ADVISORS

A Different Way To Invest

Why Invest?

Your Money Today Will Likely Buy Less Tomorrow

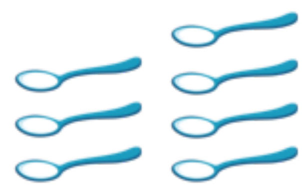
1916

$0.09 = Quart of milk

1966

$0.09 = 1 Small Glass of milk

2017



$0.09 = 7 Tablespoons of milk

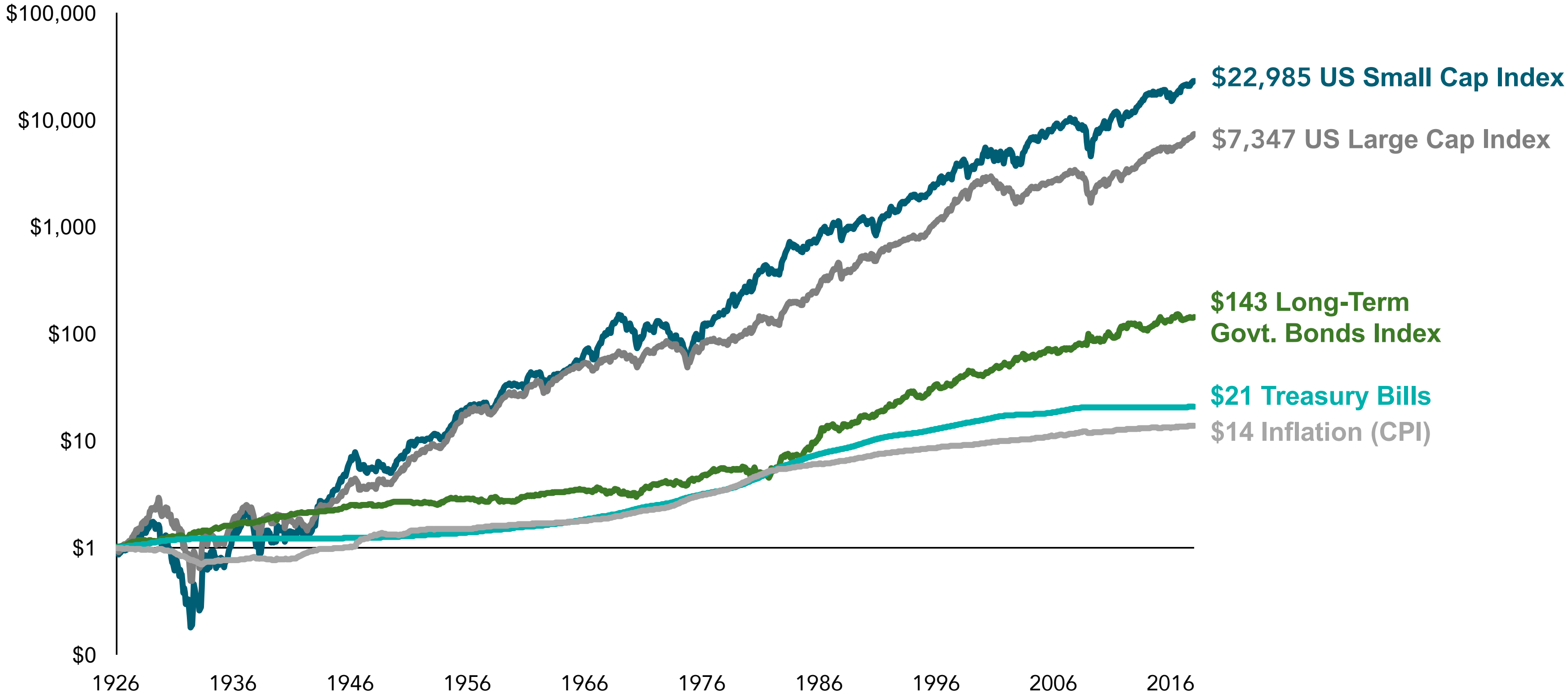
In US dollars.
Source for 1916 and 1966: Historical Statistics of the United States, Colonial Times to 1970/US Department of Commerce. Source for 2017: US Department of Labor, Bureau of Labor Statistics, Economic Statistics, Consumer Price Index – US City Average Price Data.

Investing means taking risks.

Not
investing means taking risks,
too.

Capital Markets Have Rewarded Long-Term Investors

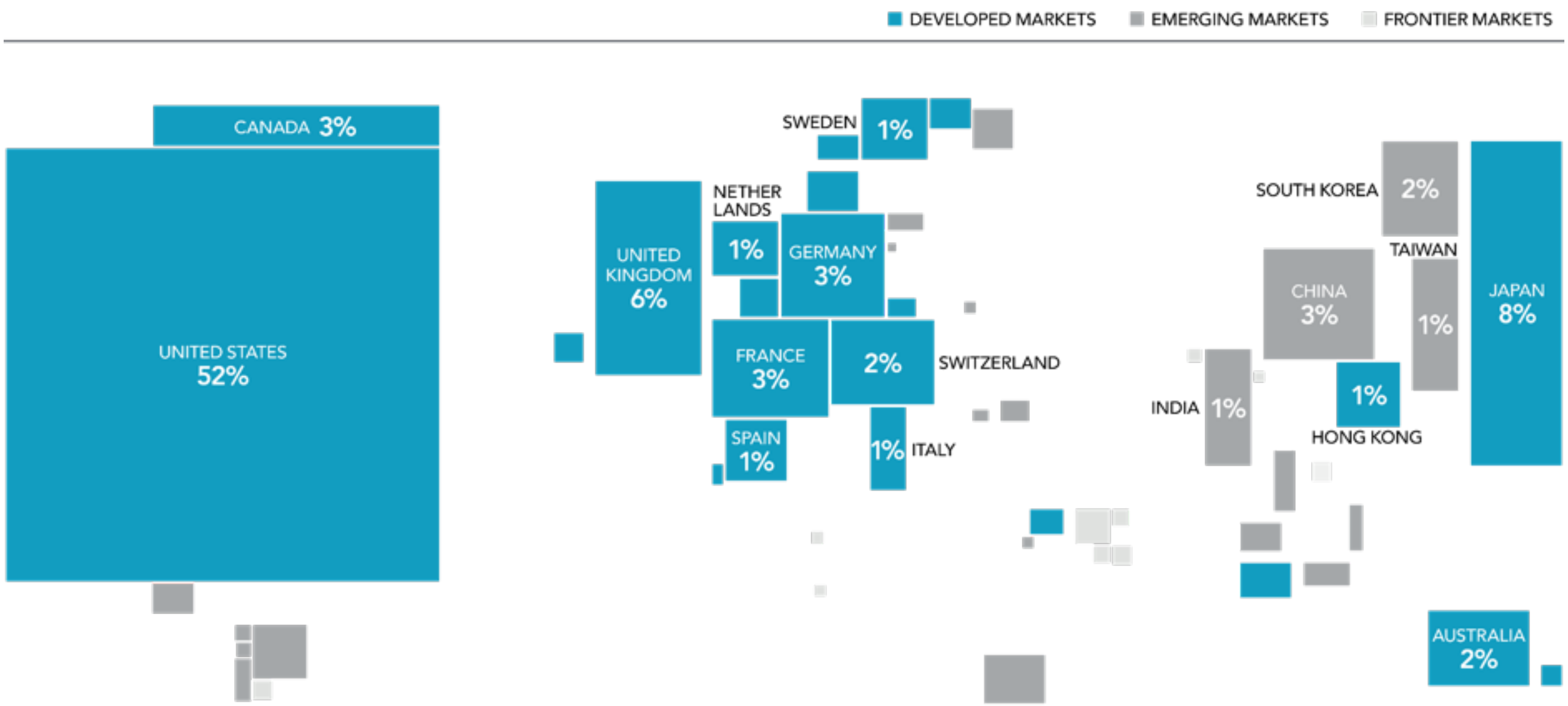
Monthly growth of wealth ($1), 1926−2017



In US dollars.
US Small Cap Index is the CRSP 6–10 Index; US Large Cap Index is the S&P 500 Index; Long-Term Government Bonds Index is 20-year US government bonds; Treasury Bills are One-Month US Treasury bills; 1-Month Treasury Bills Index is the IA SBBI US 30 Day TBill TR USD. Treasury Index data sourced from Ibbotson Associates, via Morningstar. Direct Inflation is the Consumer Price Index. CRSP data provided by the Center for Research in Security Prices, S&P data copyright 2018 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Bonds, T-bills, and inflation data provided by Morningstar.
Past performance is no guarantee of future results. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio.

There's a World of Opportunity in Equities

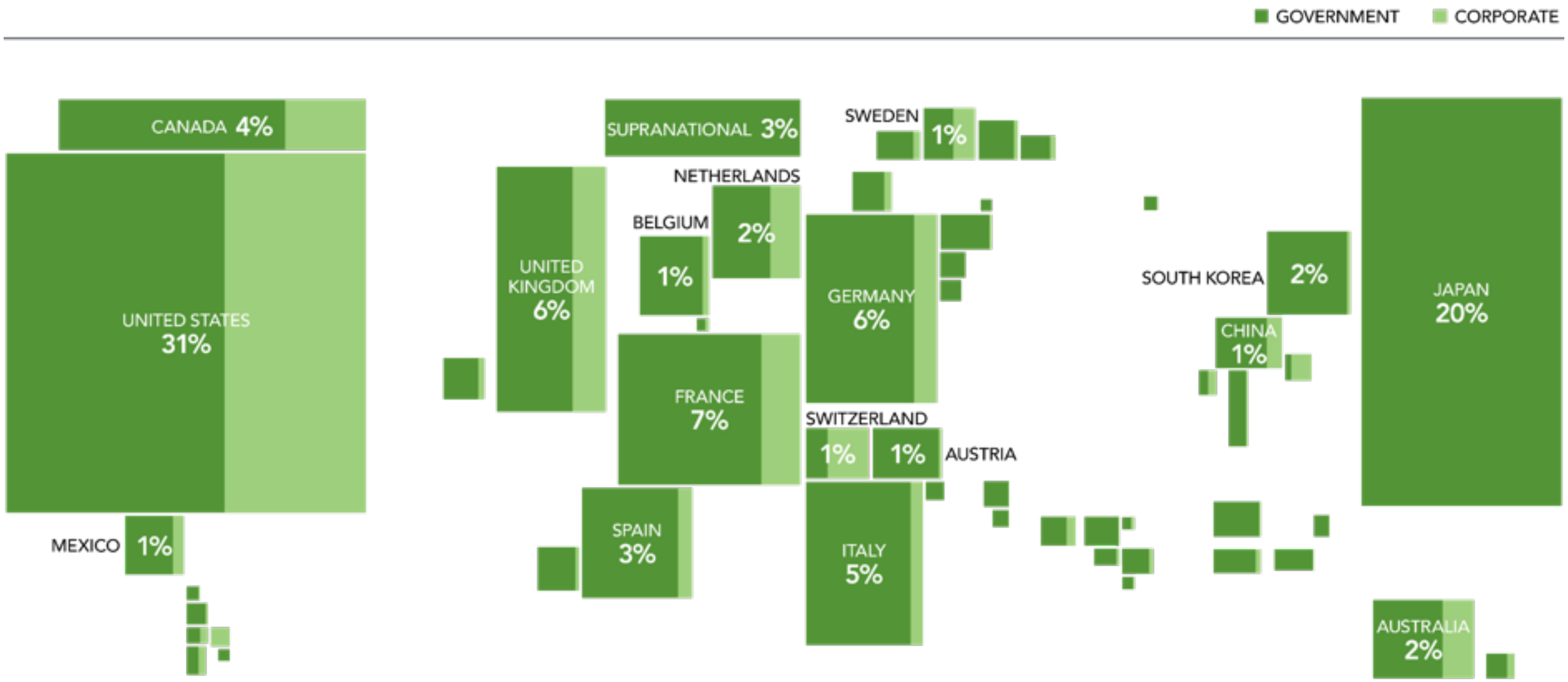
Percent of world market capitalization as of December 31, 2017



Bloomberg Barclays data provided by Bloomberg. Market cap data is free-float adjusted and meets minimum liquidity and listing requirements. Many nations not displayed. Totals may not equal 100% due to rounding. For educational purposes; should not be used as investment advice. China market capitalization excludes A-shares, which are generally only available to mainland China investors.

There's a World of Opportunity in Fixed Income

Percent of global investment grade bond market as of December 31, 2017



Data is from Bloomberg Barclays Global Aggregate Ex-Securitized Bond Index. Index excludes non-investment grade securities, bonds with less than one year to maturity, tax-exempt municipal securities, inflation-linked bonds, floating rate issues, and securitized bonds. Many nations not displayed. Totals may not equal 100% due to rounding For educational purposes; should not be used as investment advice. Bloomberg Barclays data provided by Bloomberg.

How Do
Many People Invest?

They Try to Predict the Future

"I have a proven system for picking winning stocks."

"That sector will continue advancing through next year."

"The market is primed for a retreat."

They Act on Impulse

"I can't take this bear market—
I'm getting out!"

"Everyone's making money—
I want a piece of the action."

They Bet their Savings on Tips and Hunches

"I heard it on the news.
I'd better sell!"

"I got a hot tip from my neighbor.
It's a slam dunk."

"My friend works in the industry—
he's got the inside scoop."

They Are Swayed by the Media

"The Death of Equities"

Business Week, 08/13/1979

"The Crash of '98 Can the US Economy Hold Up?"

FORTUNE, 09/28/1998

"Retire Rich – A Simple Plan to Have it All"

FORTUNE, 08/16/1999

"How to Reach $1 Million"

Money, 08/2012

What Have We Learned?

Many of the Greatest Advancements in Finance Have Come from Academia

1952
Diversification and Portfolio Risk
HARRY MARKOWITZ
Nobel Prize in Economics, 1990

1964
Single-Factor Asset Pricing Risk/Return Model
WILLIAM SHARPE
Nobel Prize in Economics, 1990

1966
Efficient Markets Hypothesis
EUGENE FAMA
Nobel Prize in Economics, 2013

1981
The Size Effect
ROLF BANZ

1984
Term Structure of Interest Rates
EUGENE FAMA

1992–1993
Value Effect and Multifactor Asset Pricing Model
EUGENE FAMA
KENNETH FRENCH

2012
Profitability
ROBERT NOVY-MARX
EUGENE FAMA
KENNETH FRENCH

Together, We Know More Than We Do Alone

Participants were asked to estimate the number of jelly beans in a jar.

Range: 409-5,365

Average: 1,653

Actual: 1,670

Illustration based on voluntary participation at client event hosted by a financial advisor, August 2013. Results audited by advisor.

Markets Integrate the Combined Knowledge of All Participants

World Equity Trading in 2016

	Number of Trades	Dollar Volume
Daily Average	82.7 million	$346.4 billion

The market effectively enables competition among many market participants who voluntarily agree to transact.

This trading aggregates a vast amount of dispersed information and drives it into security prices.

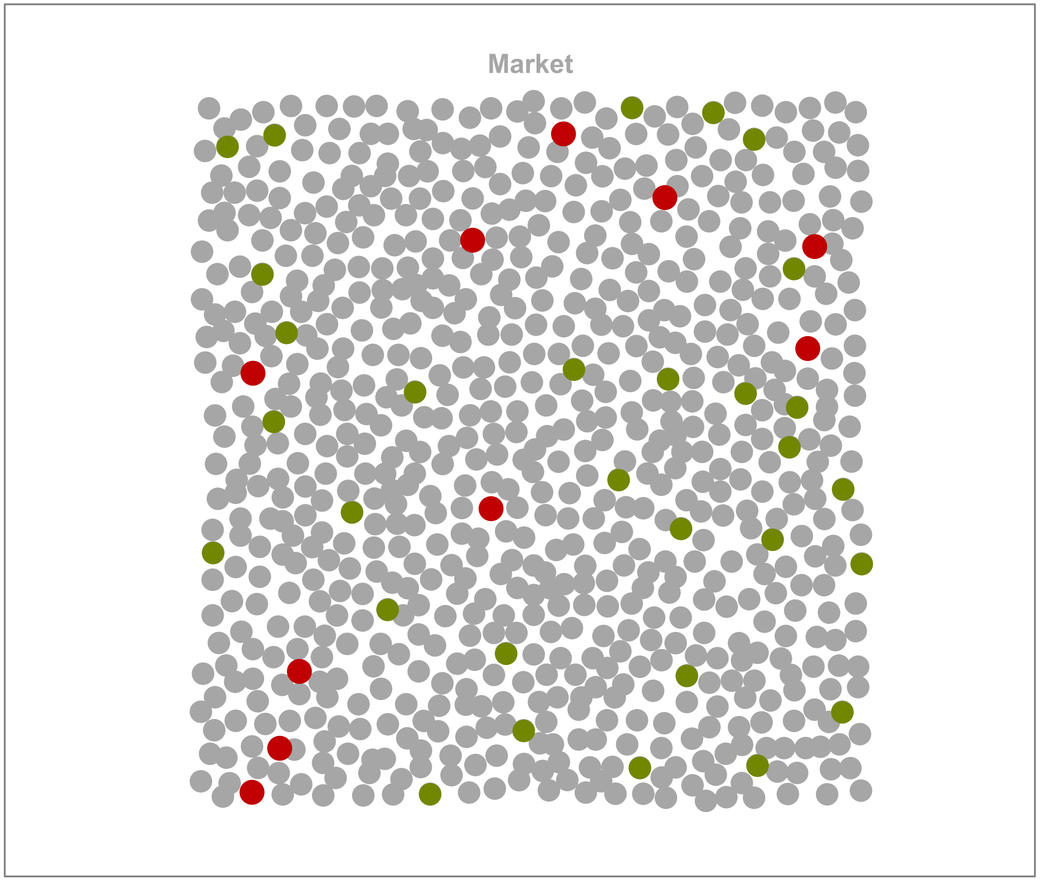
In US dollars.
Source: World Federation of Exchanges members, affiliates, correspondents and non-members. Trade data from the global electronic order book. Daily averages were computed using year-to-date totals as of December 31, 2016, divided by 250 as an approximate number of annual trading days.

What Is the Best Way to Invest?

There Are Differing Approaches

CONVENTIONAL MANAGEMENT
Attempts to identify mispricing in securities
Relies on forecasting to select “undervalued” securities or time markets
Generates higher expenses, trading costs, and risks

The Conventional Approach Attempts to Outguess the Market



Buys a selection of individual securities manager thinks will outperform.

Sells securities when deemed overvalued.

Can lead to high turnover and excess costs.

Investing involves risks such as fluctuating value and potential loss of principal value. There is no guarantee strategies will be successful.

Conventional Investment Methods Have Low Odds of Success

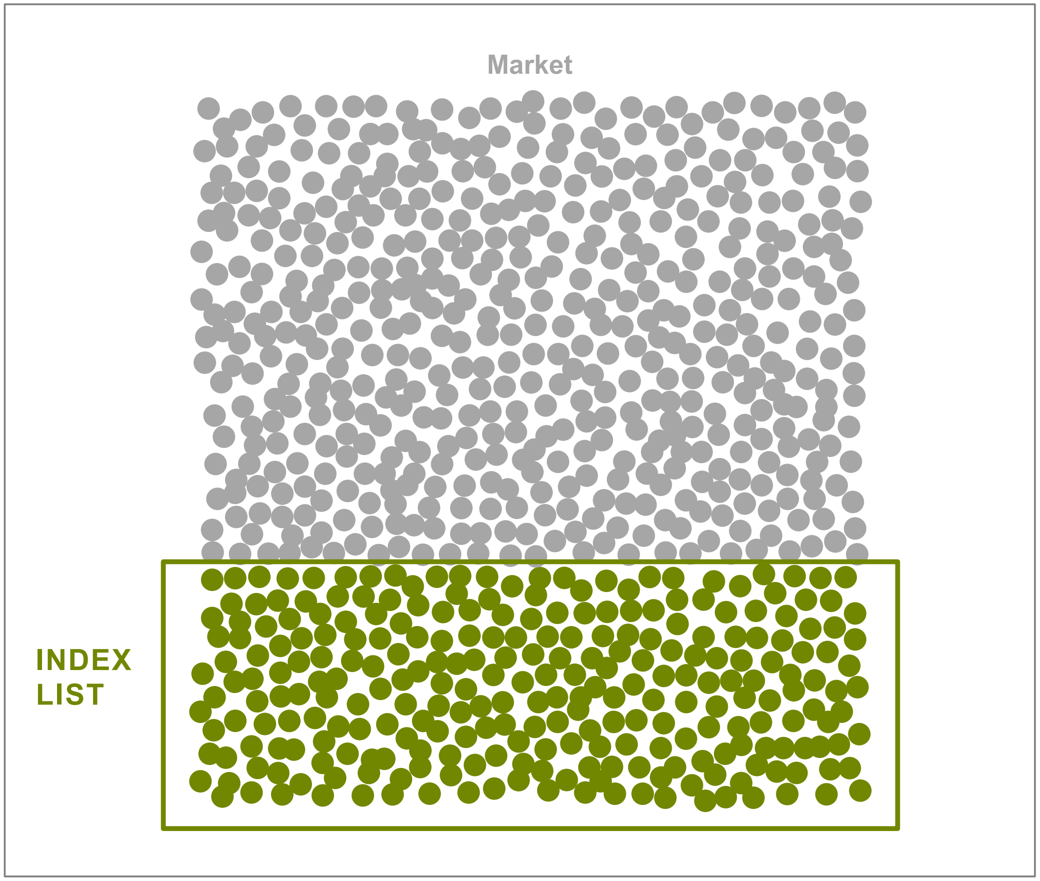
Fraction of mutual funds that beat their benchmark for 15 years, ending December 31, 2016

Analysis performed by Dimensional Fund Advisors. Beginning sample includes US-domiciled funds as of the beginning of the 15-year period ending December 31, 2016. The number of beginners is indicated below the asset class label. Outperformers (winners) are funds that had returns for every month in the sample period and outperformed their respective Morningstar category benchmark over the period. US-domiciled mutual fund data is provided by Morningstar. See data appendix for more information. **Past performance is no guarantee of future results.**

There Are Differing Approaches

INDEXING
Allows commercial index to determine strategy
Attempts to match index performance, restricting which securities to hold and when to trade
Prioritizes low tracking error over higher expected returns

The Indexing Approach Attempts to Match the Returns of a Commercial Benchmark



Holds a basket of securities represented in the index.

Buys and sells the same securities at the same time as all other funds tracking the index.

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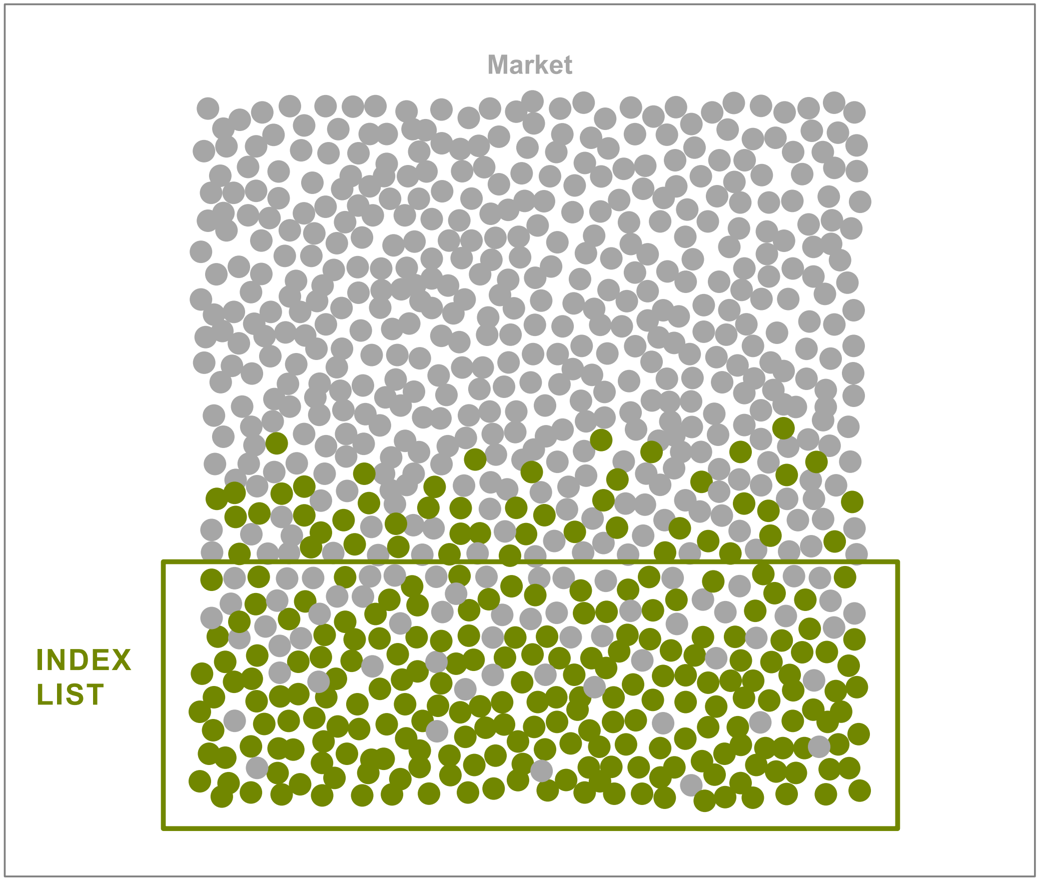
The Indexing Approach Attempts to Match the Returns of a Commercial Benchmark



Six months later:

Securities have moved in and out of the index's targeted range

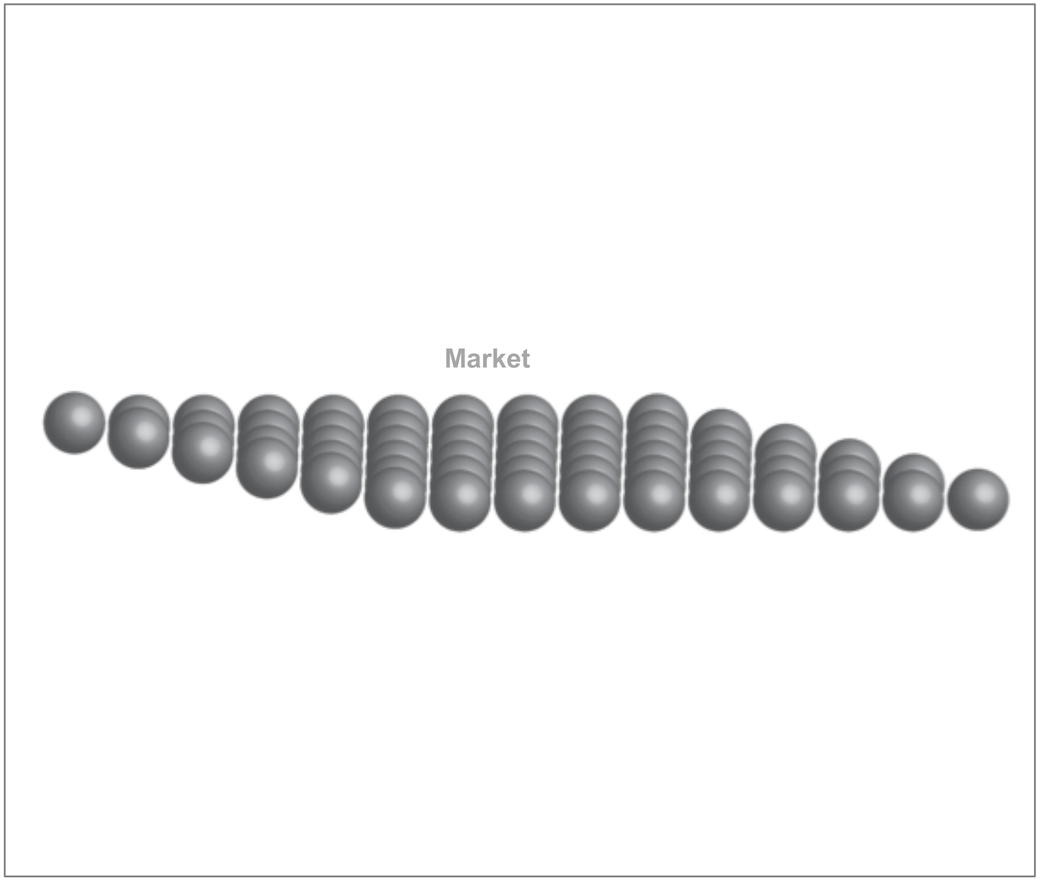
As a result, your investment may have drifted from what you intended.

Investing involves risks such as fluctuating value and potential loss of principal value. There is no guarantee strategies will be successful.

There Are Differing Approaches

AN ALTERNATE APPROACH
Gains insights about markets and returns from academic research
Structures portfolios along the dimensions of expected returns
Adds value by integrating research, portfolio management, and trading

Viewing the Market in a Different Dimension



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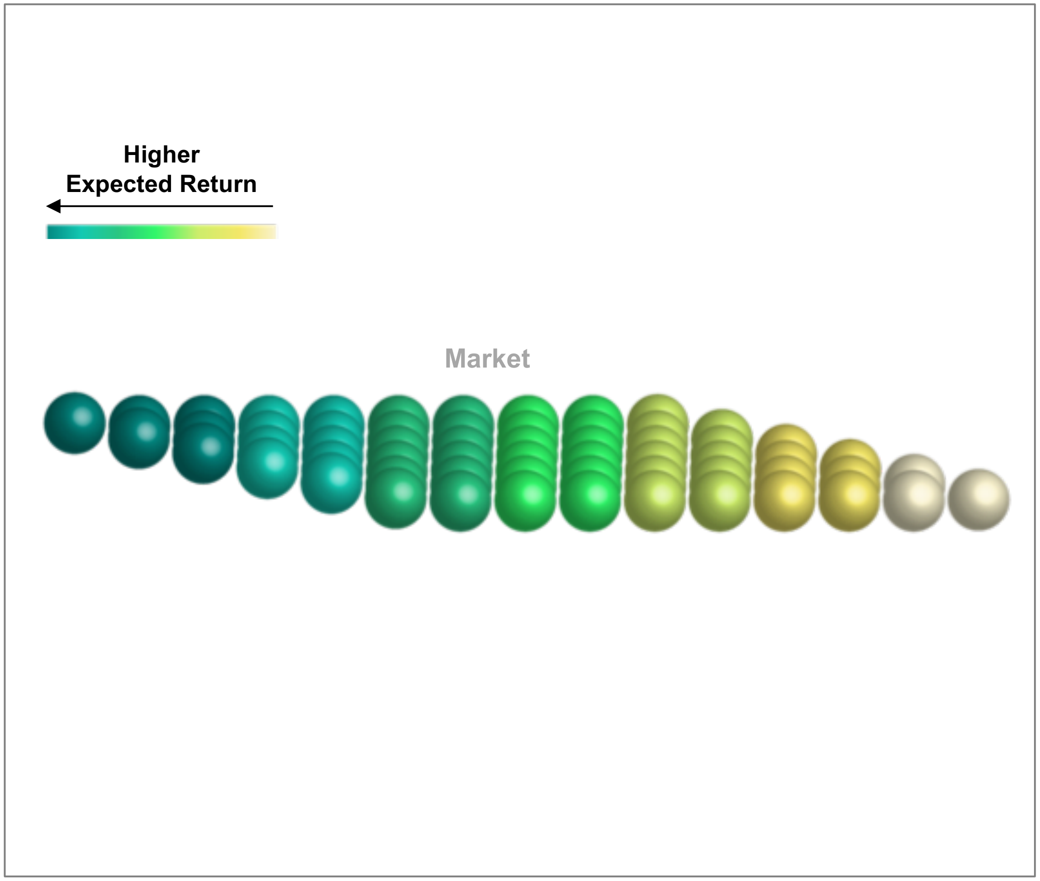
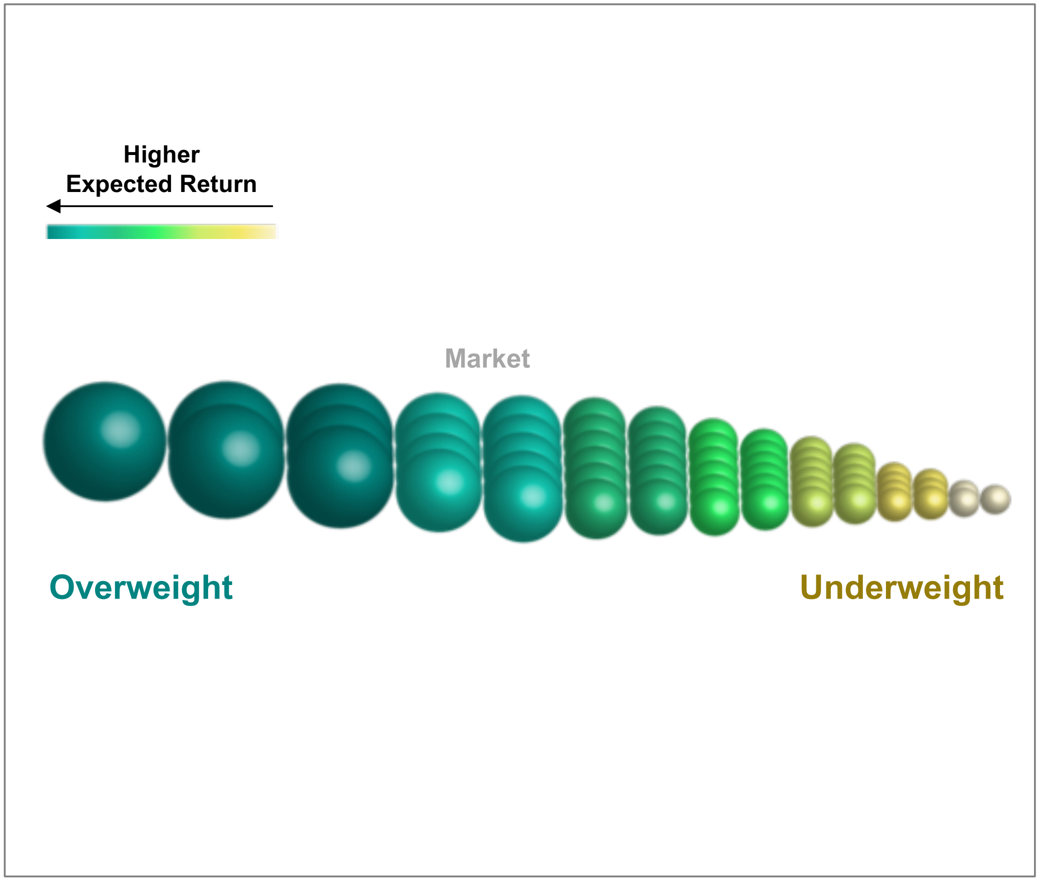
Viewing the Market in a Different Dimension



Decades of academic research have identified relevant dimensions that point to differences in expected returns.

Portfolios Can Be Structured along Dimensions of Expected Returns

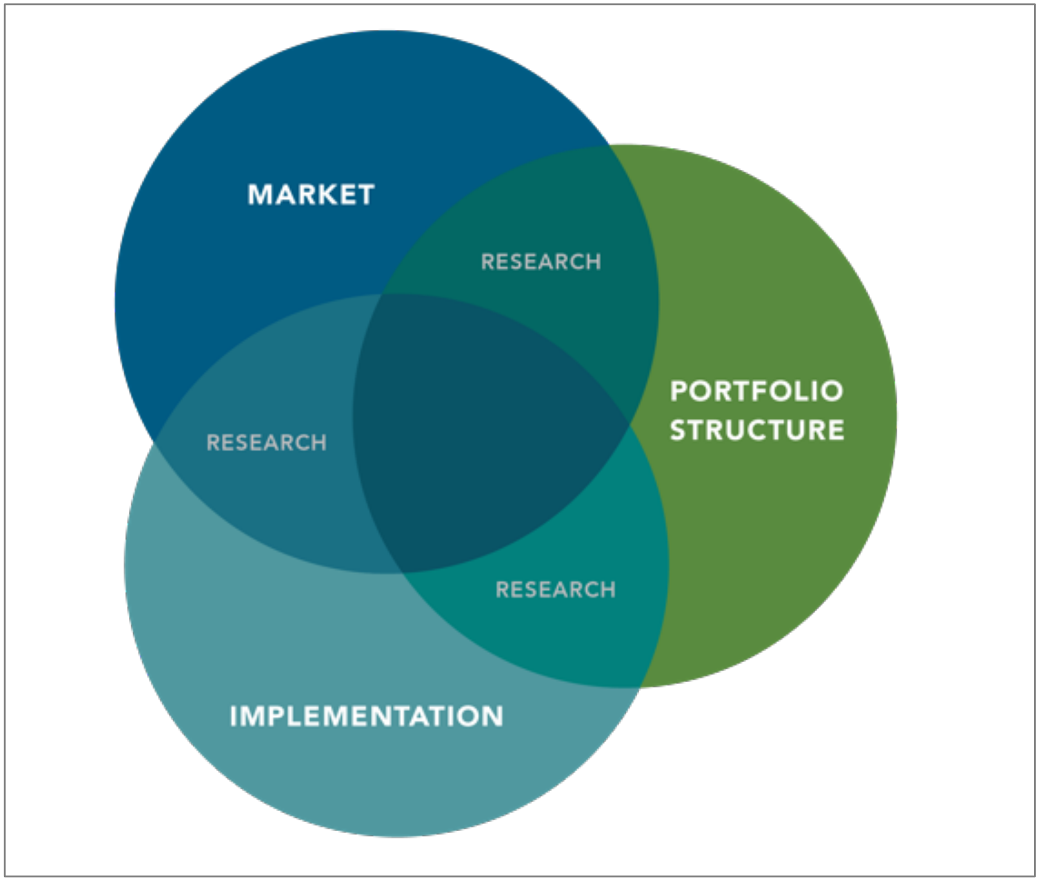


A well-diversified portfolio can emphasize market areas offering higher expected return potential.

Diversification does not eliminate the risk of market loss. Investing involves risks such as fluctuating value and potential loss of principal value.
There is no guarantee strategies will be successful.

Applied to
Practical Investing

From Insights to Implementation

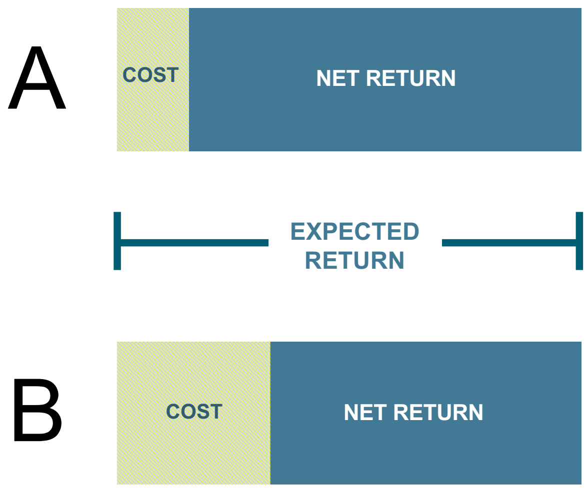


An integrated investment process adds value at each step.

Research can be applied throughout the process for an advanced understanding of all aspects of investing.

Balancing Investment Tradeoffs

INVESTMENT OPPORTUNITY



CONDITIONS

Broad diversification and patient, flexible trading lead to **lower turnover and costs**.

Concentrated holdings and urgent, inflexible trading result in **higher turnover and costs**.

Two investment opportunities can have the same expected return but invite very different conditions.

These conditions result in different costs, which impact net returns.

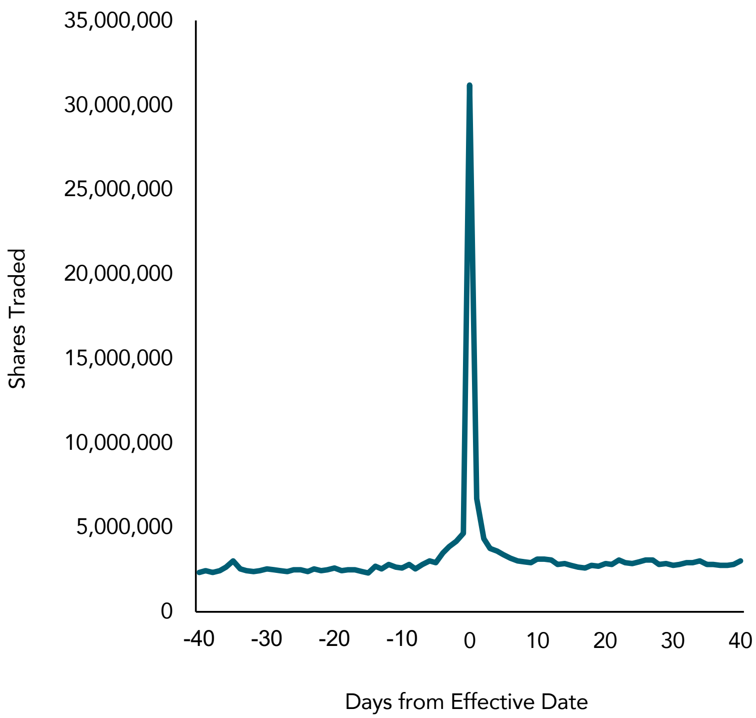
For illustrative purposes only.

Avoiding Immediacy-Driven Price Movement

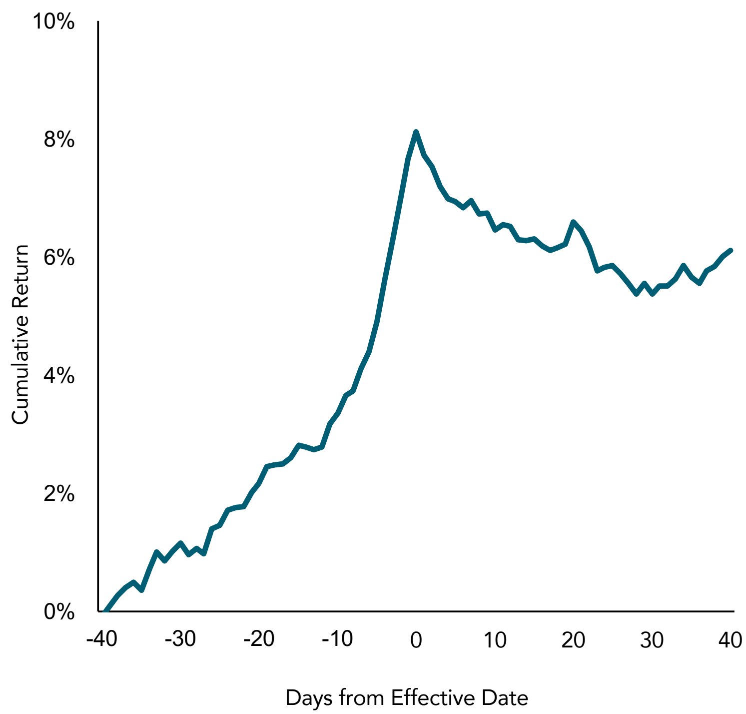
Equal weighted additions relative to S&P 500 Index

January 2013–December 2017

TRADING VOLUME



PERFORMANCE

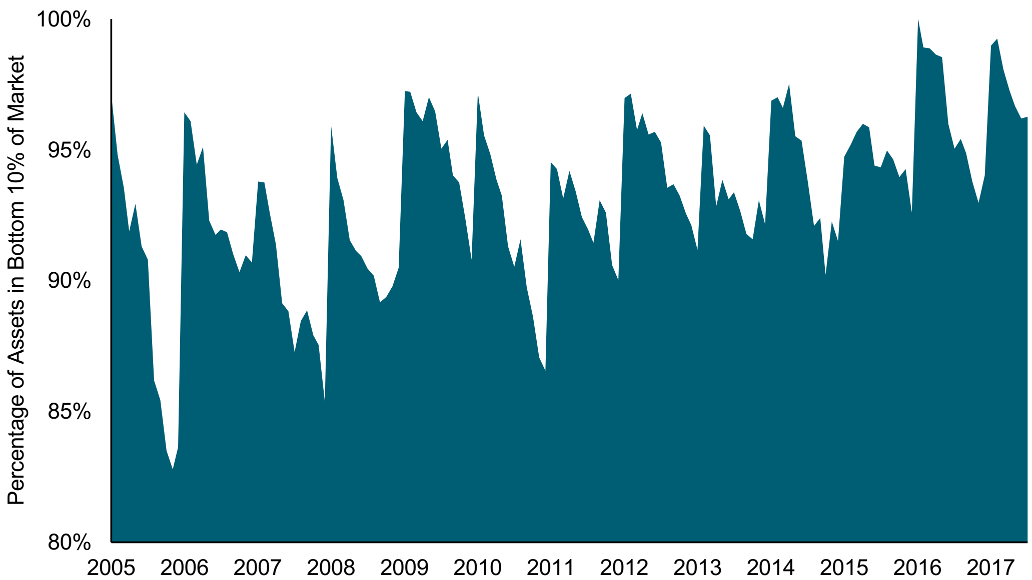


Demanding liquidity at several times the natural trading volume of securities can increase implementation costs.

In US dollars. Source: Center for Research and Security Prices, University of Chicago, and Standard and Poor's. The information shown here is derived from such indices. For more on index reconstitution see Chen, Noronha, and Singal (2004) [Equity] and Dick-Nielsen (2012) [Fixed Income]. Past performance is no guarantee of future results. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio.

Annual Index Reconstitution Effects

Percentage of Assets in Bottom 10% of Market	Russell 2000 Index
June 30 Averages (reconstitution month)	96.23
May 31 Averages (11 months after reconstitution)	90.00



- Over time, securities within an index can migrate from one asset class to another (such as from small cap to large cap)
- An index's characteristics may be significantly different 11 months after reconstitution due to security migration.

In US dollars.
As of December 31, 2017. Month-end values from June 2005-December 2017. The information shown here is derived from the index. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.
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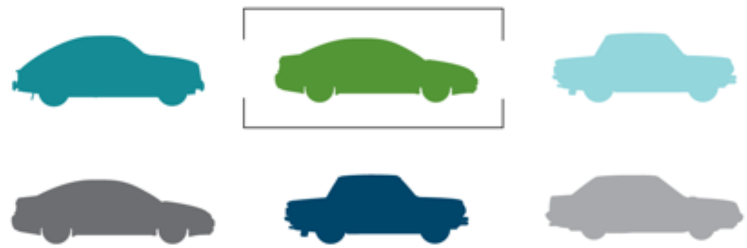
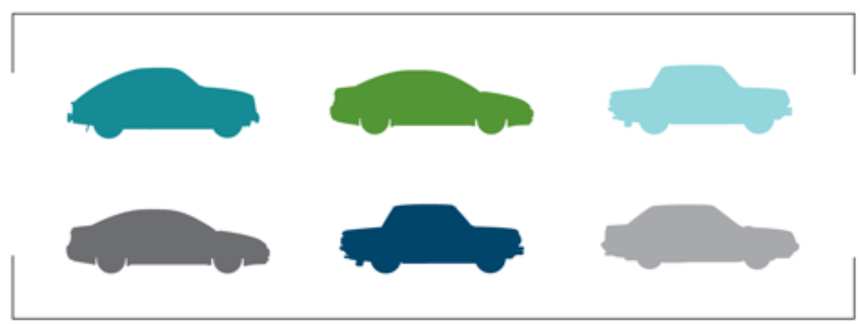
Adding Value through Flexible, Patient Trading

“I want this one—today!”



“I’m flexible.”



Focus On What You Can Control

A financial advisor can help you create a plan and focus on actions that add value.

Diversification neither ensures a profit nor guarantees against loss in a declining market.

Appendix

Data Appendix

US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago.

Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex-Japan Stock, Small Blend, Small Growth, Small Value, and World Stock. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at *morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf*.

Fixed income fund sample includes the Morningstar historical categories: Corporate Bond, Inflation-Protected Bond, Intermediate Government, Intermediate-Term Bond, Muni California Intermediate, Muni National Intermediate, Muni National Short, Muni New York Intermediate, Muni Single State Short, Short Government, Short-Term Bond, Ultrashort Bond, and World Bond. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at *morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf*.

Index funds and fund-of-funds are excluded from the sample. Net assets for funds with multiple share classes or feeder funds are a sum of the individual share class total net assets. The return for funds with multiple share classes is taken as the asset-weighted average of the individual share class observations. Fund share classes are aggregated at the strategy level using Morningstar FundID and CRSP portfolio number.

Each fund is evaluated relative to the Morningstar benchmark assigned to the fund's category at the start of the evaluation period. Surviving funds are those with return observations for every month of the sample period. Winner funds are those that survived and whose cumulative net return over the period exceeded that of their respective Morningstar category benchmark. Loser funds are funds that did not survive the period or whose cumulative net return did not exceed their respective Morningstar category benchmark.

Benchmark indices are not available for direct investment. Their performance does not reflect the expenses associated with management of an actual portfolio.

Mutual fund investment values will fluctuate, and shares, when redeemed, may be worth more or less than original cost. Diversification neither assures a profit nor guarantees against a loss in a declining market. There is no guarantee investment strategies will be successful. Past performance is no guarantee of future results.