Planning Perspectives 4Q 2023

Integrity in Investing
Science, Art and Practice in Investment Planning

Paul Byron Hill, MBA, MFP, MSFS, ChFC®, RICP®, CFP®
Wealth Management Certified Professional™ ©2023

PROFESSIONAL FINANCIAL
Purposeful Wealth Management

"Ideas are cheap. What matters is how you execute."
– **Myron Scholes,** Economics Professor and Nobel Laureate

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

Key takeaways:

- An era of Federal Reserve ultra-low interest debt financing of U.S. government spending is ending.
- With the ending of ultra-low interest rates, a decade-long tech-related market bubble will end.
- The science, art and practice of investment management plans for the worst and targets the best.
- For decades Dimensional investment strategies have survived and thrived during and after a crisis.
- An informed client should commit to their plan, avoid predictions, and stay disciplined.

Lord John Maynard Keynes was a famous English economist and philosopher whose ideas a century ago fundamentally impacted the theory and practice of macroeconomics and the economic policies of countries at different times.[1] Politicians of a particular class frequently call upon "Keynesian economics" to justify deficit spending to promote various policies or programs. Keyne's ideas were used once again to justify unprecedented deficits in the U.S. and elsewhere due to extended COVID lockdowns.

The idea of "Quantitative Easing" was a government solution inspired by Keyne's ideas for the global financial crisis of 2007-2008. That crisis was an unintended side effect of an earlier government policy intended to help mortgage lending. Government borrowing metastasized as new government programs during the lockdown, including trillions unrelated to "financial stimulus." The Federal Reserve in league with major U.S. banks enabled the gargantuan deficits incurred. One-year interest rates reduced to less than zero in real terms, so huge sums could be borrowed without concern for normal market-driven costs of loans, otherwise driving interest rates sky-high with the obscene interest cost showing up on annual Congressional budget reporting.

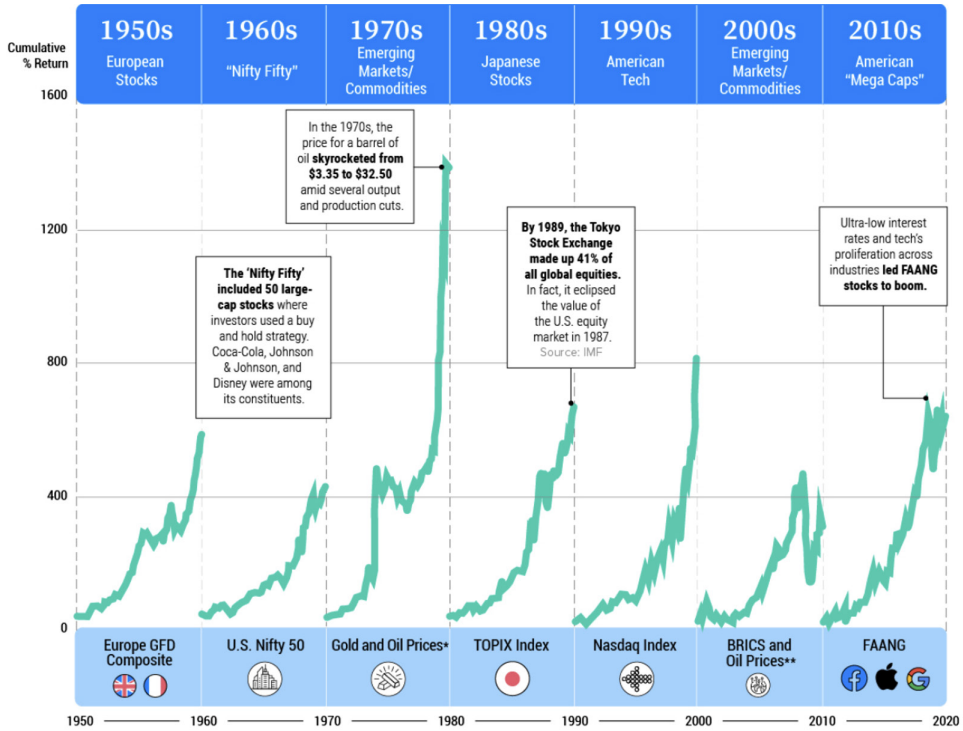
"Modern Monetary Theory" was the name for the idea that justified the financial slight-of-hand of this scheme.

The economic theory we adhere to posits that enormous government deficits would push long-term rates way up. Yet that did not happen for nearly 15 years—until now. Private demand for credit was systematically weakened by U.S. and European central banks. Thus quantitative easing kept interest rates close to zero as central banks bought government bonds immediately upon issue. The U.S. dollar is the world's reserve currency and its advantage to run deficits and accumulate debt was exploited to an extreme. This was because U.S. inflation and interest rates are primarily dominated by domestic, not foreign, factors.

Background of a Pending Market Crisis

The U.S., having the biggest economy in the world by far, has been the world's lender of last resort for decades. During market troubles of the late 1990s, the 2007-09

Exhibit 1: Key Investment Themes by Decade



Source: Ruchir Sharma, NS Capital. Data from Morgan Stanley Investment Management, Bloomberg, Facset, Haver. *Price change for gold and oil, shown as an average. **Equity market performance of Brazil, Russia, India, China and oil prices, represented as an average.

global financial crisis and COVID shutdowns of 2020, it was the Treasury's unmatched capacity to borrow that rescued the world. But the scale and upward trajectory of U.S. borrowing relative to gross domestic product (GDP) growth only at a 2% level threaten markets and the economy in ways not seen since the 1970s. Fitch Ratings has downgraded the U.S. as did the S&P rating service in 2009. Now, the Treasury itself is a source of risk due to seemingly unending unprecedented levels of spending if the U.S. does not improve its GDP up to a much higher level of growth.

When something can't continue forever, it won't. U.S. debt as a percent of GDP rose from 62.5% in 2007 to 129% in 2022, the highest ever.[2] As the Fed tries to gradually sell off its trillions in accumulated bonds, price inflation has surged—rising to 8% in 2022 for the first time since 1981. The reward for holding stocks over U.S. government bonds now is at its lowest level since June 2002.[3] How food, cars, oil, and housing prices soared higher than CPI has received considerable negative media attention.[4] The cumulative change alone in the baseline consumer index itself during Biden's years to date is nearly 20%! "Bond Trades at 5% for First Time in 16 Years" is a recent headline as a deepening selloff in the U.S. bond market drove up the yield on the benchmark 10-year U.S. Treasury note, shaking markets worldwide.[5] In the final analysis the Federal Reserve does not set commercial interest rates—competition in the global bond market does.

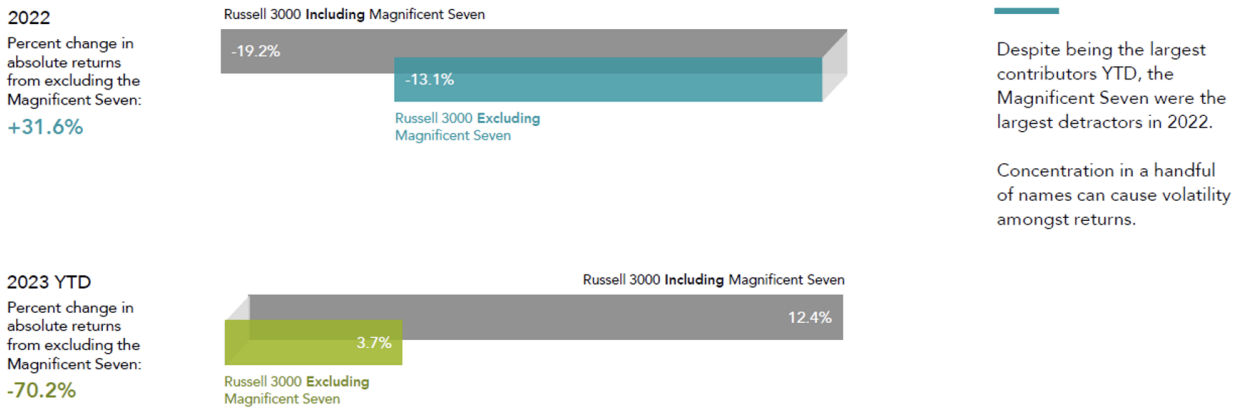
Popular Themes Attract Investors

As political, social, and economic conditions change decade by decade, different asset classes or regions can captivate investors, driving some asset returns during a decade to spectacular levels. *Exhibit 1* illustrates themes by decade that drove cumulative returns for various markets or assets 400% or more.

- The 1950s saw European stocks boom as their industries rehabilitated after World War II. Growing recovery and commerce in the western part of the "Free World" would become the European Union.
- 1960s U.S. investors concentrated on "Nifty Fifty" as ideal stocks: IBM, Johnson & Johnson, Kodak, and Xerox, believing those strong franchises would deliver dependable long-run high returns.
- In the 1970s a U.S. dollar troubled by war, deficit spending, and high inflation went off the world gold standard. The 1973-74 recession was the worst in decades. Oil shortages drove fuel costs up ten times.
- During the 1980s, Japan emerged as a global business juggernaut with an ideal form of government support.

Exhibit 2: Volatility from Concentrated Stock Positions

Impact on market returns from excluding the Magnificent Seven 2022 vs. 2023 (YTD)



Past performance is no guarantee of future results. Diversification neither assures a profit nor guarantees against loss in a declining market. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Index returns are not representative of actual portfolios. YTD through 9/30/2023. Magnificent Seven include Apple, Microsoft, Alphabet, Amazon, Nvidia, Tesla, Meta. Russell 3000 ex Magnificent Seven weights are rescaled using beginning of month weights. Russell Indexes are owned by Frank Russell Company.

By 1989 Japan's market capitalization was 41% of all global equities, eclipsing the U.S. equity market.

- In the 1990s, U.S. firms restructured and innovated into a technological revolution while Japan stocks collapsed. U.S. tech stocks boomed, and growth market indexes bubbled up to record valuations.
- The 2000s were a lost decade for most U.S. stocks. High-flying tech and dot.com firms crashed and burned, but a few would survive. Investors shifted attention to international and to growing emerging markets, like Korea and the BRICs—Brazil, Russia, India, and China.

Market participants in the U.S. after 2010 refocused their attention once again on large growth and tech stocks in America. Fueled by deficit-funded government spending programs with reliable Federal Reserve support, stock prices rose for most of the decade. Later, concentrated tech investing, such as with FAANG stocks, became ideal.[6] Meme tech stocks not part of the acronym also contributed to the soaring S&P 500 index. The new "Magnificent Seven" superseding the FAANGs includes Microsoft and Nvidia.

Over the last decade "meme" stocks contributed disproportionately to the overall return of the S&P 500 U.S. market index. A study by Vanda Research suggests that for the last five years, retail investor portfolios focused on memes outperformed the S&P 500 index. This may be due to "noise trading" from considerable social media attention to meme stocks, creating disproportionate market impact.[7] Overall for the past five years, U.S. large stocks and growth stocks have become priced at their highest valuations since the late 1990s when the tech boom bubbled, and then burst in 2000–2002.

Exhibit 2 examines market volatility due to concentrated positions using the Magnificent Seven to illustrate. Retail "noise traders" exposed themselves to considerable risk in pursuit of potential rewards as they succumb to FOMO (**F**ear **o**f **M**issing **O**ut). In 2023 YTD the return of the Russell 3000 would have been 70.2% worse without them. On the other hand, the return on the Russell 3000 Index of U.S. stock would have been 31.6% greater in 2022 without them.

A globally diversified strategy for informed wealth planning, while less exciting, substantially mitigates concentration risk. The "Magnificent Seven" in the Russell 3000 index of U.S. stocks comprise 23.9% of that group. In the MSCI All Country World Index, the percentage is reduced to 16.8%—a big reduction, but still high. If the Dimensional World Core Equity Portfolio with value, size, and profitability tilts is selected to determine global portfolio allocation policy, the exposure is reduced to 11.1%.[8]

INVESTING AS A SCIENCE

With so much troubling political, social, and market change headlined by the media, many people talk seriously about putting their money into a bank "safely" earning 5% for a year, and then "wait and see." Uncertainty and last year's declines both in bonds and stocks make many uncomfortable investing. But if future prices were predictable, no one should expect to earn anything other than a risk-free bank return. Uncertainty about future outcomes explains why returns greater than 5% today still exist. The

problem with bank returns is, after inflation and taxes, is the real return greater than zero?

Money managers have been around for centuries, but until the advent of business computers in the 1960s, no standardized, systematic way to calculate actual results existed to hold those professing to have a professional level of skill accountable. When IBM began selling computers advanced enough to analyze immense amounts of data, managers could be compared to some standard and to each other. Rather than rely on theoretical guesswork, business finance developed into a science when researchers could gather historical stock returns in a big computer database to analyze. For the first time, professionals could be evaluated and compared to the market and each other. The first academic study of mutual funds in 1967 showed disappointing manager performance, on average not covering costs.[9] That has not changed.

As part of the first Simon Business School class in the late 1980s, I learned management, economics, statistics, and the latest advances in what was then a revolution in finance science. The University of Chicago and Simon were part of the hub. As one of the first CFPs minted a few years earlier, we had big ideas not only about planning, but also putting client interests first and investing better than the brokers. (Back then, we still were figuring out what financial planning standards should be.) I had learned all the basics but did not understand deeply the hows and whys of investing strategy. I did conventional active management starting out because that is what always had been done, but I used mutual funds rather than individual securities because they offered "diversification." I sincerely believed I could get ideal outcomes for clients because I committed to recommending only what I truly believed was "best."

Problem was, after a few years of investment planning and interacting with clients periodically with negative feedback, they would often sabotage themselves just before a recovery. I devised a way in those pre-Excel days to compare my portfolio results against what we would call today a benchmark. Looking back two or three years I found that my outcomes were not bad, but they were not good. Sincerity was a necessary, but not a sufficient condition for successful investing. That was a big part of my reason to get an MBA at that late age.

The Science of Investing

"Conventional active management" describes an approach that relies primarily on stock picking, market timing, or both but without regard to financial science. It's still widely practiced, based on an almost religious belief that the practitioner can out-perform stock or bond market returns, beating legions of others who fanatically adhere to different versions of the same religion and believe it works. Academic research demonstrates that conventional active management delivers inconsistent returns and charges high fees, and on average they do much worse.[10] That is what I had found myself, so challenging the status quo was my only option.

But active management is highly profitable. That's why it's so seductive. Those who had the smoothest pitches or story-telling abilities, the best-looking offices and staff, and the skill to deflect blame when things went wrong, were successful. From my new understanding of agency theory I realized that brokerage statements were designed to keep attention on the short-term, so making "investing" an unending cycle of making bets, then selling the winners or losers, and doing it all over endlessly. Of course, back then, trading commissions were huge. I never found anyone who tracked long-term results for their clients.

What I concluded from my Simon experience was that investing in the total market, using a highly diversified, long-term approach, was most likely to provide a better investment experience for clients to meet their goals.

The basics I learned back then, with many enhancements and improvements over the years, still applies:

- Uncertainty creates opportunity for market returns.
- Markets are informationally efficient.
- Diversification is key for reducing investing risk.
- Expected return is related to priced risk factors.
- Allocation structure explains long-term performance.
- Flexibility in execution can add value, and
- Conventional active management isn't worth the cost.

In short I learned that markets "worked." Efficient market prices reflect the knowledge and expectation of all investors, at least for practical purposes. Markets are so competitive that any manager investing cannot routinely profit at the expense of all other investors who are picking and timing in the same markets. This made me decide that what is today called "indexing" should be part of investment planning.

My challenge over the next decade was to build a firm that could execute on those principles given considerable

obstacles. Back then inexpensive computer technology and internet access was not available. Figuring out how to assemble a "fee-only" firm aligned with client best interests, not commission dependent, seemed impossible at times.

Finding access to Dimensional Fund Advisors in 1997 allowed to me to close the gap of differentiating myself from peers. Some of the industry's most respected financial economists helped Dimensional develope distinctive empirical strategies based on the best financial science. My view was by the late 1990s the valuation of U.S. stocks was unsustainable, and better computing was available. The timing for moving my practice to a new level was ideal.

Exhibit 3 compares Dimensional outcomes to fund industry outcomes over the last 20-years and validates the wisdom of a decision made 25 years ago when I made a Dimensional commitment. Very few professionals and advisory firms I find have provided their clients with the long-term outcomes that we provide. Long-time clients can review their quarterly reports and see the light blue line of their gross returns compared with the dark blue line of a comparable policy benchmark. While benchmarks are not customized for clients I am yet to find any firm doing something equivalent. Yet long-term reporting for retirement or legacy goals is essential for client confidence.

INVESTING AS AN ART

The "art of the science" for informed investing strategies is how all that academic research is interpreted and then implemented in competition with legions of participants with their megacomputers fiercely seeking any advantage. Only insights from ideas derived from research that can be applied in practice. Not all academic research is useful for Dimensional or Professional Financial.

Dimensional's investment team sets a high bar when testing research and its application. Only those insights and strategies that are firmly believed to be of true benefit are pursued. As professor emeritus and Nobel Laureate Robert Merton, now with Dimensional remarks, "It's 10% having a good idea and 90% implementing that idea and making it work."

Financial economics is a social science. Academic studies depend on statistical analysis yielding results which are interpreted as probabilities with varying confidence levels. Unlike mathematical proofs, testing financial models only yields "insights" filtered from an often-dense fog of statistical "noise." Because statistical results are so "noisy," a particular driver of returns may not appear to deliver for an long time. Furthermore, even the most valuable insights from research have room for interpretation. Putting theory into practice requires highly skilled judgment, similar to medical science.

A sensible answer is necessary for the question "What story is the data telling us?" Many statistical correlations are spurious and simply a matter of chance, having no sensible economic story. This is where highly skilled judgment becomes indispensable.

The people who interpret research data and the millions of data points arriving daily are as important as the data itself. Dimensional has the deepest research bench in the entire investment industry, including several Nobel laureates. The research team strives to constantly improve Dimensional strategies by identifying and then using the most valuable new research. The team's ability to distinguish signal from noise in the data testing the papers is critical to capturing usable potential outcomes in a strategy's execution.

Consequently, the art of the science for practical investment strategies has two major components: engineering and execution. Engineering is whatever goes into deciding how to best structure a portfolio for particular purposes.

Execution is the implementation of an investment strategy. Results of a simulated investment strategy are always hypothetical. Once confident which strategies truly are likely to improve results, reliably capturing them in real-world portfolios must be developed. Professor Eugene Fama, a Nobel laureate and a consultant with Dimensional from its inception, remarks: "Models are not reality. If they were, we wouldn't call them models—we'd call them reality!" As *Exhibit 3* suggests, Professional Financial clients have experienced the very high survival and success rates of Dimensional portfolios relative to an extremely high turnover in the fund investment universe.

Dimensional founders David Booth and Rex Sinquefield actually collaborated on developing the first index fund in the 1970s, unsure at the time of their ability of going from academic hypothesis to real world implementation. Their efforts proved that indexing could deliver what theory implied—the market was not beaten, but conventional active management was systematically beaten. Dimensional founders moved on to apply more arcane research with size and value strategies to the competitive world of investing, structured to combine broad diversification, low cost, and reliable asset class exposure. By taking advantage of flexibly trading among a group of similar securities so as

Exhibit 3: Dimensional vs. the Industry

Percentage of US-domiciled equity and fixed income funds that outperformed their benchmark as of September 30, 2023.

Source: Dimensional Fund Advisors. Performance data shown represents past performance and is no guarantee of future results. The sample includes funds at the beginning of each respective period. Survivors are funds that had returns for every month in the sample period. Outperformers (winner funds) are funds that survived the sample period and whose cumulative net return over the period exceeded that of their respective benchmark. Each fund is evaluated relative to its respective primary prospectus benchmark. Where the full series of primary prospectus benchmark returns is unavailable, non-Dimensional funds are instead evaluated relative to their Morningstar category index.

1. Dimensional fund data provided by the fund accountant. Dimensional funds or sub-advised funds whose access is or previously was limited to certain investors are excluded.

2. US-domiciled, USD-denominated open-end and exchange-traded fund data is provided by Morningstar.

to keep execution costs lower than was believed possible, desired outcomes were delivered. Further, Dimensional has been able to cover most of its management fees through its methods of implementation.

Professional Financial pays close attention to tax mitigation opportunities, keeping trading costs low when rebalancing or raising cash while maintaining allocations consistent with client policy, plus providing due care through stewardship and timely administration—these might seem small but have huge cumulative impact over time that avoids drags on results and costly mistakes.

INVESTING AS A PRACTICE

We expect positive equity premiums for dimensional strategy returns every day. However, monthly Schwab statements and our quarterly reports show numbers incorporating much confusing statistical noise. Unexpected returns dominate the performance we see daily, as well as quarterly and annually so it's difficult in times of volatility to see the benefit of those factors at work. Looking beyond disappointing performance is essential for experiencing long-term success.

Premium factors such as size, value and profitability can be easily missed without consistent portfolio representation at all times. Premiums of size or value dimensions that you waited months or sometimes years for, but then switched to growth, are gone forever when they unexpectedly turn around once again. How often is that?

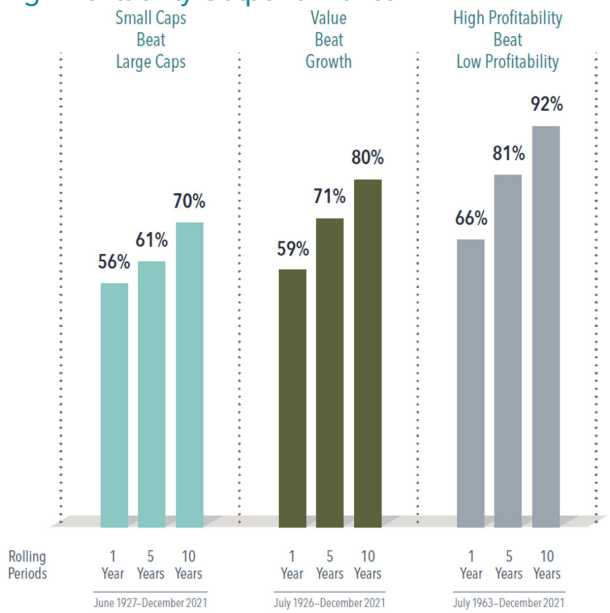
Exhibit 4 shows the frequency of small cap, value and high profitability outperformance. Dimensional performance is compared three ways during rolling, overlapping periods of one, five, and 10 years. 10 years.[11] Small cap outperforms large cap 56% of one year rolling periods, but 70% of 1,027 measurable 10 year periods.[12] Likewise, value outperforms growth 59% of one year rolling periods, but 80% of 10 year periods. And profitability outperforms 66% of one year rolling periods but 92% of 10 year periods.

These are substantial returns over an index-only investing approach, and substantially greater reliability over conventional active management. At least one of these premiums were positive almost every rolling period. For more than 10 years, it's reasonable to abduct that the percentage of premiums outperforms as we increase to 15 years and 20 years.

When we consider the premiums combined in an integrated equity portfolio, it's reasonable to think that one or two premiums should be expected to outperform most quarters. *Exhibit 5* gives us confidence to think in that way. It looks at how often out-performing dimensional equity premiums are not provided. 94% of all quarters had at least one negative premium, meaning that 6% of the time no premiums contributed anything. There have been more U.S. presidential elections since 1963 (15) than quarters in which all four equity premiums positive (14).

Knowing how often premiums are not realized shows how important discipline is for success, because an investor's

Exhibit 4: Frequency of Small Cap, Value, and High Profitability Outperformance



Past performance is no guarantee of future results. Investing risks include loss of principal and fluctuating value. There is no guarantee an investment strategy will be successful. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Source: Dimensional Fund Advisors. Number and percentage of quarters where market, size, value and/or profitability premiums were negative are calculated using monthly return data from July 1963 to March 2023. Market: Fama/French Total US Market Research Index minus the one-month US Treasury bill. Size: Dimensional US Small Cap Index minus the S&P 500 Index. Value: Fama/French US Value Research Index minus the Fama/French US Growth Research Index. Profitability: Fama/French US High Profitability Index minus the Fama/French US Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The Dimensional and Fama/French Indices represent academic concepts that may be used in portfolio construction and are not available for direct investment or for use as a benchmark. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment.

quarter-to-quarter over attention to returns may lead to self-sabotage. Premiums turn around quickly, always without notice. An integrated multi-premium approach can be expected to have one or two positive premiums most of the time. 49 quarters had three or more negative premiums, yet *only one of those premiums on average was negative for the subsequent 12 months.*

Imagine being in a casino watching a smart poker player, who knows the odds and counts cards, playing hands over and over until dawn. What are the odds he won't eventually clean everyone out if they keep playing? Tilting towards dimensional drivers of higher expected return and sticking with your plan month-after-month, even when the chips are down, increases the chances of gaining a greater share of the table stakes when you are in the smart player's seat. It's an investing game you cannot afford to lose but can have the knowledge and confidence that while you may never clean out the table, but you likely will leave the table in the morning way ahead of the game.

Always Plan, Don't Predict, and Never Panic

We cannot know when "informed traders" will begin buying stocks and bonds, driving prices upward again. Keynes famous Chapter 12 of *The General Theory of Employment, Interest, and Money* suggests that when confronted with a bubble, running off the cliff with everyone else is the safest employment strategy for investment managers, whose imperative is to be a permabull. Not surprisingly, this approach is broadly adopted by the industry since maybe 85% of the time or so, markets behave normally, and perhaps 12% of the time irrationality takes the form of excessive optimism as we've seen in recent years. That leaves 3% of the time dangerous for investment management careers—and also for misguided investing ideas that may come to the attention of "noise traders".

But we know that the Fama-French multi-factor model has prevailed in academia as the best economic idea for estimating expected stock returns. It organizes expected returns within recognized valuation models that makes intuitive sense. Substantial research data show that small and value stocks have higher expected returns than big and growth stocks. While no model is literally true, Dimensional's implementation of the model guides more informed planning decisions and mitigates behavioral mistakes. Dimensional Fund Advisors has shown for over 30 years it can apply those big ideas and execute the theory. Systematically targeting goals with Dimensional premium

Exhibit 5: Frequency of Missing Dimensional Equity Premiums, by Quarter

July 1963-March 2023

	1 or More Negative Equity Premiums	2 or More Negative Equity Premiums	3 or More Negative Equity Premiums	All 4 Negative Equity Premiums
Number of Quarters	225	133	49	1
Percentage of All Quarters	94.1%	55.6%	20.5%	0.4%

Source: Dimensional Fund Advisors. Number and percentage of quarters where market, size, value and/or profitability premiums were negative are calculated using monthly return data from July 1963 to March 2023. Market: Fama/French Total US Market Research Index minus the one-month US Treasury bill. Size: Dimensional US Small Cap Index minus the S&P 500 Index. Value: Fama/French US Value Research Index minus the Fama/French US Growth Research Index. Profitability: Fama/French US High Profitability Index minus the Fama/French US Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The Dimensional and Fama/French Indices represent academic concepts that may be used in portfolio construction and are not available for direct investment or for use as a benchmark. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment.

strategies greatly improves your odds of successful positive outcomes necessary as we plan for your financial security.

Whether or not we could be in an unprecedented super-bubble in the process of losing momentum, we continue to apply these principles to be more responsible stewards:

- Work with a trusted professional who understands you, planning and financial science.
- Have an investment policy and approach right for you, that you are able to stick with in uncertain times.
- Maintain a life-long wealth planning process concerned with crisis prevention, not crisis management.

Independent CFP professionals, some better than others, are fiduciaries acting in client best interests. The best considers your financial health holistically to plan and manage a sound strategy according to your goals and be a trusted guide during tough times.

If Professional Financial has positioned you well to achieve your goals, then stick to your plan and process. Meet with us periodically. When things don't go as planned, don't panic. Many have been with us through times such as the great tech bust and the global financial crisis. They are still on track. Without predicting, we believe clients can be confident even with an uncertain future. Their strategy is well-executed both by Dimensional and by us. That's peace of mind money can't buy.

ENDNOTES

1 See en.wikipedia.org/wiki/John_Maynard_Keynes for an overview of his ideas and his impact on economic thinking.

2 https://tradingeconomics.com/united-states/government-debt-to gdp#:~:text=Government%20Debt%20to%20GDP%20in,percent%20of%20GDP%20in%201981.

3 "How Surging Yields Brought the Stock Rally to a Halt, in 8 Charts," *Wall Street Journal* (October 10, 2023).

4 See William A. Galston, "$8.99 Cereal Could Rock the Globe," *Wall Street Journal* (October 25, 2023), A15.

5 Sam Goldfarb and Peter Santilli, "Bond Trades at 5% for First Time in 16 Years," *Wall Street Journal* (October 24, 2023), front page. The threat is a replay of what happened when 10 year Treasuries surged from a then 20-year low (!) in 1993 to above 8% a year later in what was called The Great Bond Massacre.

6 Facebook (Meta), Apple, Amazon, Netflix (or Nvida) and Google. Microsoft is generally included, and now Nvidia.

7 Hannah Miao, "Who You Calling Dumb Money? Everyday Investors Do Just Find," *Wall Street Journal* (October 23, 2023). We note from the chart provided that individual investors cumulatively did worse the years prior. Mutual funds and ETFs are excluded in Vanda Research's study, and compose a substantial portion of equity markets. The best recent look at the success of retail "noise traders" is Vinesh Jha, "Conditioning Anomalies using Retail Attention Metrics" (2023) Long-term, Dr. Jha shows that retail "noise traders" considerably underperform institutional "informed traders." Most likely on the social media, traders brag about their winners, and forget about their losers and underperformers.

8 Source: Dimensional Fund Advisors as of September, 2023.

9 Michael C. Jensen, "The Performance of Mutual Funds in the Period 1945-1964," *Journal of Finance*, Vol. 23, No. 2 (1967): 389-416. Professor Jensen at the time was teaching at the University of Rochester business school.

10 The landmark study cumulating years of research is Eugene F. Fama and Kenneth R. French, "Luck versus Skill in the Cross-Section of Mutual Fund Returns," *Journal of Finance* 65, no. 5 (2010): 1915-1947. Academically, this is pretty much the final word on the topic.

11 Based on monthly rolling returns, computed as follows: Dimensional US Small Cap Index minus S&P 500 Index, June 1927–December 2021; Fama/French US Value Research Index minus Fama/French Us Growth Research Index, July 1926–December 2021; and Fama/French US High Profitability Index minus Fama/French US Low Profitability Index, July 1963–December 2021. Size premium: The return difference between small market capitalization stocks and large market 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 Small vs. Large: 1,124 periods of 1 year; 1,076 periods of 5 years; 1,016 periods of 10 years. Value vs. Growth: 1,135 periods of 1 year; 1,087 periods of 5 years; 1,027 periods of 10 years; High Profitability vs. Low Profitability: 691 periods of 1 year; 643 periods of 5 years; 583 periods of 10 years.