECISION-MAKING WILL LEAD TO BETTER RESULTS, AND MORE THOUGHTFUL DECISION-MAKING CAN BE ENCOURAGED BY EVALUATING DECISIONS ON HOW WELL THEY WERE MADE RATHER THAN ON OUTCOME.”

Robert Rubin,
Former co-chairman of Goldman Sachs