Planning Perspectives 2Q 2019

Integrity in Investing
Perspectives on Performance, Projections and Persistence

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PROFESSIONAL FINANCIAL
Integrative Wealth Management

"Investors would do well to learn from deer hunters and fishermen who know the importance of "being there" and using patient persistence, so they "are there" when opportunity knocks."

– **Charlie Ellis**, author of *Investment Policy*

This is part of a series exploring integrity in professional wealth planning

Key takeaways:

- Recent results of fund or portfolio performance should not be projected far into the future
- Investors can become prisoners of their own perspective due to limited investment knowledge
- Positive investor outcomes are strongly related to policy soundness and personal discipline
- Investors who based planning on modern financial science are likely to have better outcomes

Investors are more likely to make serious mistakes in planning both when the economy and markets are either very good or very bad. When times are bright, investors become bullish and euphoric–increasingly fewer want to "miss out" on big stock returns they see as prices keep rising. Somebody is getting rich, why not them? they wonder. The opposite, of course, are dark times when news of business troubles and prolonged price declines feed investor bearishness and fears so that fewer want to stay invested and more start looking for "safety" holding bonds or cash.

Having regular conversations with clients and prospective clients provides deep insights about how people relate return with risk. They want high returns; they don't want high risk. Many want to find advisors with the financial alchemy to turn lead into gold without risk. But as academic research confirms, risk and *expected* return are related.[1] The investor's daunting challenge is to be persistently exposured to risk not knowing when the business cycle impacting markets has topped or bottomed until months or years after the fact. The lack of longevity of hedge, mutual or exchange-traded funds that try to market-time is mute testimony to the difficulty of successfully doing so. So investors must decide to own market risks, rather than rent today's returns to have a truly successful financial outcome.

Performance is Not Related to Projections

Market highs and lows result in emotional behaviors for many investors, both retail and institutional. Do we stay put or sell? Some or all? Without a clear economic philosophy clearly expressed as an investment policy, what behavioral economist and Nobel laureate Daniel Kahneman calls "noise"—the tendency of our judgements to be swayed by such irrelevant factors as mood or time or gossip—confuse our thinking. In our media-saturated world—internet and social—what most captivates investor attention is a simple but seldom meaningful heuristic: return numbers. Comparing performance figures is easy; comparing figures accurately describing their risk

is fiendishly difficult. But media noise is focused on market returns and price trends because viewer attentions are captured so easily. The best numbers for planning are "factor premiums. " Factor premiums derived from financial science describe drivers of return that are planning tools for relative risks impacting asset classes to more reliably estimate investing outcomes.

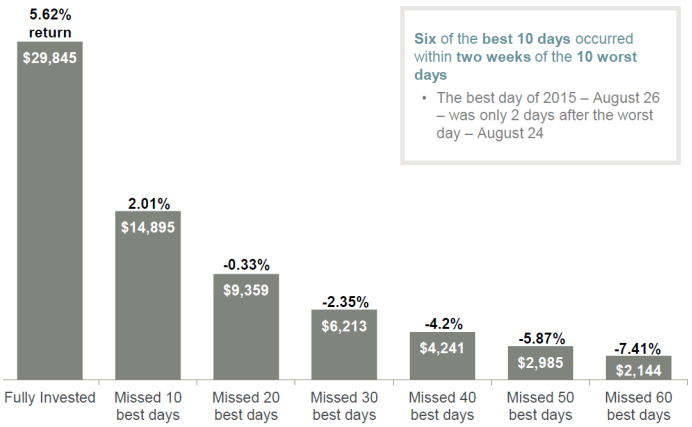
Recency bias is a common but serious behavioral failing when thinking about investments. Recency is the tendency to over-weight recent experience and underweight experiences further back—and even ignore them if too far in the past. Publicizing flashy returns from Morningstar is exciting; long-term evidence with historical context from bland academic websites is not. People are usually unaware of the degree of their over-confidence in their knowledge. They don't know what they don't know, until it's usually too late. The first column of *Exhibit 1* shows 20 years of S&P 500 returns that anyone with Google access could know—and not as high as many think, but actually much higher than most investors since few were continuously invested in U. S. large company stocks for the full 20 years. Most investors don't know what they lost by going in and out of stocks too often: missing just the best 20 days over 20 years turns a positive U.S. stock market return negative. Missing the best 40 or 60 days becomes a disaster. U.S. stocks for the last 92 years earned a 10.1% return. Look for alternative investments offering such returns. But that was earned only by diversified investors who stayed invested. By trying to avoid market losses and so missing part or perhaps all of the best 92 months, investor returns easily could be close to zero: 8.3% of all months returned 10.4%; all the rest provided about 0.01%.[2]

Investor Performance Relates to Persistence

In a previous *Planning Perspectives* we discussed how the *quality of a decision* may differ from the *quality of the results*, and that recent performance is not useful to estimate long-term outcomes.[3] Amateur poker players who confuse before-the-fact strategy with after-the-fact results become victims of their own "resulting." They change their strategy due to the unfortunate results of a couple hands. By not playing the probability of outcomes well, their money eventually passes to professionals persistently applying the statistical probabilities. Amateurs who keep losing money blame bad "luck," but not their lack of skill.

Exhibit 1: IMPACT OF MISSING BEST U.S. STOCK MARKET DAYS

Adjusted S&P 500 Index
Performance of a $10,000 investment 1/1999–12/2018



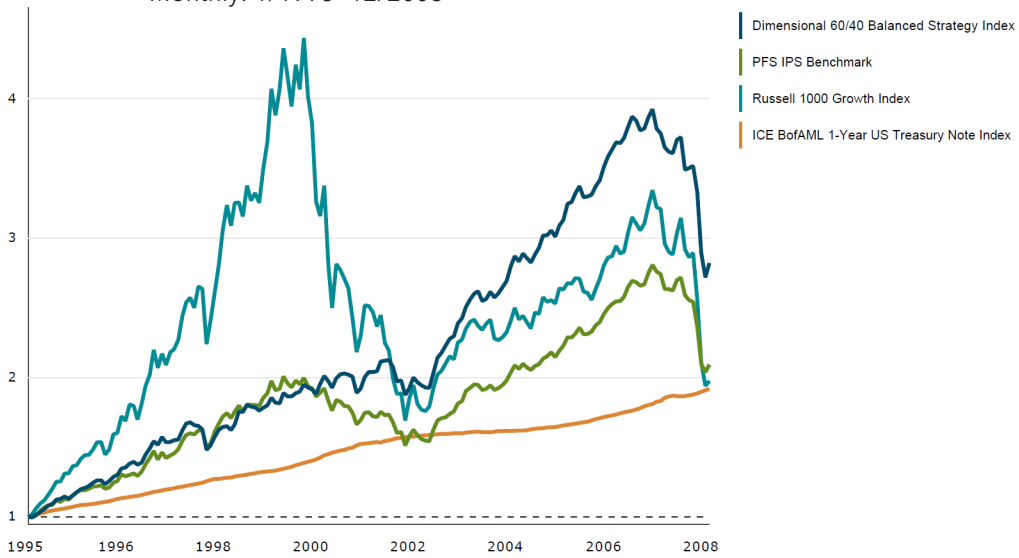
Source: *J.P. Morgan Asset Management analysis using data from Bloomberg. Returns are based on the S&P 500 Total Return Index, an unmanaged, capitalization-weighted index that measures the performance of 500 large capitalization domestic stocks representing all major industries. Indices do not include fees or operating expenses and are not available for actual investment. The hypothetical performance calculations are shown for illustrative purposes only and are not meant to be representative of actual results while investing over the time periods shown. The hypothetical performance calculations for the respective strategies are shown gross of fees. If fees were included, returns would be lower. Hypothetical performance returns reflect the reinvestment of all dividends. The hypothetical performance results have certain inherent limitations. Unlike an actual performance record, they do not reflect actual trading, liquidity constraints, fees and other costs. Also, since the trades have not actually been executed, the results may have under- or overcompensated for the impact of certain market factors such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. Returns will fluctuate and an investment upon redemption may be worth more or less than its original value. Past performance is not indicative of future returns. An individual cannot invest directly in an index. Data as of December 31, 2018.*

No one wakes up one morning after resulting their portfolio returns to tell their spouse, "Today I'm making a decision to ruin our lives." Overconfidence makes them think they are smarter than investors as a whole. But that's usually a big mistake. Framing decisions even by people who are professionally smart still relies on the limited sample of their own experience—positive or negative. What appears "smart" short-term may longer-term lock-in losses and avoid gains simply because of a behavioral unwillingness to stick with what may be a sound investment policy or a sensibly diversified portfolio.

Drs Smith and Smith, a couple then in their 60s, came to us in 2008 during the midst of a global financial crisis. No one knew at the time what the outcome would be. They complained of their unhappy experience with securities brokers from two different firms with whom they invested aggressively. They particularly complained about a broker who "lost" them $14 million (in 2019$) during the Tech Bust period from 2000 to 2002. *Exhibit 2* uses the Russell 1000 Growth Index of U.S. large stocks to proxy the results of what the brokers' stock strategies may have been. However, a tech-stock concentrated portfolio would

Exhibit 2: PORTFOLIO GROWTH COMPARISON – INVESTOR PERIOD FRAMING

Monthly: 1/1995 -12/2008



In U.S. dollars. Dimensional 60/40 balanced strategy simulation rebalanced monthly. Balanced Strategy: 12% S&P 500 Index,12% Dimensional U.S. Large Cap Value Index, 6% Dow Jones U.S. Select REIT Index, 6% Dimensional International Marketwide Value Index, 6% Dimensional U.S. Small Cap Index, 6% Dimensional U.S. Small Cap Value Index, 3% Dimensional International Small Cap Index, 3% Dimensional International Small Cap Value Index, 2.4% Dimensional Emerging Markets Small Index, 1.8% Dimensional Emerging Markets Value Index, 1.8% Dimensional Emerging Markets Index, 10% Bloomberg Barclays U.S. Treasury Bond Index 1-5 Years, 10% FTSE World Government Bond Index 1-5 Years (hedged), 10% FTSE World Government Bond Index 1-3 Years (hedged), 10% ICE BofA Merrill Lynch 1-Year U.S. Treasury Note Index. The S&P data are provided by Standard & Poor's Index Services Group. ICE BofA Merrill Lynch Indices provided by ICE Data Indices, LLC. MSCI indices provided by MSCI Inc. Bloomberg Barclays data provided by Bloomberg. Frank Russell Company is the source and owner of the Russell Indexes. Dimensional indices use CRSP and Compustat data.

PFS Investment Policy Statement Benchmark is: 60% MSCI World Index (net dividends), 20% Bloomberg Barclays U.S. Government Bond Index, 20% ICE BofA Merrill Lynch 1-Year U.S. Treasury Note Index.

For illustrative purposes only. Past and hypothetical performance is not a guarantee of future results. Graph represents an initial hypothetical investment of $1 million. Rebalanced monthly. Returns of model and hypothetical portfolios are based on back-tested model allocation mixes designed with the benefit of hindsight and do not represent actual investment performance, and are not representative of actual portfolios. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. See Appendix *for additional information.*

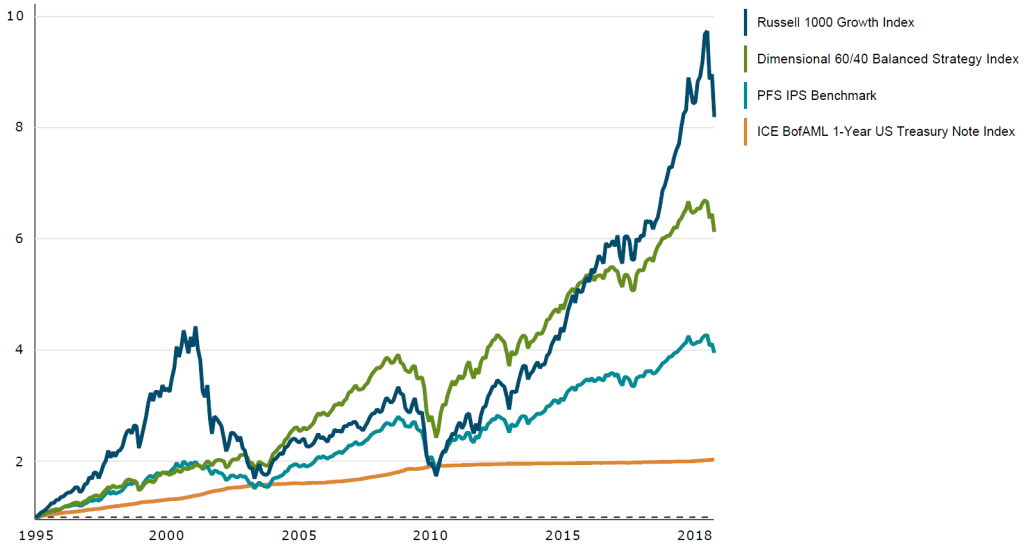
have had a peak more than twice as high, and therefore a greater loss correspondingly. Even with net new savings that had doubled their original investment base, it was evident that the financial crisis would wipe out most of their recovery. At the time it was doubtful they could confidently retire with the same quality of their conspicuous lifestyle. They were afraid, and it would be more than five years later before they would become confident of a successful retirement.

Their chronic complaint repeated over and over during the following ten years was about that $14 million "loss" that the broker had caused. However, they never informed us after all those years, until I finally asked, that they had begun working with that same broker in 1995! The replacement broker had made "no money" due to the large market declines during the global financial crisis since he was instructed to keep trading U.S. large stocks looking for "opportunities." The so-called "Merrill Lynch Rule" provides brokers with regulatory exemptions for high standards of financial advice that apply to registered investment advisors. Products or service need only be "suitable" for but do not have to be in the customer's "best interest." All equity portfolio strategies offer the biggest potential gains—and losses.

The Smiths decided they wanted a fiduciary approach and a sensibly diversified portfolio strategy. That delayed their retirement until their 70s to be confident they had enough assets for what they considered a quality lifestyle for their lifetimes and to provide enough legacy for their children and grandchildren. Through new savings, leveraging more savings from tax planning, and portfolio gains as well as multiple residential and commercial property over the next decade, their net worth more than tripled. Portfolio results exceeded benchmarks but only modestly for the period. Every year the globally balanced equity and fixed income global strategy of the investment policy was reconfirmed. For five or six years they wavered about the reduced level of risk, but mostly stayed firm. They frequently expressed happiness about the progress of their results, and no longer focused on aggressive stocks.

Exhibit 3: PORTFOLIO GROWTH COMPARISON – RECENT PERIOD FRAMING

Monthly: 1/1995 – 12/2018



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Performance Victimized by Projections

Then in early 2019 a much younger doctor showed off the ten-year results of his 2018 401k statement, and he was excited. Not having ever experienced a big loss, after the global crisis and still in his late 40s, wisely or not he concentrated on familiar U.S. large stock funds, taking as much risk as possible—and it paid off big. He and his wife didn't own multiple properties and had no business or real estate risks. Suddenly they came down with an acute case of "returns envy." They began sending articles about people or hedge funds that did very well with remarks like: "Someone is getting rich. Why not me?"

Initially, we were confused. Their portfolio didn't take big risks, they hadn't wanted big risks, and they didn't need big risks—and yet now they wanted big returns. Then it occurred to me for the first time to ask whether the broker who "lost" those mourned millions was also the one responsible for making them: So I called the husband who kept sending those articles if they began investing in 1995. After a little hesitation, he said "yes" and then indicated the initial starting sum I'd estimated was about correct.

Looking again at *Exhibit 2* gives a notion of what likely happened from 1995 to 2000 (except the peak would have been well over two times higher). They had hit the jackpot but didn't know it! The broker, to limit legal liability, had them sign certain paperwork to invest speculatively. Acting on their behalf, they rode the "New Era" Tech wave as high as it could go. And go it did. So, while accounts grew, the doctors were not concerned *because that was what they expected to happen.* With limited financial experience with stocks and believing glossy company brochures the doctors couple truly believed they were "smart enough" to find and hire the "right" brokerage firm. Doubtless they enjoyed bragging to other doctors.

So, when the tech bubble burst, and their portfolio experienced big losses *it was not their fault* for not taking a portion of those huge gains long before the market top and allocating into safer fixed income positions—*it was the broker's fault* that he still couldn't magically keep making big returns. Of course, the broker's job is not to make money. The broker's job is to invest money in "suitable opportunities." Risk is *not* a broker's real concern. The customer's money is at risk, not his. The broker's real risk is losing control of a profitable pot of money. So, the agency incentive of a broker is to keep that pot growing. By not objecting to trading activities, the doctors tacitly gave him permission to keep trading aggressively.

Escaping the Perspective Prison

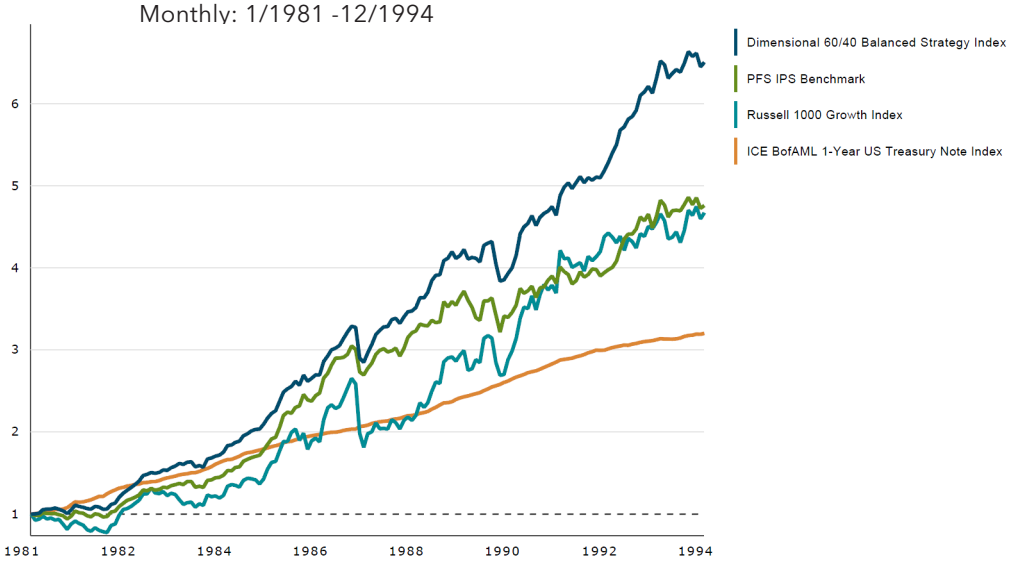
Let's reframe the Smith's perspective about performance results so you can avoid wrong expectations. First, the doctors had no investment policy to properly evaluate the risks the broker took relative to returns. Consequently, they could not assess the value of the results relative to the risk they were taking and how much value broker trading added. Evidently not much, since their huge gains all disappeared. They did not know about the adverse agency incentives of a brokerage relationship. In hindsight, the broker was not as at fault as the doctor's selective presentation of their investing story implied. He merely matched customer's money to market opportunities as stated on their signed client profile form. Sadly, the doctors did not understand, and never learned, the difference between speculating and investing.

As we re-frame *Exhibit 3* for the entire period from 1995 to 2008 by just looking at asset class trends, we can confirm the doctors' happiness about their years of brokerage investing experience. But broad market movements and volatility of stock is no fault of the broker. The proxy U.S. large growth stock indexes we use don't include the costs of management—and trading costs at brokerage firms are notoriously high. (Obviously for privacy reasons, we do not show actual returns.) Even where a broker is competent, studies show that high costs from active management with brokers working with their customers typically reduce returns to a "risk-free" or bank account rate.[4,5] We note the U.S. growth stock index return for the doctors for their years of working with brokers was 5.0% annualized and a nearly risk-free rate of 1-year U.S. Treasury notes was 4.8%. After costs, a bank account would have been better.

Improperly framing past performance figures can easily create a misleading perspective for decision-making. Projecting any recent past performance of stocks, bonds, funds or indexes very far into the future from an arbitrary starting point is hazardous to building or preserving wealth. The uninformed investor's temptation—especially for those with a 401k plan but including investors who annually compare fund rankings each January—is to simply look within the confines of the past three, five or ten years performance frameworks presented and assume that the methodology of segmenting performance is particularly useful for making important financial and retirement planning decisions. Likely the doctors did something like that in the first half of the 1990s, saw big growth stock returns for the prior five or ten years, and then decided to engage a broker to help them accumulate more wealth faster than at the bank.

Exhibit 4: PORTFOLIO GROWTH COMPARISON – EARLY PERIOD FRAMING

Monthly: 1/1981 -12/1994



For illustrative purposes only. Past and hypothetical performance is not a guarantee of future results. Graph represents an initial hypothetical investment of $1 million. Rebalanced monthly. Returns of model and hypothetical portfolios are based on back-tested model allocation mixes designed with the benefit of hindsight and do not represent actual investment performance, and are not representative of actual portfolios. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. See Exhibit 2 *and* Appendix *for additional information.*

Planning Informed Projections

Maximizing performance returns is a poor goal for planning purposes. Most couples planning a successful financial experience have goals related to a quality retirement lifestyle that they are confident will last a lifetime or for a family legacy. As we review *Exhibits 2* through *4*, the Dimensional balanced strategy index substantially out-performs the investment policy benchmark in some periods and closely follows the benchmark in other periods.[6] We see a respectable return of 13.2% annualized for 1995 through 1999 and then a positive 4.8% annualized from 2000 through a difficult 2008 when the U.S. large growth stock index was a negative -7.7% annualized, or a 12.5% annualized difference in performance.

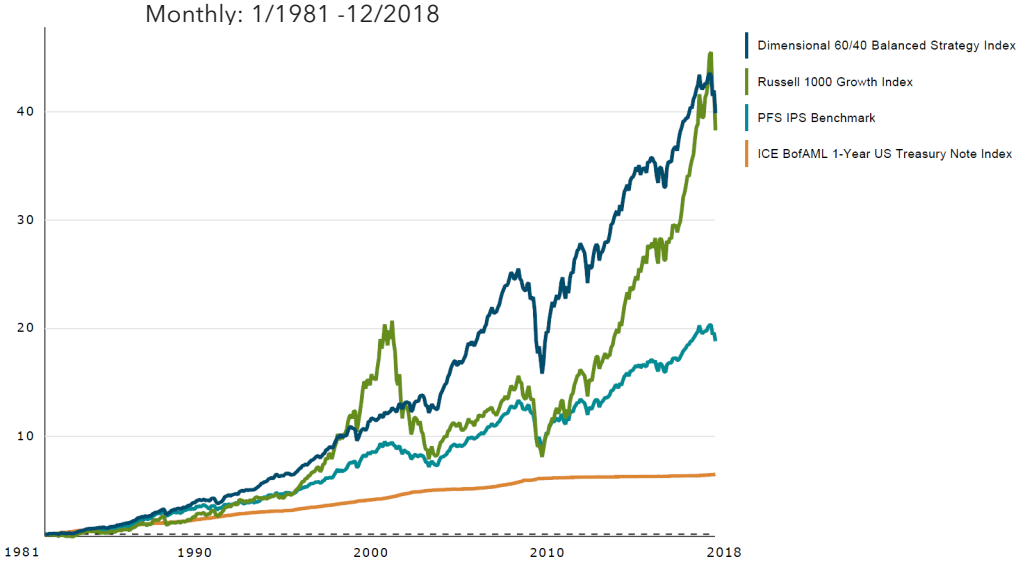
Yes, the rise of the U.S. large growth index of the late 1990s was spectacular, but equally so was the fall. For the original period of *Exhibit 2*, the Dimensional balanced strategy index has the greatest cumulative return even after the 2008 drop. Its journey is endurable for the average investor accumulating for retirement, unlike that of the concentrated U.S. large growth index. As we move to *Exhibit 3*, we see that the risky Russell Growth Index increases sharply upward over a ten-year period since the crisis years. Likely many investors in hindsight wished they had remained in U.S. large growth stocks—in perfect timing, they would have allocated all their money to that index. But going forward, would they keep those gains? For market timing success, you must be right twice—when you buy and when you sell. For the Smiths, in hindsight, they bought at the right time, but sold at the wrong time.

Graphing a chart framing only from 1995 to the end of 1999, or from 1990 to the end of 1999, we simply project a U.S. large growth strategy as the big winner if we looked ahead. But this would make us prisoners of perspective. We cannot be confident of outcome 15 years hence. Avoiding some complicated statistics, while we *cannot look ahead*, with an out-of-sample of data we can *look behind* and study of the same indexes for practical insight in framing a perspective for planning.

Exhibit 4 illustrates the same data series for 15 years *prior to 1995* beginning in 1981. This story is very different. U.S. large growth stocks do well during the Reagan and Bush I years with good cumulative returns but without the wild volatility of late 1990s. But the Dimensional balanced strategy index dominates the growth of wealth, far surpassing the benchmark index. Academic research emerging from the University of Chicago and the University of Rochester beginning in the 1980s implied that what we now call dimensions of size and relative price were drivers of return in addition to the market, and that a global exposure to those drivers could enhance the returns of a portfolio. It was during that period Dimensional Fund

Exhibit 5: PORTFOLIO GROWTH COMPARISON – COMPLETE PERIOD FRAMING

Monthly: 1/1981 -12/2018



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Advisors was formed, introducing some of the portfolios we still use today. The hypothetical Dimensional index result is 14.3% annualized. The Russell 1000 growth index is 11.6%.

Exhibit 5 combines the exhibit periods for the entire period from 1981 to 2018. The surprising result is that the most aggressive and risky investing approach is not a clear winner over a long period with less arbitrary framing to confuse our planning perspectives. The less volatile globally diversified Dimensional balanced simulation outperforms the highly volatile U.S. large growth company index. Importantly, a sensible investor beginning young could have maintained such an investment strategy for their investing through to retirement. Perhaps more risk could be taken early in a career beginning with a small investment base with systematic additions (perhaps 80/20 or higher) and less risk toward retirement (perhaps 40/60 and progressively lower in time). The doctors in fact employed a risky traditional active brokerage trading approach based on a small number of stocks and not a far more diversified approach of an index. The fact is that the doctors, as well as most people, could not live with the stress.

Luck pays a much bigger role in investing performance than most realize. Brokers like to tell customers that they (or their firm) can identify "good managers who've been solid performers." But research shows that only 7% of funds in the highest quartile of actively managed U.S. stock funds in September 2015 were still among the top 25% only three years later, and over five years fewer than 1.5% stay in that elite group.[7] In almost every group of funds studied by academics, a dramatic decay of outperformers from one year to the next occurs.[8] Perhaps it's because of the tendency for superior results to fade toward average as funds either grow too big to be nimble, or managers move on to other opportunities, or simply sheer luck turns winners into losers. The lack of persistence makes a bad problem even worse: had the doctors stayed with their second broker only a few months longer, they would have hit the bottom of the U.S. stock market decline, then participated in a spectacular 10-year rise. They took lots of risk—but didn't stick around for the return. No wonder the doctors are so unhappy.

Investing Persistently for Results

Legendary investment consultant and author of *Winning the Loser's Game,* Charles Ellis, wrote: "The best way to achieve long-term success is not in stock picking and not in market timing and not even in changing portfolio strategy. Sure, these approaches all have their current heroes and war stories, but few heroes last for long and not all the war stories are entirely true. The great pathway to long-term success comes via sound, sustained investment policy, setting the right asset mix and holding onto it."[9] Today we would refine it to say, "the right *diversified* asset mix with *premium exposures* a client can stick with."

When Ellis published his classic book in 1998 he presented evidence that while it was possible then for active management to generate excess returns ("alpha"), the odds of doing so were so poor that it wasn't worth the effort for investors. Maybe 20 percent of actively managed mutual funds or managers then could generate some alpha. Today it's more like 2 percent.[10] This would imply that if someone today expected outsized returns from yesterday's brokerage stock or EFT trading strategy, they likely will be extremely disappointed. I think why hedge funds are so widely sold is not because of benefits for investors, but because it's so difficult to clearly show how poor hedge funds are relative to the risks.

Why should this be the case?

- Academic research has advanced techniques that separate what once appeared to be "alpha" into investible factor exposures, such as size, relative profitability (value), and profitability (quality).
- The pool of readily exploitable investors who speculate in stocks and ETFs continues to shrink. The retail market for trading has shrunk from 90 percent in 1945 to less than 20 percent today.
- Sophisticated investors chasing alpha with mega-computers continues to dramatically increase—hedge funds managed about $300 billion twenty years ago, and today its well over $3 trillion.
- The explicit costs of trading continue to fall, making arbitraging any market anomalies cheaper.
- The absolute level of skill and sophistication among managers and strategies keeps increasing.

The last point confuses those who believe those macho discount brokerage ads in financial publications. The thinking is: with quantum computing, increasingly sophisticated algorithms and access to "better information," "smart" managers should easily capture excess return

("alpha"). While relative level of skill for competition in chess, poker or golf is important, the ever-rising absolute level of technical skill in financial management creates the "paradox of skill": luck becomes increasingly important in determining relative outcomes. This is because the level of competition keeps rising as more talented professionals enter with more advanced training and tools. As a prestigious Simon School MBA grad from years ago, I don't understand some of the lingo used in newer course descriptions.

The counter intuitive result of all the intense competition in informationally "efficient markets" makes excess returns smaller and smaller after costs. Certainly a few participants will happen to do well, but that success is not likely to persist. Prices depend on the smartest, best wired marginal participant trading in milliseconds. Rankings are thus less meaningful since they are probably largely due to luck—and we live in a world where ten or fifteen years of apparent alpha is not statistically significant. And even if there was skill, the people who created the alpha probably are gone: after all, economic theory teaches that if someone has a special skill, they will try to keep all their "rents" for themselves and not share them.

Perspective on Persistent Premiums

Decades of theory and research guide the way for designing strategies based on modern financial science. The preponderance of empirical evidence shows that simply projecting recent past returns is futile. The futility of all those speculative efforts is good news for informed investors. It's not about finding better brokers. Prices for public securities are "fair." Differences in average returns can be driven by portfolio structure. Recent performance of factor premiums doesn't project future outcomes. For those disappointed with recent returns and extrapolating projections of potential alternatives, there is a very high risk of a mistake. Those future results could change much faster than you could ever expect.

When casually extrapolating disappointing recent returns into the future, some investors can be tempted to quit their long-held Dimensional investment strategy. While outcomes may look worse than alternatives like U.S. large growth stocks, informed investors reframe their evaluation perspectives.

"Framing" uses arbitrary time periods, like calendar years, to evaluate past performance. That leads some investors to review their strategy and their results inappropriately. Most common are the five- and 10-year periods employed by Morningstar and financial media that help sell services and publications. Calendar year framing reinforces recency bias and becomes a distraction that confuses investor thinking. The familiarity of U.S. large growth stocks with their "home" bias further compounds misperceptions.

Factor premiums can materialize quickly, and in my experience, usually when least expected. Your portfolio structure *always* must be properly positioned to capture the strategy returns planned for you when they suddenly begin showing up. The late 1990s that we've discussed above provide us with an extreme example impacting many investors who, from huge recent returns, overconfidently projected that U. S. large growth stocks would out-perform due to their belief in a "new economy." *Exhibit 6* compares the performance of the Russell 1000 Growth and Value indices. Growth

Exhibit 6: COMPARING ROLLING RETURNS OF U.S. LARGE GROWTH AND VALUE INDEXES

Trailing periods ending March 31, 2000

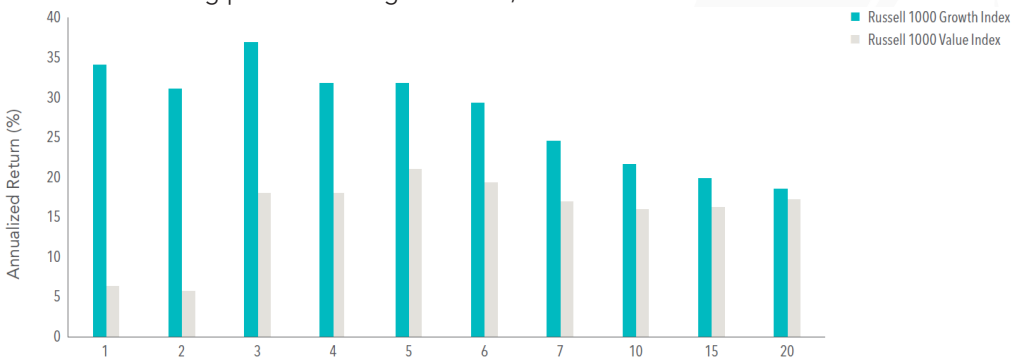

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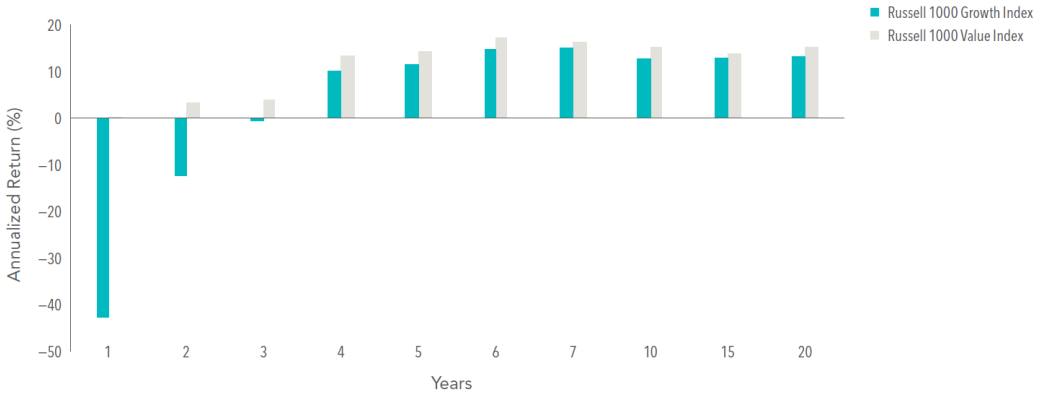
Exhibit 7: COMPARING ROLLING RETURNS OF U.S. LARGE GROWTH AND VALUE INDEXES ONE-YEAR LATER

Trailing periods ending March 31, 2001



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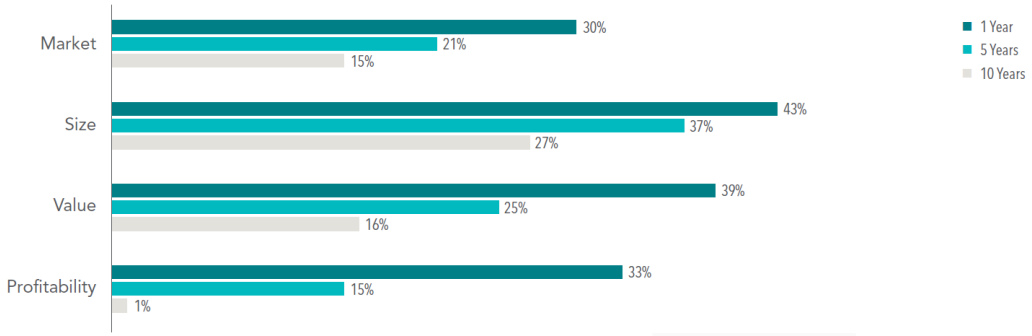
returns beat value returns over every trailing period for 20 years ending March 31, 2000 and from the index inception.

Resulting—that is, projecting recent past results—caused many value-oriented adherents of the Benjamin Graham tradition to doubt their long-held strategies. In fact, many famous "value" mutual fund managers uncer-emoniously retired as billions of dollars were withdrawn from their funds around the years 1998 through 2000, driving poor results even lower. That money flooded into high-performing growth funds—which grew faster as underlying stock prices rose to adjust. Only a year later millions of investors regretted their lack of discipline and persistence as they reviewed year-end fund reports and saw "what might have been." The Russell Value Index in *Exhibit 7* outperformed the growth index *for one year by 42.2% and over every trailing period from 1 to 20 years*, ending March 31, 2001. Likely many who "stuck" with their new growth strategy suffered when they saw a 26.7% loss two years later. 10 years later, the Russell Value Index and many other "value" funds were still showing relative outperformance.

We expect positive market, size, value, and profitability factor premiums every trading day,[11] but also recognize that *realized* premiums are volatile and often will be negative and for extended periods. The historical data shows that extended periods of 10 years of negative factor premiums are not uncommon. *Exhibit 8* shows the frequency of negative premium experience in the U.S. over

Exhibit 8: PROBABILITY OF NEGATIVE INDIVIDUAL PREMIUMS BY ROLLING PERIODS

U.S. equity market through December 2018



Percentage of rolling 1-, 5-, and 10-year periods with negative premiums is calculated using monthly return data from June 1927 to December 2018 for market, size, and value, and from July 1963 to December 2018 for profitability. Market: Fama/French Total U.S. Market Research Index minus the One-Month U.S. Treasury Bill. Size: Dimensional U.S. Small Cap Index minus the S&P 500 Index. Value: Fama/French U.S. Value Research Index minus the Fama/French U.S. Growth Research Index. Profitability: Dimensional U.S. High Profitability Index minus the Dimensional U.S. Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. One-Month U.S. Treasury Bills is the IA SBBI U.S. 30 Day TBill TR U.S.D provided by Ibbotson Associates via Morningstar Direct. Dimensional indices use CRSP and Compustat data. 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. Fama/French indices provided by Ken French. Dimensional and Fama/French index definitions are available in the appendix. S&P data© 2019 S&P Dow Jones Indices LLC, a division of S&P Global.

rolling 1-, 5-, and 10-year periods as far back as the data are available. Negative premiums do occur, they do not last. While realizing positive premiums are not guaranteed, they are disproportionately in the favor of persistent investors. The likelihood of making a mistake of relying on a premium that is not there decreases over time, while the likelihood of making a big mistake by not persisting with your investment strategy multiplies.

Confidence for Persistence in Planning

In the section above we looked at the impact of dimensional premiums in isolation. But the Dimensional balanced strategy index in our *Portfolio Growth Comparison* exhibits as well as in professional practice, we apply them in combination. We structure premiums in combination for realizing more reliable outcomes. A client's written investment policy broadly states how we manage the investment management process (with fiduciary standards of loyalty and care) and describes a general portfolio structure for asset allocation. The equity allocation of the portfolio structure directly combines those four premiums. This approach is intentional and necessary for more confidence in planning outcomes.[12]

A well-diversified global market strategy can be a good portfolio for many investors. And while our Dimensional strategies seek to outperform a market portfolio by applying factor premiums, returns are noisy and there can be extended periods when a driver of return doesn't deliver. A factor premium that doesn't materialize after several years will get called into question. The U.S. value premium has received unusual press in recent years due to Dimensional Fund Advisor's astonishing growth, but it is not the only factor premium to have underperformed for several years.[13] From an empirical perspective, a negative 10-year premium is not so long as to suggest it no longer exists.

What is the impact on the probability of enhancing expected returns when all four factor premiums are integrated within a portfolio structure?[14] In *Exhibit 8*, periods when a premium was negative occurred in almost half of the rolling 10-year periods. However, premiums are largely independent. To estimate the frequency that one, two, three, or all four of the premiums interacting at the same time may be negative over rolling 10-year periods is calculated in *Exhibit 9*. Importantly for confidence in planning retirement strategies, negative premiums over rolling ten years where all four are integrated never occur. Two negative premiums occur less than 10% of the time. Of course, fixed income allocations fill the shortfalls.

Our goal for portfolio structures we design is to help clients benefit from dimensional factor exposures whenever they are realized and still have market like returns when they don't. We try to be candid about possible outcomes through our reporting process. Returns sometimes will be less than what we planned for, but we don't want our clients to be surprised so that their goals need to be changed.

Our methodology for expecting positive size, value, and profitability factor premiums makes economic sense in valuation theory, which posits that a stock's price reflects the sum of a company's expected future cash flows discounted to present value plus its current book value. The discount rate equates to an investor's expected return for that stock. Therefore, stocks with lower (higher) prices and higher (lower) expected cash flows should have higher (lower) expected returns. The valuation framework holds regardless of whether premiums recently realized may have been positive or negative. These factor premiums show such persistency and pervasiveness through decades of the best academic research that goes well beyond conventional framing such that they are considered "dimensions" of expected returns.

Exhibit 9: PROBABILITY OF NEGATIVE PREMIUMS IN COMBINATIONS BY ROLLING 10-YEAR PERIODS
U.S. equity market, July 1963 – December 2018

One Negative Premium	Two Negative Premiums	Three Negative Premiums	Four Negative Premiums	Total Observations
270	43	1	0	547
49.4%	7.9%	0.2%	0.0%	

Number and percentage of rolling 10-year periods with one, two, three, and four negative premiums are calculated using monthly return data from July 1963 to December 2018. 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. See Exhibit 8 *and* Appendix *for definition of premiums and data source.*

Conclusion

In combination with a recency bias, some investors suffer from a misguided "belief in the law of small numbers." That is, people tend to interpret a relatively small sample in a population of numbers for which they find a pattern and conclude that that pattern is representative of a broader population. Investors habitually do this with return figures of stocks, funds and indexes, as we saw illustrated in our *Portfolio Growth Comparison* exhibits. Market projections based on a remarkable pattern of returns often gets a lot of media attention because it fits a compelling story—a story especially attractive to readers who look for big returns with what seems to have little risk, and think they can get rich by paying a few dollars for a glossy magazine. But as a showman famously observed, "You can't cheat an honest man."

One of the saddest situations we've professionally experienced with former clients was that of an older physician with a private practice. His wife, a nurse, worked with him. Back in the late 1990s we spent a couple years working hard to fix their financial mess and getting that couple back on the right track to retire with dignity. We made some real progress but making up for past mistakes would take longer than they wanted. At the same time popular media promoted an exciting "new economy" of growth stocks.

Their Dimensional strategy was doing well but not nearly as well as U.S. large growth and tech stocks. Since saving more was hard, and old habits die harder, a broker convinced them of a better way for an abundant retirement lifestyle. One day in late 1999 without notice, their accounts moved away. About two years later I happened to run into the wife in a bank lobby. She approached me, sobbing. The investment scheme had been a disaster, and half the investment portfolio was lost. There was nothing I could possibly do to help them. For many years after, driving by their office from time to time, I noticed that their small practice had continued, and continued to be open well into what had to be their eighties.

One of the most widely quoted pearls of wisdom of legendary investor Warren Buffett is: "**Rule No. 1: Never lose money. Rule No. 2: Don't forget rule No. 1."** Buffet obviously doesn't mean not to experience any periodic price declines. His Berkshire Hathaway stock experienced a lot of that during the financial crisis. But he echoes the wisdom of his revered teacher and author of *The Intelligent Investor,* Benjamin Graham. Graham himself had lost a fortune in the infamous stock market crash of 1929 but made it back during the Great Depression and the years of World War II based on an investment philosophy he developed: "The investor's chief problem—and even his worst enemy—is likely to be himself."

When considering any financial advisor or money manager, it is helpful to evaluate how well they've performed—but not just in one or two handpicked strategies or portfolios but across a broad range and over the longest time period possible. Did they deliver what they said they'd deliver? Did they remain consistent in their approach? Is there a sensible economic story for their investment process? Have their solutions survived the test of time—or do they have a collection of dead funds or strategies with bad surprises or big losses hidden away? Why should you have confidence they can repeat past success?

The investor should not be passive, but play a critical role in developing an informed investment policy strategy intended to accomplish their important goals, values and dreams. They need a sound philosophy and sensible strategy proven to have served investors for many years in a wide range of market conditions. An IPS describes an appropriate time frame for evaluating outcomes. A good investment policy strategy expects investors to be owners, not renters. "You make your own luck," an old advisor once told me. You make your own luck by having a wealth management professional you can trust and being committed to an informed investment policy and process until bad luck turns around. If you've taken informed risks like Graham's intelligent investor, then be sure to stick around for the return.

"It is remarkable how much long-term advantage people like us have gotten by trying to be consistently not stupid, instead of trying to be very intelligent."

– **Charlie Munger**, *94, long-time colleague of Warren Buffett*

Endnotes

1 "Realized return" and the statistical concept of "expected return" are distinctly different. Realized return may be understood as published performance. Expected return is the percentage increase anticipated from an investment based on uncertainty due to risk associated with the investment. It is calculated as the mean value of the probability distribution of possible returns. Expected return is NOT an "average" return, rather it may be understood as the *most likely* return for an investment. There are many investments with no expected return.

2 The same thing is true of the 49-year period for which we have MSCI EAFE Index data—9.6% and 0.0%. For the 31 years of MSCI Index data available, once again we find returns of 12.5% and 0.0%.

3 Paul Byron Hill, "Strategy Lesson from a Poker Professional," *Planning Perspectives* (Third Quarter 2018).

4 Edwin J. Elton, Martin J. Gruber and Christopher R. Blake, "The Persistence of Risk-Adjusted Mutual Fund Performance" (May 1995). NYU Working Paper No. FIN-95-018. Available SSRN: http://ssrn.com/abstract=1298325

5 Brad M. Barber and Terrance Odean, "Trading Is Hazardous to Wealth: The Common Stock Investment Performance of Individual Investors" Available SSRN: http://ssrn.com/abstract=219228 doi:10.2139/ssrn.219228. Access more articles at https://www.ifa.com/articles/summary_of_academic_research_on_stock_picking/

6 Given the long period we are reviewing, a "normal" or "balanced" 60% global equity/40% fixed income portfolio allocation is used. Obviously, in the early years when a client has more capacity for risk due to a longer working horizon and less money to start with, an aggressive 80% global equity allocation may be appropriate; as the client approaches retirement having less capacity for risk with a short working horizon and distributions pending, a moderate 40% or less maybe appropriate. For simplicity of comparison, we are averaging the allocation strategy.

7 S&P Dow Jones Indices research.

8 Dimensional Fund Advisors examines fund data every year in its *Mutual Fund Landscape* series.

9 From Barrie Dunstan, "Global Money Masters," *Australian Financial Review* (November 2006).

10 Larry Swedroe and Andrew Berkin, *The Incredible Shrinking Alpha* (2016).

11 Definitions - Market premium: The return difference between stocks and short-term bills. Size premium: The return difference between small capitalization stocks and large capitalization stocks. Value premium: The return difference between stocks with low relative prices (value) and stocks with high relative prices (growth). Profitability premium: The return difference between stocks of companies with high profitability over those with low profitability.

12 Benjamin Graham's classic *The Intelligent Investor* avowed purpose stated in it's very first line was "to supply guidance. in the adoption and execution of an investment policy." His most famous disciple is Warren Buffett, now the richest man in America. Hopefully this helps you understand the importance in challenging times.

13 See Paul Byron Hill, "Strategy Lesson from a Poker Professional," *Planning Perspectives* (Third Quarter 2018).

14 Brad Steiman and Wei Dai, "Perspectives on Premiums," Dimensional Fund Advisors (March 2019).

Exhibit 10: DIMENSIONAL DRIVERS OF EXPECTED RETURNS

Academic research has identified these dimensions, which are well documented in markets around the world and across different time periods.

Diversification does not eliminate the risk of market loss.

1. Relative price as measured by the price-to-book ratio; value stocks are those with lower price-to-book ratios.
2. Profitability is a measure of current profitability, based on information from individual companies' income statements.

APPENDIX

BALANCED STRATEGY 60/40

The model's performance does not reflect advisory fees or other expenses associated with the management of an actual portfolio. There are limitations inherent in model allocations. In particular, model performance may not reflect the impact that economic and market factors may have had on the advisor's decision making if the advisor were actually managing client money. The balanced strategies are not recommendations for an actual allocation.

International Value represented by Fama/French International Value Index for 1975–1993. Emerging Markets represented by MSCI Emerging Markets Index (gross dividends) for 1988–1993. Emerging Markets weighting allocated evenly between International Small Cap and International Value prior to January 1988 data inception. Emerging Markets Small Cap represented by Fama/French Emerging Markets Small Cap Index for 1989–1993. Emerging Markets Value and Small Cap weighting allocated evenly between International Small Cap and International Value prior to January 1989 data inception. Two-Year Global weighting allocated to One-Year prior to January 1990 data inception. Five-Year Global weighting allocated to Five-Year Government prior to January 1990 data inception. For illustrative purposes only.

The Dimensional Indices used have been retrospectively calculated by Dimensional Fund Advisors LP and did not exist prior to their index inceptions dates. Accordingly, results shown during the periods prior to each Index's index inception date do not represent actual returns of the Index. Other periods selected may have different results, including losses.

INDEX DESCRIPTIONS

Dimensional US Large Cap Value Index is compiled by Dimensional from CRSP and Compustat data. Targets securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with market capitalizations above the 1,000th-largest company whose relative price is in the bottom 30% of the Dimensional US Large Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The index emphasizes securities with higher profitability, lower relative price, and lower market capitalization. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to March 2007. The calculation methodology for the Dimensional US Large Cap Value Index was amended in January 2014 to include direct profitability as a factor in selecting securities for inclusion in the index. Prior to January 1975: Targets securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with market capitalizations above the 1,000th-largest company whose relative price is in the bottom 20% of the Dimensional US Large Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price.

Dimensional US Small Cap Index was created by Dimensional in March 2007 and is compiled by Dimensional. It represents a market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the Eligible Market. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and investment companies. From January 1975 to the present, the index also excludes companies with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of a different month of the year. The calculation methodology for the Dimensional US Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Dimensional US Small Cap Value Index is compiled by Dimensional from CRSP and Compustat data. Targets securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market whose relative price is in the bottom 35% of the Dimensional US Small Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The index emphasizes securities with higher profitability, lower relative price, and lower market capitalization. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to March 2007. The calculation methodology for the Dimensional US Small Cap Value Index was amended in January 2014 to include direct profitability as a factor in selecting securities for inclusion in the index. Prior to January 1975: Targets securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market whose relative price is in the bottom 25% of the Dimensional US Small Cap Index after the exclusion of utilities, companies lacking financial data, and companies with negative relative price.

Dimensional International Marketwide Value Index is compiled by Dimensional from Bloomberg securities data. The index consists of companies whose relative price is in the bottom 33% of their country's companies after the exclusion of utilities and companies with either negative or missing relative price data. The index emphasizes companies with smaller capitalization, lower relative price, and higher profitability. The index also excludes those companies with the lowest profitability and highest relative price within their country's value universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology for the Dimensional International Marketwide Value Index was amended in January 2014 to include direct profitability as a factor in selecting securities for inclusion in the index.

Dimensional International Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. July 1981–December 1993: It Includes non-US developed securities in the bottom 10% of market capitalization in each eligible country. All securities are market capitalization weighted. Each country is capped at 50%. Rebalanced semiannually. January 1994–Present: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Prior to July 1981, the index is 50% UK and 50% Japan. The calculation methodology for the Dimensional International Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Dimensional International Small Cap Value Index is defined as companies whose relative price is in the bottom 35% of their country's respective constituents in the Dimensional International Small Cap Index after the exclusion of utilities and companies with either negative or missing relative price data. The index also excludes those companies with the lowest profitability within their country's small value universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology for the Dimensional International Small Cap Value Index was amended in January 2014 to include direct profitability as a factor in selecting securities for inclusion in the index. Prior to January 1994: Created by Dimensional; includes securities of MSCI EAFE countries in the top 30% of book-to-market by market capitalization conditional on the securities being in the bottom 10% of market capitalization, excluding the bottom 1%. All securities are market-capitalization weighted. Each country is capped at 50%; rebalanced semiannually.

Dimensional Emerging Markets Index is compiled by Dimensional from Bloomberg securities data. Market capitalization-weighted index of all securities in the eligible markets. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008.

Dimensional Emerging Markets Value Index is compiled by Dimensional from Bloomberg securities data. The index consists of companies whose relative price is in the bottom 33% of their country's companies after the exclusion of utilities and companies with either negative or missing relative price data. The index emphasizes companies with smaller capitalization,

lower relative price, and higher profitability. The index also excludes those companies with the lowest profitability and highest relative price within their country's value universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology for the Dimensional Emerging Markets Value Index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. Prior to January 1994: Fama/French Emerging Markets Value Index.

Dimensional Emerging Markets Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. January 1989–December 1993: Fama/French Emerging Markets Small Cap Index. January 1994–Present: Dimensional Emerging Markets Small Index Composition: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Source: Bloomberg. The calculation methodology for the Dimensional Emerging Markets Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Fama/French Total U.S. Market Research Index: The value-weighed U.S. market index is constructed every month, using all issues listed on the NYSE, AMEX, or Nasdaq with available outstanding shares and valid prices for that month and the month before. Exclusions: American Depositary Receipts. Sources: CRSP for value-weighted U.S. market return. Rebalancing: Monthly. Dividends: Reinvested in the paying company until the portfolio is rebalanced.

Fama/French U.S. Value Research Index: Provided by Fama/French from CRSP securities data. Includes the lower 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

Fama/French U.S. Growth Research Index: Provided by Fama/French from CRSP securities data. Includes the higher 30% in price-to-book of NYSE securities.

(plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

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