Dimensional

Life, Invested

A collection of essays by David Booth

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> **I began this collection of essays with the goal of explaining in a less technical way what Dimensional does.** I wanted to reach more investors, because I knew these ideas could help people live better lives. In the process, I discovered that one of the best ways to talk about investing is to start with talking about life.

DAVID BOOTH
Founder and Chairman, Dimensional Fund Advisors

Because life is full of uncertainty. The pandemic definitely reminded us of that. But even before 2020, each person had experienced uncertainty in their own unique way. We all know we can expect more uncertainty—just like with investing.

In many facets of life, I've heard people say, "When one door closes, another one opens." In other words, uncertainty creates opportunity. Just like with investing.

So how do we deal with uncertainty in life? High school seniors apply to a range of colleges, not just their first choice. We know the best thing to do is plan for what might happen, rather than trying to predict what will happen. Just like with investing.

When looking to buy a house, we increase our chances by expanding our search beyond one street, neighborhood, or particular architectural style. In order to have the best

chance of meeting our goals, we have to be flexible. Just like with investing.

And I think most people have a relationship they can point to that builds over time, so that across a lifetime it grows in value many times over. A family member, a friend, a teacher, a colleague, a spouse. Not everyone understands the power of compounding when investing in public markets, but they know what it means in their lives.

We have to control what we can control. While we can't control everything that happens, we can take charge of how we prepare and react.

And we have to tune out the noise. When we focus on an important goal, other people's opinions can be distracting, even derailing. That's true in life and with investing.

Eventually, the process of writing these essays and talking to more advisors, investors, and employees at Dimensional about the connections between life and investing turned into the *Life, Invested* platform.

Looking back, it makes a lot of sense. I went to graduate school for two years to study investing. I spent the next 50 years telling as many people as I could about what I learned. I'm still at it, because people who adopt this way of investing see that there is a different way to live. It's a simple-to-understand philosophy that empowers us to live a great L.I.F.E., which I use to mean Lifetime Integrated Financial Experience.

To be clear, investing is complex. What we do at Dimensional today represents 42 years of solving problems with the best minds and the best practices. But we don't have to explain every equation we use to make an investor feel like they understand our approach, and, by extension, the plan they've developed with their advisor.

Using empirical research, my professors in graduate school figured out new and innovative approaches to investing. I've made a career out of implementing those ideas in the real world. Fifty years after that groundbreaking research, it's worked like we thought. We believe our investment strategies are sound. But often people have trouble maintaining the discipline to stick with them. I like to say, "We don't have people with investment problems, we have investments with people problems."

The best way to reach all the people who don't yet know about how to invest is the challenge of the next 50 years. It's what I've tried to do with these essays. I hope they spark conversations that lead to a deeper understanding of how markets work and how rewarding a life that incorporates an evidence-based approach to long-term investing can truly be. ■

YOU KNOW MORE ABOUT INVESTING THAN YOU THINK

December 14, 2021

Why I'll Always Be Optimistic about the Market

It's hard to believe we're approaching the end of the second year of this global pandemic. Despite the pain and loss endured by so many all over the world, I hope some positive changes have come from the shock we've all been forced to experience. As we look forward to 2022, despite continued uncertainty, I'm feeling a sense of educated optimism that's stronger than ever before. Why? Because over the past two years, my beliefs have been tested more than ever. And they've held up.

At the start of 2020, before we knew the extent of the global pandemic we were headed toward, I reminded investors that the market has no memory and encouraged them to avoid making forecasts and timing markets based on predictions of the future.

A few months later, I thought that human ingenuity would lead our way through the crisis. It has. I didn't know when a vaccine would be available or who would make it, but I never doubted the power of so many great minds focusing on one huge problem.

When we were in the midst of March 2020 and the S&P 500 was down 20%, it was scary.[1] I wrote then that we can't control crises, but we can control our response to them. Those who could stay in the market were rewarded. Over the next 12 months, the S&P went up 56%.

When you're entrusted with investors' hard-earned money, as we are at Dimensional, it's gratifying to see that the choices you make can lead to good outcomes.

So now we find ourselves at the doorstep of 2022, and we've just seen the S&P 500 hit record highs—again. But not all investors perceive this as good news. Record highs make many people nervous, because they think that what goes up must come down. When markets are working as they should, reaching record highs with some frequency is exactly the outcome we would expect. That makes intuitive sense, because if stocks didn't have a positive expected return, no one would invest in them.

This brings me to why I'm always optimistic about the power of markets, and why I always bet with them rather than against them: Markets represent people coming together. We can't predict the nature or timing of a crisis, but we can bank on human ingenuity finding a path through it. Markets are forward-looking and reflect this optimism—an optimism that I believe is innate to humanity. And your optimism only increases when you begin to understand how markets work.

How we deal with uncertainty is the central challenge of human existence. We are defined by the choices we make, but we never have all the information we want. So what do we do?

> *Rather than having to guess what will happen to whom and when, I choose a different path. I invest in the market.*

It pays to have a philosophy to guide our choices, in investing, and in life. In conversations with investors over the years, I've explained my philosophy about markets in different ways, but what all these descriptions have in common is choosing to side with human ingenuity rather than against it. Betting against the market is exhausting, and we believe that it doesn't pay.

So at the end of every year, we look back and forward. What do we think the next year will bring? I don't know. No one does. Think about it: No one does. After these last two years, this lesson should be obvious to all of us.

But for the past 50 years, I have held a long-term faith in the power of markets. When they go up or down, I see them simply responding to new information. The market always wants buyers and sellers to make a deal. Transactions only happen if people agree on a price that seems fair to both sides.

In 2022, new challenges await. New businesses will grow. Old ones will adapt. Some will fail, while others flourish. Rather than having to guess what will happen to whom and when, I choose a different path. I invest in the market. It is a unique human invention. From it flows our modern life. Most of us live in a world where we go to the store or pick up our phones and see choices I could not have imagined as a boy. So, of course, I am optimistic.

And, of course, there is more work to be done. The problems we face as humans are daunting. That has always been true. I was born at the end of World War II and before a vaccine for polio. I wake up every morning believing the market will go up a little but prepared for if it drops. And you should too. Markets will go up and down, but you should expect them to be positive, and that is what history has also shown. If you can hold this in your heart, you can be optimistic and resilient, you can manage the central challenge of human existence. It's hard to do. But it's worth it. ■

Past performance is no guarantee of future results.

1. Decrease of 19.6% was from January 1, 2020, to March 31, 2020. Increase of 56.35% was from March 31, 2020, to March 31, 2021.

March 28, 2022

Meme Investing? Try Human Ingenuity Instead.

We've all been conditioned to see meme investors and Wall Street in opposition, but it seems to me that they have a lot in common. Both believe in picking stocks and think they can beat the market. In my mind, the important distinction is that Wall Street stands to make a lot of money off meme investors, simply from trading costs. For those who say apps don't charge for trading, think about it: When was the last time Wall Street gave away anything for free?

I think the best long-term investing strategy has little to do with prediction or stock picking, and everything to do with investing in human ingenuity. Human ingenuity is the engine that drives the stock market. The real anti-Wall Street revolution began in academia in the 1960s and evolved into the formation of index funds more than 50 years ago. The academics spearheading this revolution found no compelling evidence that any individual can consistently beat the market, but that the market itself returns, on average, about 10% a year.[1]

Why do individuals have such trouble beating those returns?

In transparent public markets governed by the rule of law, enormous numbers of buyers and sellers come together to trade. Both sides of every trade must feel like they got a good deal. Otherwise, they wouldn't trade. That's what people mean when they say prices are fairly set.

When Wall Street or meme investors think they can capitalize on "mispricing," they're not betting against Wall Street so much as they are betting against human ingenuity.

So when you bet on individual stocks, you might win or you might lose, but over 10 years, you're unlikely to harvest a better return than if you invested in the whole market. If you stop and think about it for a minute, this makes sense. Markets only work if they are unpredictable. After all, they are constantly responding to all the new information that comes in every day. If we could predict when the market was going to move, there would be no market. The fact is nobody knows when a certain stock will go up or down. Contrary to what both Wall Street and meme investors want you to think, there is no method of analysis, no matter how "proprietary" or sophisticated, that tells us what's going to happen when.

So when Wall Street or meme investors think they can capitalize on "mispricing," they're not betting against Wall Street so much as they are betting against human ingenuity. I'm referring to the millions of people working hard to maximize the value of their companies, and millions of investors trying to make the best possible trading decisions based on all available information. Sometimes speculators get lucky, and sometimes they don't. Regardless, I don't call what they're doing investing. I call it speculation—even gambling.

Buying the market is a totally different approach. It's investing in human ingenuity. People working to maximize the value of public companies are innovative and resilient. They adapt to improve products. They create new processes to solve problems. While you can't predict what any one person will do on any given day, you can predict that humanity will persevere. The market reflects this simple truth.

The market can reward us for having faith in our fellow human beings. Investing—like life—is full of uncertainty, but at the end of the day, it's uncertainty that drives opportunity, and returns. Investing is not about trying to outguess Wall Street or meme investors on which stock will go up or down and when. It's about choosing to side with human ingenuity and betting on a future that's better than today—because of the hard work of everyone you know, and the many millions you will never meet. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.

September 21, 2023

You Know More about Investing than You Think You Do

No matter how familiar we are with investing, we've all navigated uncertainty, weighed risks and rewards, and made carefully considered tradeoff decisions. Just by being human, we've been compelled to tackle the central challenges of life—which also happen to be the central challenges of investing.

At Dimensional, we believe that having a good investment experience is about more than returns. What matters just as much is how someone feels along their financial journey. And that's really what the investment business should be about: helping people live better, more fulfilling lives.

Investing better means living better. Not just because it can lead to having more money, but because many of the habits that serve us well as investors serve us well in life, too. By integrating our life and investment philosophies, we can see money as a tool that empowers our plans rather than as a goal in and of itself. Here are six principles that can help you in life and in investing.

Uncertainty Creates Opportunity

Uncertainty can be uncomfortable, but we often forget that, without it, there would be no opportunity. When we decide to move to a new city or change career paths, we don't know exactly what will happen. There's always a risk that things won't work out the way we had hoped, yet these experiences help us grow and can change our lives in amazing ways.

When you invest, returns are compensation for taking on uncertainty. Without risk, there would be no reward. But there's also risk in choosing not to invest, because if your money doesn't grow over time, it won't go as far in the future. Cash hidden under a mattress can't keep up with inflation.

As investors, it's easy to get caught up in worrying when markets drop. But when we realize that investing means getting paid for accepting risk, we can start to see uncertainty as a source of opportunity, even during times of market volatility.

Embracing uncertainty rather than trying to avoid it can help us live better. This approach to life and investing guides us through uncertain times and helps refocus our attention on the opportunities ahead.

> *The best antidote to uncertainty is educated optimism.*

Plan, Don't Predict

We've all tried to predict what will happen in life, only to be disappointed when it didn't turn out the way we anticipated. But human beings develop strategies to deal with the fact that none of us has a crystal ball. We apply to a list of potential colleges, not just our first choice. We interview a series of job candidates, even when there's a clear front-runner. We wear a life jacket on a boat, even though we know how to swim.

Investing is just like life: For maximum peace of mind, we make plans that account for a broad range of possible outcomes. This way, you can feel empowered by the unknown instead of paralyzed by it.

Research has shown that stock pickers consistently underperform their benchmarks.[1] But you don't need to be able to predict winners to have a good investment experience. Over the past century, markets have returned, on average, about 10% a year.[2]

So don't try to outguess markets—go with them, even when that means tolerating and being prepared to live through some short-term disappointments. Odds are you'll have a better investment experience in the long run.

> ***Plan for what can happen, rather than trying to predict what will happen.***

Flexibility Adds Value

When you're in the market for a new car, you probably know exactly what you want, down to the color of the interior trim. But it can be hard to locate the precise model and features you're after, and once you do find the car you want, you may have to pay a premium for it.

If you're willing to be flexible with your choices—maybe going with black instead of gray or sacrificing a sunroof—you can get that new car faster, and at a better price. Life rewards flexibility over rigidity.

Flexibility adds value in investing, too. Staying flexible around what stocks to hold and when to trade can give you an advantage. While index funds are a solid, low-cost solution for many investors, they are forced to trade on certain days to track their index. The funds may not get the best prices on the securities they hold, resulting in investors leaving returns on the table.

In life, as in investing, sound decisions are often grounded in research and implemented with flexibility.

> ***Flexibility adds value because it leaves space for judgment.***

Harness the Power of Compounding

Even the small, seemingly inconsequential decisions we make every day can have a big impact over time. Whether we're trying to run a faster mile or master a foreign language, the best way to stay motivated is to keep reminding ourselves of the rewards that come from patience and commitment. Just a little bit of time every day can add up to a lot of progress.

The same is true of investing. A 10% return on your investment each year—similar to the stock market's historical annualized average—would double your money every seven years. Having a lot of time can help an investor make up for not having a lot of money.

In both life and investing, compounding is a powerful force. You might say that the life equivalent of compound interest is wisdom. Learning from the past can help us make better decisions in the future, and those lessons build on one another over time.

> *Your life is the result of the cumulative effects of the decisions you make every day.*

Control What You Can Control

So much in life—good and bad—is out of our control. Sudden storms can pummel us in the middle of summertime. A sports team that seemed destined for a disappointing season can come out of nowhere to win a championship. While we can't control everything that happens, we can take charge of how we prepare for and react to life's curveballs.

As human beings and investors, all we can do is try to make the best decisions possible with the information we have available, plan for a range of outcomes, and relax knowing we've taken a sensible approach.

In investing, you can't control the ups and downs of the market. What you can control is how much you save, the risk you take on, and the guidance you seek in putting together an investment plan that's right for you.

The future is uncertain, but the quality of your decisions doesn't have to be. When you make informed choices, you have the satisfaction of knowing you did everything within your control, even if things didn't work out exactly the way you'd hoped.

> *While you can't control the world around you, you can control how much risk you take.*

Tune Out the Noise

When you focus on an important goal, other people's opinions can be distracting, even derailing. Who cares if a friend doesn't agree with your new exercise plan, as long as it's working for you? Once you've done the research and come up with a road map for success, rally your supporters and turn down the volume on your detractors.

This mindset is also key to being a successful long-term investor. Many of us are exposed to a barrage of investment commentary—for example, TV pundits handing out stock tips and friends touting the "next big investment." As tempting as the ideas may sound, they're potentially harmful distractions. Things that seem too good to be true usually are—and yielding to your "fear of missing out" can exact a deep price in the form of lower returns over a lifetime.

We all know that markets rise and fall—so we can be disappointed by downturns, but we shouldn't be surprised by them. Reacting emotionally to recent market volatility may be more detrimental to your portfolio performance than the drawdown itself.

How do you tune out the noise? Working with a financial advisor, like working with a trainer or coach, can help you see past the headlines to cultivate discipline and the sense of security that comes from knowing you have a well-thought-out plan. ■

> *When it comes to investing, a lot of things are interesting without being meaningful.*

Past performance is no guarantee of future results.

1. 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.
2. Based on S&P 500 index annual returns, 1926–2022.

September 22, 2022

How to Invest Better—and Live Better

It can be challenging to start a conversation about investing. That's why I encourage having a conversation before the investing conversation—what I like to think of as a "preamble." Connecting life principles to investment principles is a powerful way to ground abstract principles in reality, and to connect over universal experiences and feelings. It can also help make sense of investment concepts often dismissed as overly complex for those who aren't familiar with them.

Our lives are the cumulative result of the decisions we make every day. Just as in investing, the power of these decisions compounds over time. That's why it's so important to find a decision-making process that works for you—both in life and in investing. In my mind, this involves acknowledging that uncertainty can create both stress and opportunity, planning for what might happen rather than trying to predict what will happen, cultivating flexibility and adaptability, harnessing the power of compounding, and accepting your own limits. Embracing uncertainty by planning for the future can help you live life better now.

Uncertainty

Given life's profound uncertainty, it's sometimes hard to feel like an optimist. Most of what happens in our lives is unpredictable, and it's impossible to forecast the future. But you can live your life fully without knowing what's going to happen. And you can have a good investment experience without forecasting what the market is going to do, because you're not trying to guess which companies will succeed and when. You're investing in the ingenuity of people to solve problems and make their companies run better.

Planning

You don't have to predict, but you do have to plan. You can feel empowered by uncertainty instead of beaten down by it. Without uncertainty, there would be no opportunity. Think about all the unexpected turns your life has taken and the possibilities those turns opened up. While you couldn't have predicted the outcomes of decisions you made, you intuitively knew how to gauge your feelings about the risks and opportunities being presented to you. The same is true of investing in markets. People shrink away from investing because of uncertainty, but experience living life has given us the tools to deal with it. While you can't control markets, you can control how much risk you take. And you can control whether you have an investment professional in your corner for help making financial decisions you can live with.

> *Life prepares you for investing and investing prepares you for life.*

Flexibility

While it's important to have a plan, in both life and investing, the road will be easier if you cultivate flexibility. Think about someone you know who's successfully navigated major challenges. Were they rigid, or were they nimble?

Compounding

If you need motivation to stick to your plan and adapt accordingly, consider the power of compounding. And I'm not just talking about the financial benefits (although the market has returned an average of about 10% a year over the past 100 years or so).[1] If you think about it, the life equivalent of compound interest is wisdom. Learning from the past helps you make better decisions in the future, and those lessons build on one another over time.

Live Life

Once you've done the best you can, go easy on yourself. Learn from your disappointments, and enjoy your successes. It's not the decisions you make, but how you make decisions. Approach other people with empathy. Investing, like life, is a process. If you've followed a solid plan to the best of your ability, you've put yourself in the best position to achieve success. Don't ruin your state of mind by obsessing after the fact.

I co-founded Dimensional Fund Advisors more than 40 years ago, at the beginning of a revolution in finance that transformed the investment business. Back then, I was excited about a strategy that focused on investing in human ingenuity rather than trying to find "mispriced" stocks. Today, I'm gratified to see so many people living better lives as a result. I'm proud of the role, however large or small, we played in that. But I'm even happier that we now live in a world where everybody can buy shares in a fund that reflects the broad market. That can help them make the most of the money they worked so hard to earn. And the first step on that journey is having an honest conversation about how life prepares you for investing and investing prepares you for life. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.

Uncertainty Is Underrated

"A wave of new scientific discoveries reveals that learning to lean into uncertainty in times of rapid change is a promising antidote to mental distress."

–Maggie Jackson, *New York Times*[1]

For many people, uncertainty is something to avoid or at least mitigate. But what about the positive things that uncertainty can bring? Without it, there would be no surprises, no joy in watching sports, and no 10% average annualized return on the stock market over the past century.[2]

Let me explain that last one: If there was no uncertainty, returns would be predictable and there would be no difference between putting your money in a savings account or investing it in the stock market. We've all lived through years like 2022 when the market went down a lot and years like 2023 when it went up a lot. The potential risk makes possible the potential reward. So thank goodness for uncertainty.

People often talk more about the downside to uncertainty than its upside. There's even a term—loss aversion—that reflects how a loss can feel more painful than a gain of an equal amount. Maybe that's why uncertainty is underrated.

Because of uncertainty, life is one cost-benefit analysis after another, and we have no choice but to manage risk. At the extremes, some people may try to completely ignore risk, while others might try to eliminate it. Then there's everyone else. We can't control the weather, but we can take an umbrella if it looks like it might rain. We weigh the cost of carrying around an umbrella against the benefit of staying dry if it rains. We manage risk with our health, work, family, and just about every other part of our life—including investing—because, while few things are certain, we still have to make decisions big and small.

The better we manage risk, the better our lives will be. Going back to the weather example, we want to carry an umbrella only when we might need one. When it comes to investing, you can't manage stock market returns, but you can manage the risk you take. So how can investors get better at managing risk?

Don't get caught up trying to predict the unpredictable.

What to Avoid

One way of managing risk is to eliminate some of the things you shouldn't do. No matter your personal view on health habits, there are certain things that research has shown are true for most people. Fried foods, cigarettes, and sugar don't promote health. Avoiding these increases your chance of a healthy outcome. There are choices you can make to improve your chance of a good investing outcome, too. Don't get caught up trying to predict the unpredictable. That means not trying to time the market or pick winning stocks.[3]

What to Do

Then there are the positive ways of dealing with risk: capturing the benefits of what scientific research has shown us. With health, that means instead of consuming fried foods, cigarettes, and sugar, we should exercise more, eat more vegetables, and get regular checkups. Diversification allows us to reduce our risk while capturing the returns of the market. Dimensional started in 1981 with the goal of turning academic research into financial solutions, which we believe is a better way to invest.

With investing, we've learned that risk is more predictable than returns. So you want to plan and find the amount of risk that is right for you. Each person may be different. Regardless of what level of risk feels right, you should invest and be prepared for a range of outcomes. The more you have a philosophy you can count on and return to in times when you are experiencing the ups and downs of uncertainty, the more likely you are to succeed as a long-term investor.

You Can Do It

You know more than you think you do about investing—investing is all about risk and reward, and so is every other part of your life. You've been managing risk and reward for as many years as you've been living. With investing and life, some years are better than others, but the important thing is to be able to stick around to see what happens next. That's why I see uncertainty as a positive force and have faith in the ability of people to find better ways to manage risk. I've worked with thousands of investors during my five decades in finance and seen how, when they manage risk better, they live a better life. Instead of trying to predict your future, plan, adapt, and figure out the most sensible solutions for you.

With uncertainty you make the best-informed choices you can, monitor the results, and make changes as necessary. Accepting outcomes doesn't mean you don't try to shape them where you can, or to take advantage of opportunities when they present themselves to you. You do your homework and learn to make tradeoffs between possible risk and reward. The key is to develop a philosophy, define your goals, and steer toward them, adjusting along the way. You might not only be underestimating uncertainty, but you may be underestimating the positive impact of embracing it. ■

Past performance is no guarantee of future results.

1. Maggie Jackson, "How to Thrive in an Uncertain World," *New York Times*, January 13, 2024.
2. Based on S&P 500 index annual returns, 1926–2023.
3. 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.

Embracing Uncertainty This Thanksgiving

Some people say that money or investment talk should be off-limits at family gatherings like Thanksgiving because it's too stressful or causes conflict. I think it depends on how you talk about it. Life is about making decisions in the face of uncertainty, so stories about how we deal with uncertainty in life can offer helpful parallels to how we deal with uncertainty in investing. In fact, you may be talking about the principles of investing without even realizing it.

I'm looking forward to this Thanksgiving with my kids and grandkids. It will be a great time for conversation. I'm asking everyone to bring a story about dealing with uncertainty. When was a time in their life when they or someone close to them succeeded in the face of uncertainty? How did they make their decision? And how did they succeed?

Sharing Stories to Connect with Loved Ones

The story I plan to tell this year is about how my parents dealt with the uncertainty of sending me and my siblings to college. When I was 13, my family lived in Garnett, Kansas, population 3,000. (For my parents, Garnett was "the big city" because they grew up in nearby Lone Elm, which had a population of 29.) My mom and dad knew that their kids should go to college to have a good life, but they didn't have enough money. How could they get us there?

> *In the midst of heartfelt stories, laughter, and gratitude, you might also be sharing valuable lessons that echo the principles that help guide a sensible investment approach.*

They decided to pack up and move 50 miles to Lawrence, home of the University of Kansas. This way, we could live at home while attending school, eliminating the most expensive piece of the college financial equation. Mom could teach, Dad could work for the Kansas City Star, and we could attend college for $116 a semester. It was hard for them to move away from the support of family and go to an entirely new place. It required sacrifices, but it really paid off. I'm so grateful and proud of my parents. I don't know if I would have been equally strong and able to do what they did.

Sharing Stories to Connect Life and Investing

I see clear parallels to dealing with uncertainty when investing. I've distilled my investment philosophy down to a set of principles I call Life, Invested—because they also apply to life. Here are a few of them:

1. Embrace Uncertainty

My parents knew that moving to a new city was a big risk, but they felt they could handle it. People tend to shrink away from uncertainty, but it's uncertainty that creates opportunity.

2. Control What You Can Control

My parents couldn't predict what would happen in Lawrence, but they had a sense of the range of potential outcomes and believed they could manage them. In investing, we don't think you can control markets, but you can control the amount of risk that you take. You want to make investment decisions that have a range of outcomes you're comfortable with.

3. Stick to a Good Long-Term Plan

My parents had the goal of sending their kids to college. They made a long-term plan they could stick with. My parents' decision worked out well for our family. The same logic applies to investing. Don't try to time the market's short-term movements. Instead, have a long-term plan you feel comfortable sticking with and recognize that you may have to make adjustments because your life will change in ways you can't predict.

As you gather around your Thanksgiving table this year, consider this: In the midst of heartfelt stories, laughter, and gratitude, you might also be sharing valuable lessons that echo the principles that help guide a sensible investment approach. Here's to a Thanksgiving season filled with deeper connections and a greater understanding of how the decisions we make, both in life and investing, shape our futures. ■

> *People tend to shrink away from uncertainty, but it's uncertainty that creates opportunity.*

David Booth on Dealing Thoughtfully with Uncertainty

It's never been more obvious than now that human beings are not clairvoyant. This pandemic is a daily reminder of that. Even though we like to shrink away from uncertainty, dealing with it thoughtfully gives us hope for a better future.

Here are some simple strategies you can apply to create a plan for tomorrow, even though you might not know exactly what may come.

1. Get a long-term strategy you can stick with.

You need a strategy to reach your goals. That's true in life, work, or relationships. Deciding on a plan should involve looking at the range and likelihood of possible outcomes. Things might turn around, or things might get worse–it's important to be prepared for both possibilities. Try to make a plan that gets you through the tough times, so you can benefit from the good ones. The key is not to choose a path with more risk than you can tolerate.

Different people are comfortable with different levels of risk. This is one of the reasons I encourage everyone to talk to a financial advisor before investing. Investing is inherently complex. Dealing with that complexity is the job of a professional advisor. They figure out a long-term strategy that considers both your goals and your risk tolerance. If you're comfortable, it's easier to stay the course through both good and bad times.

2. Control what you can control.

You can't control stock and bond markets, and their returns are inherently unpredictable. What you can control is how much you save and how much investment risk you take. You can't develop a COVID vaccine on your own, but you can control wearing a mask, washing your hands, and social distancing. Every day, focus on the things you can control and work toward the long-term plan you have in place. It's all about making the best-informed choices for you. This gives you the best chance of winning, whatever winning means for you.

3. Judge yourself by the quality of your decisions.

Even when we focus on controlling what we can control, things outside our control have an impact. What matters is how we respond and the choices we make going forward.

The future is uncertain, but the quality of your decisions doesn't have to be. When you feel good about the choices you make, even when things don't work out the way you'd hoped, you have the satisfaction of knowing you did everything you could.

Even though many people instinctively fear it, uncertainty can create opportunity. If there were no uncertainty, there wouldn't be a premium for investing in risky assets. Dealing with uncertainty thoughtfully gives us hope for a better future. ■

Past performance is no guarantee of future results.

David Booth on Uncertainty and the Coronavirus

Right now a lot of us feel more uncertain than we ever have. We're worried about a lot of things: our health, our jobs, our investments.

When it comes to health, I have the same anxiety as everyone else. I'm heartened to see the whole world doing all they can to protect themselves and their loved ones. At Dimensional, we're working from home for the first time, and I'm floored by everyone's effort in making this huge shift such a success. We're dedicated to protecting the health of our employees as well as the assets of our clients.

Let's talk about the economy. The threat of job loss is a tremendous stress on families. There's an old saying that a recession is when your neighbor loses his job; a depression is when you do. Since we don't know how long this is going to go on, we can't say exactly how big the impact will be on the economy and on people's livelihoods. But we know people who will be hurting. We have to take care of each other.

Now on to the investment part of this crisis, which I actually know something about. The last few weeks have been a double whammy. Much of the world is staying home and can't work. As a result, expected future cash flows are going down. Meanwhile, uncertainty about earning prospects has gone up. So of course there has been a decline in stock prices.

If you know me, you know I'm not one to easily get talked out of my hard-earned beliefs. At Dimensional, in this market downturn as in previous market downturns we've never given up on doing what we felt was right. And we're not going to give up on doing what's right for the business and for each other, as we rebuild our economy together.

I often say that the ideas upon which we built this firm are bigger than the firm itself. Well, now I want to say that the values behind this firm are just as important as the ideas. Conviction, consistency, resilience and collaboration pushed us through a challenging beginning into a time of great success. And there's no reason to expect that it won't happen again. ■

Practicing Healthy Habits, Pursuing Wealthy Outcomes

Investing and health can be two of the most important things in life, but sometimes they also can be the most confusing. There's so much data and advice, so many articles—and unfortunately, they often don't agree.

So, I wasn't surprised to see that one of the bestselling books of the year is physician Peter Attia's *Outlive: The Science & Art of Longevity*, which looks at recent scientific research on aging to explore strategies for not only living longer but also living healthier. I was struck by the parallels between how he talks about health and how we at Dimensional think about investing.

Here are some of his main observations about health:

- There's no one-size-fits-all solution.
- There are no quick fixes.
- It's better to prevent problems than find yourself in the position of having to fix them.

I've been making similar points about investing for decades. Specifically:

- There's no one-size-fits-all investment solution because different investors have different goals and risk tolerances. I believe that the best investment plan is the one a person can stick with.

- There are no quick fixes in investing. This is for two reasons: First, although the US market has returned, on average, about 10% a year, it rarely does that in any given year.[1] (Usually, it's much higher or much lower.) Second, to take advantage of the miracle of compounding, an investor needs time. Good investing, like good health, requires long-term discipline and commitment.
- Investors can be proactive about how they approach investing by making peace with uncertainty, building smart portfolios, and developing a plan that accounts for a wide range of outcomes.

I'm also struck by the way Attia describes his role as a physician, which feels similar to the way good financial advisors approach their work. He sees himself as a "translator" who wants to help people understand what medical advances mean to them as individuals. That process is rooted in science, but there's an art to applying it differently for each individual patient. There's an art to implementing financial science, as well.

> *Having a healthy "wealth span" is about more than accumulating money.*

For decades, Dimensional has worked closely with financial professionals to help translate financial science. Investors benefit from understanding their investment decisions and what they should expect over their L.I.F.E. (Lifetime Integrated Financial Experience).

We should want to make the best-informed decisions about our health while recognizing that outcomes are uncertain. It's the same with investing. Attia sees the goal of medicine as prolonging not only our life span but also our "health span" so that we're in the best shape to enjoy doing what matters most to us. At Dimensional, we want investors to have a good investment experience so they can use their savings to lead the lives they want to live while feeling safe along the way. Having a healthy "wealth span" is about more than accumulating money—it's about maximizing L.I.F.E.

Attia calls his approach "Medicine 3.0." Medicine 3.0 emphasizes prevention over treatment, treats each patient as a unique individual, and focuses not just on surviving but thriving. Medicine 3.0 represents an evolution over Medicine 1.0, which centers on crisis management, and Medicine 2.0, which incorporates scientific advances but not enough emphasis on holistic, personalized care.

Borrowing that framework, you can think of Dimensional as Investing 3.0. Investing 1.0 is active management. Investing 2.0 is indexing. And Investing 3.0 draws on both and improves on each: using flexible implementation to lower costs, tilting portfolios to emphasize historical drivers of higher expected returns, and offering clients tailored solutions to help them pursue their financial goals. At Dimensional, we've been applying rigorously tested financial science—grounded in academic research and proven in the real world—for over 40 years.

Helping people change how they approach their health is important work, but to me the work we do at Dimensional is just as important. In a sense, we're pursuing a common goal: empowering individuals to make informed choices so that they can lead healthier, wealthier lives. By recognizing the importance of prevention and individually tailored strategies, we can help lay the foundation for a future where individuals not only survive but thrive—in all aspects of life. ■

Past performance is no guarantee of future results.

1. In US dollars. Based on S&P 500 index annual returns, 1926–2022.

Time the Market at Your Peril

Technology enables immediate access to everything wherever and whenever we want it. In many cases, such as staying in touch with friends and family, or learning about world events, that's a good thing. However, when it comes to investing and money management, my fear is that faster and easier ways of investing will allow people to lose more money faster and easier.

As access to investing expands, it becomes even more important to adopt an investment plan that doesn't try to actively pick stocks or time the market. The purpose of having an investment plan is so you can relax. So you don't look at the market every day, stressing out and asking, "How'm I doing? How'm I doing?" Investors actively trading are not just potentially missing out on the expected return of the market—they're stressed out, worrying about how the news alert they just received will impact their long-term financial health, and whether they can or should do anything about it.

I don't blame people for this. The financial services industry has not done a good enough job educating investors that the best approach for their long-term financial well-being is to make a plan, implement it, and stick with it.

> *My fear is that faster and easier ways of investing will allow people to lose more money faster and easier.*

But it has done a great job selling index funds. Over the past decade, the percentage of the stock market that is passively held has grown considerably, with equity index funds representing 52% of the US equity fund market at the end of 2021.[1] And yet some investors appear to be using index funds to pursue an active investment approach. For example, the largest S&P 500 ETF had the highest average daily trade volume of US-listed securities in 2021, at $31 billion.[2] So instead of picking individual stocks, people seem to be acting like stock pickers when buying and selling index funds and ETFs.

Despite the overwhelming evidence and compelling story to the contrary. When economist Michael Jensen published his landmark 1968 paper,[3] which showed that active stock pickers added no consistent value, other academics soon confirmed his insights. More than five decades and 50 years of data later, the theory still holds up. There are some stock pickers who experience success, but we don't know how to identify them before the fact. We can't separate skill from luck. Picking stocks is more like gambling than investing.

This academic research inspired the invention of the index fund, which allowed investors not only to buy the broad stock market, but also to track the performance of the manager and compare costs. I worked on one of the first index funds. When I co-founded Dimensional, we built strategies that were informed by indices but weren't limited by the same mechanical constraints. So I accepted this research early on and built a company based on it. I still believe it 50 years later. My colleagues and I weren't sure at the beginning that it would appeal to a lot of people, but it did.

I'm proud of the fact that we have always viewed marketing as a way to educate financial professionals and investors. In fact, we started by working with institutions and only expanded to individual investors by working with financial advisors who could help teach their clients how to think about the market and invest for the long term. We wanted to prevent people from making the mistake I still see too many people making.

But I fear it will only get worse. ETFs make it easier to trade. So do free platforms that allow people to trade on their phones. There seem to be as many ETFs as there are stocks that make up those ETFs. I really like ETFs. They are another chapter in this 50-year story of creating safer and better financial products for investors. Our firm has been using them to give financial professionals and investors more choice in how they access Dimensional Investing. But they are tools, and they have to be used effectively.

Which is why you may need an advisor more than ever—to help keep you from jumping from one thing to another. Our approach is to get you out of the game of worrying and guessing by having a plan that can provide peace of mind. It's a sensible approach you can live with. Trust the financial advisor who trusts the market.

The financial industry has made great strides improving the investment options available, but we have more work to do helping investors with those options. There are great solutions right in front of people. As an industry, we need to do a better job of educating current and potential clients. How the bulk of our society lives out their later years depends on it. ■

1. Data sourced from Morningstar; funds of funds are excluded.
2. In US dollars.
3. Michael C. Jensen, "The Performance of Mutual Funds in the Period 1945–1964," *Journal of Finance* 23, no. 2 (May 1968): 389–416.

David Booth on the Value of Flexibility

We've long known that flexibility adds value. My colleagues Bob Merton and Myron Scholes became Nobel laureates for their work on option pricing. The option to act when beneficial is worth something.

That kind of thinking is the background for how Dimensional invests. Our ideas are grounded in academic research, but to successfully go from whiteboard to market requires a nimble and flexible approach, with a process built to make bounded judgment calls along the way. At Dimensional, we are firm in our investment philosophy and approach, but flexible in our application so we can react to changes in markets.

A great example of the value of flexibility is the recent frenzy over GameStop.

GameStop had been on our radar for months before it made headlines in January. Throughout 2020, GameStop was very expensive to borrow, which was likely good news for the investors who benefited from the revenue we earned from lending out our shares of GameStop, but this was also a signal to us that low expected returns may be on the horizon. Dimensional research shows that stocks that are expensive to borrow tend to underperform stocks that are not on loan over the short term. So, our process tells us to stop buying securities like GameStop that have high securities lending fees.

In January, the stock really took off. Our process always considers how stocks fit into our various portfolios. For example, we think small cap strategies should be invested in small cap stocks. When GameStop started approaching $30 billion in market cap, we no longer viewed it as a small cap stock because it had a market capitalization that was bigger than the market cap of almost half the companies in the S&P 500 Index. Our flexible approach allowed us to react, selling out of GameStop in all our small cap portfolios by the end of January.

Flexibility can add value, but how much value depends on the quality of our implementation. We make investment decisions every day, guided by research, core economic principles, and our decades of experience. Not all our examples will follow GameStop's path. Flexibility plus good judgment can add value. ■

October 18, 2023

The Power of Compounding—in Health and Wealth

Compounding is one of the most powerful forces in the world. Just ask Albert Einstein, who's said to have called it the "eighth wonder." The seemingly small decisions we make every day gain power over time. That's why it's important to take the long view and come up with a plan—in both wellness and investing—that creates momentum in the direction of our goals. Don't squander the power of time when you can recruit it to work in your favor.

Most of us understand that little things add up. Nowhere is this more evident than in our exercise and nutrition habits. Trading just 10% of your calories from meat for calories derived mostly from plants can extend your lifespan.[1] And don't feel like a failure if you can't reach 10,000 steps per day. Another study shows that 4,000 are enough to reduce the risk of dying from any cause.[2] The bottom line? What we do today really matters in the future.

No one expects to get stronger by lifting weights just one day per month. But when it comes to investing, there are folks who think the occasional big win is their ticket to success. This is simply not true. Just as your muscles benefit from the incremental increase in strength that comes from consistent training, so too do your investments benefit from a long-term time horizon. Because when it comes to investing, compounding means more than little amounts just adding up. The potential exponential growth provided by compound returns proves that time is literally money.

Let's say two people decide to make a one-time investment of $10,000 with an average annualized return of 9%. One is 30 years old, and the other is 40. When they reach age 75, the investor who started at 30 will have $483,000, while the one who started at 40 will have $204,000. Those extra 10 years invested in the market turn out to be worth more than $200,000, even though the initial investment was the same. And keep in mind that the extra return only comes if you stick to your plan and stay invested in the market.

> ***Don't settle for the status quo when you can do just a little bit better—because a little bit becomes a lot over time.***

Now let's factor in the importance of how you choose to invest your money. Different strategies have different objectives. An index fund, for example, seeks to track the returns of a specific index, whereas a flexible, factor-based approach seeks to outperform its benchmark. Just a 1% increase in returns makes an enormous difference. We just looked at compound returns resulting from a 9% annualized return. What about investing the same amount of money for the same amount of time, but at a rate of 10%? Instead of ending up with $483,000, the investor who started at 30 ends up with $729,000. Yes, you read that right. So make investment decisions very carefully. Don't settle for the status quo when you can do just a little bit better—because a little bit becomes a lot over time.

In one of the year's best-selling books, *Outlive: The Science & Art of Longevity*, physician Peter Attia writes that "Sometimes doing nothing is the riskiest choice of all." He's talking about being proactive about your health, but the same is true in investing, where we talk about "opportunity cost." Every minute your money isn't invested in the market is one in which it can't compound.

Economics is the science of making choices. Considering how many choices human beings are required to make every day, we're all economists.

With advances in medical science, many of us are living longer, healthier lives than ever before. This means it's more important than ever to invest for the long term. Because with good habits, even if you didn't start investing at age 20, you may get those 10 extra years of compound interest after all. ■

Past performance is no guarantee of future results.

1. Katerina S. Stylianou, Victor L. Fulgoni III, and Olivier Jolliet, "Small Targeted Dietary Changes Can Yield Substantial Gains for Human Health and the Environment," *Nature Food* (August 2021): 616–627.
2. Maciej Banach, Joanna Lewek, et al. "The Association Between Daily Step Count and All-Cause and Cardiovascular Mortality: A Meta-Analysis," *European Journal of Preventive Cardiology* (August 9, 2023).

May 17, 2023

Let the Compounding Commence!

Every year, families and friends celebrate students who are graduating from colleges and universities. Parents beam with pride at their children's accomplishments and exhale in relief now that the tuition bills have finally stopped. It's a time when adults give a lot of advice, which is why I have one simple idea I want to pass along to this year's graduating class that I hope you never forget. Parents, take note too, because with college out of the way, you can get back to focusing on retirement.

Let the compounding begin!

In case you didn't come across this idea in an econ class, let me explain compounding simply. It's the process by which the value of an investment increases over time as earnings or interest are reinvested. It's the snowball effect but with money. Here's an example.

If you're a US investor and lucky enough to have up to $35,000 left over in your 529 college savings plan, you can roll it over into a Roth IRA starting in 2024, provided the account has been open at least 15 years.[1] If you don't touch that $35,000 for 50 years, and the market averages a 10% annualized return, which is close to its long-term historical average, then guess how much you'll have?[2]

A. $1,584,074
B. $2,551,167
C. $4,108,680

The answer is C. Over $4.1 million!

If you were to start this in your mid-20s and invest that same initial amount for only 45 years, you'd end up with B, or $2.6 million. That's great, but not as great as C.

If you do it for 40 years, you'll end up with A, or $1.6 million. Also good, but, you know, not C.

Another benefit of compounding is that it can help you pursue financial goals along the way, like making a down payment on a home. But don't worry if you spent your whole college fund or took out student loans. Start with a little and get in the habit of adding when you can. As you can see from this snowballing, having a lot of time can help make up for not having a lot of money.

> ***Life is full of surprises, and many of them can come from how your decisions compound over decades.***

In addition to increasing the value of your investments, compounding can also be a valuable force in life. For example, you've made an investment in time and money over the last few years that may have an enormous effect on the rest of your life. How much money are we talking about? College graduates, on average, earn 84% more than those with a high-school education, and that adds up to an extra $1.2 million over a lifetime.[3] Parents, I hope you're feeling a little better about your investment too.

But it's more than just money. When you get to be like me, someone who graduated from college more than 50 years ago, you see that you are the result of the compounding of your life's decisions, both good and bad. It's hard to quantify exactly, but it's sure there. For example, in graduate school, I decided I didn't want to be a professor. That one decision continues to have a profound impact on the rest of my life. Instead, I started a company with the people I met in graduate school. Four decades later, I'm still working with some of them. I even got to go watch my former professor and current colleague Eugene Fama receive a Nobel Prize in Economic Sciences. That was not on my bingo card when I graduated from college. Life is full of surprises, and many of them can come from how your decisions compound over decades.

So, start rolling your snowball, both in life and in investing. Let the compounding commence! ■

Past performance is no guarantee of future results.

1. Laura Saunders, "Your Child Picked a College! Tee Up Your 529 Plan," *Wall Street Journal*, May 5, 2023.
2. Based on S&P 500 Index annual returns, 1926–2022.
3. "How Does a College Degree Improve Graduates' Employment and Earnings Potential?" Association of Public and Land-Grant Universities.

July 12, 2019

Conversations Matter

When people think of Dimensional, they often think of our numbers. But early on, we realized that words are just as important.

We started the firm around a need that wasn't being met. The plan was to invest in small cap stocks to offer diversification benefits for institutional investors, who held almost exclusively large cap stocks in their portfolios. As you can imagine, our first challenge was convincing clients that this idea—investing broadly in small companies—was sensible and could be implemented. We'd never done it. No one had.

So you might say that our business was built on conversations.

The market quickly tested us. For our first nine years, small caps underperformed large caps more than they ever had in the historical data. But we did what we said we would do—deliver the returns of small companies. We communicated openly with our clients, who understood that markets ebb and flow and that having a diversified portfolio continued to make intuitive sense.

Our clients stayed with us. This experience taught us that, even when numbers are disappointing, conversations form the foundation of trust.

Almost four decades later, we have a lot of numbers to be proud of. But instead of relying solely on charts and data to back up our strategies, we continue to lead with conversations. Numbers are necessary, but they're not enough. People don't trust numbers alone. They trust people and the ideas behind those numbers.

We often find ourselves asking, "How can we help our institutional clients and financial advisors with their conversations?" After all, we're in the same business: creating meaningful relationships that help people "win" through investing—whatever winning means to them. Each year, we strive to find new ways to help our clients gain a deeper understanding of what we're doing and do better for investors.

There's a space between the moment when clients consider an idea and make a choice. A conversation serves as the bridge. Conversations can address important questions:

How are clients feeling? What are their goals? How do our ideas correspond with their values?

We doubt many investors choose whom they work with based on Fama/French factors. Factors alone are not transformative—ideas are. Conversations matter.

Investing Is a Lifelong Journey

We know there is more than one way to have a conversation about what we do. Each client has different experiences, needs, and goals. Talking about what's important to them is the first step in figuring out how we can help.

People don't like feeling that they're being sold something. Instead of trying to sell people on Dimensional, we share our view of markets and the ways we implement the great ideas of finance. We're in the business of providing solutions, not products.

Recently, we've been pulling together small groups of clients and employees to have conversations about what the Dimensional philosophy means to them and how our story connects with theirs. Something as simple as a quotation—or even a single word—can spark a conversation. We've seen people share stories that reveal their feelings and motivations in ways they couldn't identify if asked directly. These "aha" moments are some of the most rewarding parts of the service we provide. And they're a reminder of the values we have in common

At the end of the day, our "product" is trust.

One measure of trust is seeing what clients do when results are disappointing. During the 2008 global financial crisis, when so many professional money managers had net outflows, we attracted net inflows. Many of the institutional investors and financial advisors we work with had prepared themselves and their clients for the ups and downs of the market, and they stayed invested. Our clients understand that it's okay to be disappointed with investment returns, but it's not okay to be surprised.

After all these years, we've learned that when you build enduring trust, you lay the foundation for a great business. ■

March 30, 2023

Hoop Dreaming Is Fun in March. Investing Realities Apply across a Lifetime.

Every year at this time, the NCAA men's basketball tournament thrills fans and creates so much interest that it's estimated one in four Americans filled out a bracket to try to predict who will win it all.[1] I really enjoy watching the games and always fill out a bracket in a pool with my family. This year, I couldn't help but see connections between investing and March Madness.

Picking winners is hard.

- Maybe your NCAA championship bracket picks are as wrong as mine, but don't feel bad. The odds of correctly predicting the winner of all 63 tournament games are astronomically high.[2]
- In the stock market, most professional investors don't beat the market in a typical year.

An informed approach improves your odds.

- If you want to do well with your bracket next year, what should you do? The tournament selection committee seeds teams from 1 to 16 in four regions. Always pick the higher-seeded team, and you'll have a good chance of winning more games than most. It doesn't mean you're going to be the champion of your pool, but year after year, you'll probably pick more winners than most.
- With investing, rather than trying to guess winners, you can take an informed approach that relies on decades of academic research, and choose to buy the market. Over the long haul, US stocks have compounded at about 10% a year.[3] Having a plan can help you position yourself to have a better investment experience.

Good luck and good strategy are not the same.

- Every year, some money manager is going to have the best returns. Every year in each bracket pool, someone wins. But in both cases, it's unlikely that they will continue to come out on top year after year.
- When people say, "Look at all the money I made on this stock," I feel it's the same as when someone says, "I picked Fairleigh Dickinson!" Good for you—you got lucky.

How about the differences:

The thrill of participating in a March Madness pool with a lot of people comes from the possibility of winning the pool.

- My family fills out a bracket each year, and we engrave the name of the winner on a little trophy. And to most people it's only the winner who matters. I don't even remember who in our family came in second last year.
- Investing is different. You should have the goal of doing a little bit better than average. Taking unnecessary risks can lead to big losses. As investors, we must remain focused on trying to capture that long-term compounded return of the market, also known as the expected return. That means taking a cautious approach and avoiding the temptation of trying to pick unexpected winners or underdogs.

There's always next year.

- With the NCAA, there's a new bracket to fill out every year. You get a fresh start.
- With investing, your results are cumulative. There are no do-overs. There can be pain with investing. Unlike with filling out the brackets, a bad investing outcome last year sticks with you this year and always.

> *While there are certainly similarities between March Madness and investing, it's crucial to recognize the key differences.*

While there are certainly similarities between March Madness and investing, it's crucial to recognize the key differences. When you're picking brackets, sometimes the only way to be the big winner is to take big risks on underdogs, which can be a fun and exciting game to play. With investing, it's better to take a measured and disciplined approach with the goal of pursuing higher expected returns while reducing risk. So enjoy the Final Four, but don't confuse the risk of filling out a bracket with the risk of investing in markets. ■

Past performance is no guarantee of future results.

1. "March Madness Viewership, Bracket Participation Poised for Jump in 2023," Morning Consult, March 14, 2023.
2. "The Impossible Allure of the Perfect Bracket," *New York Times*, March 12, 2023.
3. S&P 500 Index annual returns, 1926–2022.

August 2, 2022

The Difference between a Forecast, a Wish, and a Worry

When I was growing up, our local newspaper, the *Kansas City Star*, was full of news and had one page for opinion. After decades of cable news and nonstop digital postings, I see more opinions these days than news. That's not a bad thing. But when it comes to investing, it's crucial to remember the difference between news and opinion, and how they are sometimes used to forecast the future.

Any time the government releases new data on unemployment or inflation or interest rate changes, people start claiming they can forecast the future. That's not necessarily a bad thing either. But most of what I hear people say isn't what I would call "forecasting."

Forecasting is when you have a high degree of confidence in an outcome based on well-proven models. The weather forecast for a few days from now is a lot better than anything I read in the *Kansas City Star* about investing. The weather forecast is pretty darn accurate. I'd sure call that kind of forecast the right use of the word. That's different from someone issuing a "forecast" for when the Dow will hit a certain number. Or when inflation will reach a certain level. Or which five stocks will rise the most over the next year.

So when people say they forecast that something will be at this level at that time, I don't call that a forecast.

That's a wish.

And when people forecast that something will go down at a certain time?

That's a worry.

The good news is you can have a good experience without having to do any forecasting—I believe you just need to be a long-term investor with a truly diversified portfolio.

> ***Do you really want to invest your hard-earned savings—the money you'll need for your kids' college or your own retirement—based on someone's hunch or wish?***

Over the last 100 years or so, the average return of the market has been about 10% a year.[1] I won't call it a forecast, but my best guess is that over the next 100 years the average annual return will be about 10%. Of course, there may be large fluctuations, just like we have experienced for the last 100 years (and like we have experienced in the last six months).

Instead of forecasting, focus on the power of what I think has been behind the stock returns of the last 100 years: human ingenuity. Millions of people at thousands of companies working to improve their product, enhance their service, and lower their costs—and all adapting in real time to a changing world. We witnessed the power of human ingenuity over the course of the pandemic. I'm seeing it again as companies adjust to deal with inflation.

The world has changed in so many ways since I was a kid reading the *Kansas City Star*. I still occasionally read it on my phone now. (It makes me chuckle when I imagine trying to explain to my grandparents that I read the newspaper on the phone.) While I expect the world to keep changing—I'm not forecasting when or how—I am confident that human ingenuity will be a constant. Whether in good times or bad, that's reason to be optimistic. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.

INVESTING 3.0

Investing Is a Science, an Art, and a Practice

We started Dimensional in 1981 around a set of beliefs.[1] These ideas remain core to our business and key to the experience we deliver.

1. Investing Is a Science

Professional money managers have offered their services for centuries, but until the 1960s, there was no empirical way to hold them accountable for their results. When computers became powerful enough to analyze immense amounts of data, researchers could start gathering and learning from historical stock returns. Now economists could measure the success of different investment strategies compared with the performance of the broader market. The science of finance took off.

Early pioneers of this new academic discipline discovered that:

- Diversification reduces risk.
- Uncertainty creates opportunity.
- Flexibility adds value.
- Conventional active management isn't worth the cost.

"Conventional active management" is just another way of naming a strategy that relies on stock picking, market timing, or both. Stated a different way, it's people who think they can beat the market. Once historical stock-return data had been analyzed, early empirical research showed that conventional active management delivered inconsistent returns and charged high fees. Not only did active managers not beat the market, they actually did worse than the market on average.[2]

This revelation was a shock to the investment establishment, which didn't know any better because stock picking was just the way things were done. Investing in the total market, using a highly diversified, long-term strategy, was shown to provide a better investment experience than trying to outguess the market by picking stocks or timing the market.

In response to this groundbreaking research, a group of young money managers collaborated on developing the first index fund. I was a member of that crew of data dogs. Back in the early 1970s, we weren't sure the strategy we were trying to implement would work. While academics had tested their hypotheses using data going back decades, we were using real money in real markets. Indexing delivered what it promised—it didn't beat the market (it wasn't supposed to), but it beat conventional active management. Millions of people all over the world have been able to realize their financial goals because of the growth and relative stability provided by index funds.

At its best, science points the way to innovation. We started Dimensional so we could improve upon indexing. By trading with patience and taking advantage of the flexibility that comes from considering a range of securities with similar characteristics, we believed we could deliver better investment outcomes. And it has worked out that way.

As new research identified ways to improve on the capitalization weighting of index funds, we saw additional ways to add value. We designed portfolios that gave greater weight to smaller firms and lower-priced stocks.

2. Investing Is an Art

As with most sciences, the "facts" of investing are clear. Nearly all the academic insights of the past 50 years have been based on publicly available research. Contributions to the science of investing have been published worldwide and are widely accessible to anyone who's interested in learning about them. Why, then, are there so many strategies available to those looking to invest their capital? What makes a particular money manager stand out when they all have access to the same research?

I believe the answer lies in what I think of as "the art of the science." The art of the science of investing comes into play when research is interpreted and implemented in public markets.

Financial economics is a social science. Unlike math, which demands proofs and delivers exact answers, research in finance yields insights. These insights allow room for interpretation. And putting theory into practice requires judgment. In many ways, it's similar to medical science.

The art of the science of investing has two major components: engineering and execution. What do I mean by engineering? Everything that goes into deciding how to structure investment portfolios. This requires answering the question "What story is the data telling us?" In my mind, this is where human judgment becomes indispensable.

Just as important as the data are the people who interpret it. Dimensional's Research team strives to constantly improve our strategies using the most valuable new research. It's critical that they be able to distinguish signal from noise. And that takes judgment.

When I talk about execution, I'm referring to how an investment strategy is implemented. Once you know which strategies have been shown to improve results in the data, how do you bring them into the real world? As my friend Myron Scholes[3] has said again and again, "Ideas are cheap. What matters is how you execute." Back in 1981, when I ran our "trading department" from the makeshift desk of my Brooklyn apartment, I knew that I could get the best possible deals for clients by using a flexible approach to trading. Index funds simply couldn't be flexible, because they had to track their benchmarks. We were beholden to no one but ourselves, so we could save money and direct that savings to benefit our clients.

Another maxim to remember, this time from my colleague Gene Fama: "Models are not reality. If they were, we wouldn't call them models—we'd call them reality!" All investment strategies can be simulated, but results will always be hypothetical. We have 41 years of proven, real-world experience—and real-world returns.

An investment manager isn't worth much unless the returns from their judgment—so-called "alpha"—add up to more than the fees they charge. Many people say they choose index investing because the fees are so low. But in my mind, they're leaving returns on the table: acknowledging the science without implementing the art. At Dimensional, we more than pay for ourselves with the judgments we make every day. Trading flexibly, paying attention to detail, understanding risk, and standing up for the rights of the investor through investment stewardship of the stocks we hold—these result in changes that might seem small but have huge long-term impacts.

Why? Because of the art of the science.

> *The art of the science of investing comes into play when research is interpreted and implemented in public markets.*

3. Investing Is a Practice

The science of investing has shown that there are structural ways to beat the market without trying to outguess it. Sometimes this idea can be hard to grasp, so I've found that analogies between life and investing can really help. One parallel that makes sense to me is comparing managing our money to managing our health.

Our bodies, minds, and bank accounts make it possible for us to live the lives we want. So it makes sense to take care of them in the most scientifically sound ways possible.

Here, in my mind, are the ways we can use what we've learned from science to be the most responsible stewards of the things that matter most to us:

- Find a trusted professional who understands the science even better than you do.
- Adopt a long-term strategy you can stick with through thick and thin.
- Focus on crisis prevention, not crisis management.

Find a Trusted Professional

Most of us, given the opportunity, would rather trust an accomplished physician to manage our health than take on the responsibility ourselves. After all, physicians have specialized training, real-world experience, and access to tools outside the reach of the general public. Finally, they've taken an oath to prioritize the patient's health over their own interests.

In the same vein, independent financial advisors are trained to adapt insights from financial science to each client's individual situation. They look at clients' financial health holistically and work with them to create a long-term plan that aims to accomplish their unique goals. And they provide a trusted partner who can help when times are tough.

Adopt a Long-Term Strategy You Can Stick With

In both wellness and investment management, consistency is key. Knowing what to do is less than half the battle—you have to actually do it, over and over again, to see results. This means sticking to your plan, even when you're not sure it's working. Your understanding of what's right has to overpower your desire to quit when things don't seem to be going your way.

This might mean continuing to take that 45-minute daily walk even when you can't see progress, or resisting the urge to get out of the stock market when returns are disappointing. The goal is cultivating a desire for a better future that gives you the willpower to tolerate uncomfortable feelings in the present.

Both health and investment discipline contribute to another important kind of wellness: *peace of mind.*

Focus on Prevention and Preparation

From heart disease to bank runs, the best preparation is often prevention. By the time the crisis happens, you've either avoided it or you're better equipped to deal with it.

In health, this means drawing insights from scientific research about the habits and practices that lead to healthy outcomes, and then making them part of your routine in the most efficient way possible. In investing, this means essentially the same thing: adopting the insights from decades of empirical research, and then implementing them in an effective way at the lowest possible cost.

When you have both science and a trusted professional on your side, you never feel alone when weathering life's inevitable storms. You're well-equipped to stick to a long-term strategy that can best position you to achieve your goals. And even when things don't go exactly the way you planned, you know you're still probably going to be OK.

That's peace of mind money can't buy. ■

Past performance is no guarantee of future results.

1. Dimensional Fund Advisors LP founded in 1981.
2. 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.
3. Independent Director, Dimensional Funds, 1981–2021.

This piece originally appeared in the *Financial Times*.

David Booth in the *Financial Times*: Why the Wisdom of the Market Crowd Beats AI

Can artificial intelligence help pick stocks? More specifically, can investors use AI to determine the fair price of a stock or a bond? I bet a lot of people right now would say yes, given recent advances that allow for the processing of ever greater amounts of information.

For example, pick a stock. Check the price. Why is it that exact price? Because an equal number of buyers and sellers think they are getting a good deal when they sell or buy it at exactly that time. They make those judgments using every piece of information available to them, both public and private. The market is the world's largest information processing machine, which creates a price for every publicly traded stock and bond.

These prices are set in an environment where no one knows what's going to happen. So in that sense it is a giant model that is humanity's best and constantly evolving guess of how each company stock or bond will perform.

Despite all the promise of AI, I prefer to accept market prices rather than prices from algorithms. Large language models, the types of AI that power tools such as ChatGPT, are intended to understand and generate text that seems as if it was made by humans, not predict future outcomes.

They can generate potential scenarios based on learnt patterns, but they struggle to account for unknown factors or real-world changes that come outside their training data. In that way, they are truly "artificial," while markets are composed of real, human intelligence and the millions of judgments market participants make.

> *Despite all the promise of AI, I prefer to accept market prices rather than prices from algorithms.*

Sure, AI and algorithmic trading can help the execution of trades. But there's no reason to think that AI should fundamentally influence the way people think about stock prices anytime soon.

The market is fantastically complex. So much so that no one knows exactly how much a particular piece of information impacts a price, because there are so many other simultaneous inputs. But the market ensures that a price is the most accurate current representation of the value of a stock or bond. It's free and available to all. How great is that?

This isn't just my opinion. There's plenty of evidence to support it. In fact, it's a 50-year-old theory that only gets more proven with each passing year. Google "efficient market hypothesis." Better yet, ask ChatGPT to explain it.

Still don't believe me? Then let me ask another question: Do you think you can hire a manager to implement the strategy of using AI to pick stocks that consistently beat the market? After fees, probably not. If they had some cool AI that actually did predict stock prices better than the market, why would they share the information with you?

What's the takeaway? You can have a good experience without worrying about all that stuff. Based on nearly a century's worth of data, the stock market has returned about 10 per cent a year, which is 7 per cent above inflation.[1] That was true before and after computers, before and after the internet, and even before and after the second world war. It makes sense to me that it will continue to be the case after AI. Because our AI is "aggregate intelligence," which includes artificial intelligence and betters it.

To be clear, I celebrate the innovation that this moment may represent. As I have witnessed over and over during the past 50 years of my career, many players will try to take advantage of the newest advance in technology to improve their company and also to build new ones. By buying the market, you can have a piece of all the publicly traded companies.

And if I still haven't convinced you, I asked ChatGPT, "Is it safer to trust the market price mechanism than rely on an AI model to find mispricing in stocks and bonds?"

Here's what I got back the day I asked: "It is generally safer to trust the market price mechanism than to rely on an AI model to find mispricings in stocks and bonds. The market price mechanism is based on the collective actions of all market participants and incorporates all available information into asset prices. As a result, it is difficult for any single investor or AI model to consistently outperform the market by identifying mispricings."

So if you don't trust me, trust the AI that is telling you not to trust the AI over the market. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.

January 13, 2023

People Have Memories. Markets Don’t.

One of the best things about markets is that they don’t have memories. They don’t remember what happened last week or last year. They don’t even remember what happened a minute ago. Prices change based on what’s happening right now and what people think will happen in the future.

People have memories. Markets don’t. And that’s a good thing.

So as you start 2023, take a lesson from the market. Don’t begin this new year bogged down by what happened last year. Give yourself the opportunity to start fresh.

Every day in publicly traded financial markets, buyers and sellers negotiate prices for every stock and bond. To agree, they have to find a price that they both think is a good deal. This happens over and over, millions of times a day. Then it starts all over again the next day. Unlike people, markets don’t think about the past. It’s about today and expectations for the future.

Markets must be forward-looking to set prices that entice buyers to buy. But prices can’t be too low or sellers won’t sell. Every piece of available information feeds into the decision-making process so everyone involved can agree on the price for a particular security at a particular moment.

Markets are smarter and faster than you and me. While you’ve been reading this, markets have probably factored in thousands of pieces of new information and adjusted the prices of thousands of different company securities.

That's good news. Markets do the work so you don't have to. You don't need to believe in magic or be able to predict the future to have a good investment experience. Some people might think I'm giving the market too much credit. But over more than 50 years in finance I've come to realize that I'm just being realistic. Someone described it to me as "science-based hope."

> *Start the new year off with a clean slate—just like markets do every day.*

Academic research gives us insights into investing. Over the past century, markets have returned on average about 10% a year, although almost never that amount in any given year.[1] And the annualized inflation-adjusted return on US stocks is 7.3% going back to 1926.[2] Because of big swings year to year, trying to time markets is a losing game. So don't try to outguess markets—go with them. Come up with a plan, take no more risk than you can tolerate, and go spend some time with your loved ones.

Investing has inherent risks. And no matter what anyone tells you, there are no guarantees. But if you don't have enough cash to live off for the rest of your life, what choice do you have but to invest? Control what you can control so you can set yourself up for success, and then give yourself some grace. Judge yourself by the quality of your decisions and not by their outcomes. There are so many factors outside your control that can impact investment returns.

I believe one of the worst things investors can do is to impose their memory on their view of markets. Because then they might "see" patterns that aren't there and make choices that aren't based on research or evidence.

It can feel daunting to develop an investment plan you can stick with and determine the level of risk that's right for you. But few things are more important than how you invest your life savings. That's why most people would probably benefit from a financial advisor to help them talk it all out.

When it comes to investing, the key is not to try to outsmart the market, but to understand how it works and use that knowledge to your advantage. The market is a great information processing machine. It runs on human ingenuity, which is why returns tend to grow over time as people work to innovate and improve the value of the companies they work for.

So start the new year off with a clean slate—just like markets do every day. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.
2. Based on nonseasonally adjusted 12-month percentage change in Consumer Price Index for All Urban Consumers (CPI-U). Source: US Bureau of Labor Statistics.

January 3, 2020

The Market Has No Memory

I have worked in finance for over 50 years, and it seems that every January the same thing happens. Lots of folks look back at last year's performance to draw conclusions they can use to predict what markets will do in the year to come. I don't make predictions, but I do think it's worth answering this question: What are the lessons from 2019 that we can apply to 2020?

Let's go back to where we were this time last year. The words running across CNBC's home page were, "US stocks post worst year in a decade as the S&P 500 falls more than 6% in 2018." The *Wall Street Journal* summarized the state of market affairs with this headline: "U.S. Indexes Close with Worst Yearly Losses Since 2008." Amidst gloomy predictions for 2019, I posted a video on the limitations of forecasting.

Things felt ominous. We started the year with a lot of anxious people. Some decided to get out of the market and wait for prices to go down. They thought that after 11 years, the bull market was finally on its way out. They decided to time the market.

We all know what happened. Global equity markets finished the year up more than 25%[1] and fixed income gained more than 8%.[2]

Missing out on big growth has as much impact on a portfolio as losing that amount. How long does it take to make that kind of loss back? And how is someone who got out supposed to know when to get back in?

The lesson from 2019 is: The market has no memory. Don't time the market in 2020. Don't try to figure out when to get in and when to get out—you'd have to be right twice. Instead, figure out how much of your portfolio you're comfortable investing in equities over the long-term so you can capture the ups and ride out the downs. A trusted professional can help you make this determination, as well as prepare you to stay invested during times of uncertainty.

Not enough "experts" subscribe to this point of view. They're still trying to predict the future. You've probably heard the saying, "The definition of insanity is doing the same thing over and over again and expecting a different result." I've seen people make this same mistake for 50 years.

We'll never know when the best time to get into the market is because we can't predict the future. And if you think about it, that makes sense. If the market's doing its job, prices ought to be set at a level where you experience anxiety. It's unrealistic to think the market would ever offer an obvious time to "get in." If it did, there would be no risk and no reward.

So what should you do in 2020? Keep in mind 2019's most important lesson (which is the same lesson from every year before): Stay a long-term investor in a broadly diversified portfolio. Reduce your anxiety by accepting the market's inevitable ups and downs. Make sure the people advising you align with your perspective. Stop trying to time the markets, and you'll find you have more time to do the stuff you love to do. ■

Past performance is no guarantee of future results.

1. MSCI World Index.
2. Bloomberg Global Aggregate Bond Index.

May 15, 2019

David Booth on Market Volatility

Recently, the market has shown a lot of volatility. This can be unnerving, even when you have a solid plan backed up by an investment philosophy you believe in. Most of the time, it feels great to know that if you're a long-term investor, you can go about your life with the confidence that true conviction brings. But when everyone else is acting like the sky is falling, it can be helpful to remember a few things.

First, volatility is a normal part of investing. We all know that markets go up and down—so we can be disappointed by downturns, but we shouldn't be surprised by them. Most importantly, for long-term investors, reacting emotionally to recent market volatility may be more detrimental to portfolio performance than the drawdown itself.

So, how do you tune out the noise? Working with a good financial advisor can help you see past the headlines and cultivate discipline and a sense of security, knowing you have a well-thought-out plan in place that is working toward your goals. That's the power of professional advice.

One investor changed his life in a profound way by changing his attitude about markets. Hollywood producer Dave Goetsch calls himself a "Transformed Investor" because while he once felt like he was being held hostage to the whims of markets, he's now settled into a healthy, less emotional relationship with investing, anchored by his belief in the way markets work.

I understand that times like this can be difficult, especially since we don't know how long they will last. But try not to lose sight of your long-term goals, and remember that uncertainty is actually part of what creates opportunity. Equities have higher expected returns than other investments because they require investors to bear additional risk. Without uncertainty, investors wouldn't get paid for taking on this risk.

As I've said many times, much of the financial services industry is geared toward making people think they can avoid uncertainty. But the future is unknowable. We believe the best approach is to make informed choices, adjust as your needs and objectives change, and be okay with a range of possible outcomes. And remember: You're not in this alone. Your financial advisor should be there to help remind you that a properly built plan considers the ups and downs of the market. ■

May 8, 2023

The Stock Market vs. Stocks in the Market

The collapse of First Republic Bank is a harsh reminder that any stock can go to zero, no matter how established a company is, or how loyal and wealthy its customers are. The failure of what many considered to be a rock-solid regional bank should serve as powerful evidence of the importance of diversification, what I consider to be one of the first principles of investing.

If your wealth is highly concentrated in any one individual stock, take this opportunity to learn an important lesson: While many people think they know more than other investors, none of us knows more than the market.

Many years before he became a Nobel laureate, my friend and mentor Merton Miller used to say, "Diversification is your buddy." Diversification is the practice of spreading investments across a variety of assets. It's a time-tested strategy to mitigate risk. Children learn about it early in life with the phrase "Don't put all your eggs in one basket," but all too often, grown-up investors forget.

> *Anyone who lost their shirt when First Republic Bank stock lost its value had too much invested in it.*

I think it's safe to assume that the total value of the stock market will not go to zero. But the same cannot be said about any individual stock, no matter how promising the future of a company might seem. Why not? Because we cannot predict the future.

The current price of any stock reflects the value of all its future income streams, but it's no guarantee. Some companies fail. Can anyone predict which ones? Fortunately, there's no need to. You can have a positive investment experience without knowing what's going to happen with any individual stock because of diversification. In investing, diversification is the closest thing any of us can have to a free lunch.

Nearly all investing horror stories start with a simple fact: Someone took too much risk. In the case of First Republic, management took too much risk. But investors don't have to. Anyone who lost their shirt when FRB stock lost its value had too much invested in it. Everyone who invests in the stock market should prioritize diversification in their portfolio. And it's never been easier to do so, because with mutual funds and ETFs—many of which allow you to invest in a broad range of stocks by buying just one security—you can achieve a high level of diversification with the same number of clicks as buying a single stock.

In my opinion, when you concentrate your wealth in single stocks, you're gambling, not investing. And that's fine, as long as you don't mind losing what you bet. First Republic has been included as part of the S&P 500 index since 2018. On the day JP Morgan Chase announced that it was taking over the troubled bank, how did First Republic's dissolution impact the S&P 500?[1] When the market closed, the index was down 0.039%.[2]

Now do you see why diversification is your buddy? ■

Past performance is no guarantee of future results.

1. "First Republic Bank Is Seized, Sold to JPMorgan in Second-Largest U.S. Bank Failure," *Wall Street Journal*, May 1, 2023.
2. Decrease of 0.039% was on May 1, 2023.

Two Steps Forward, One Step Back for Investors

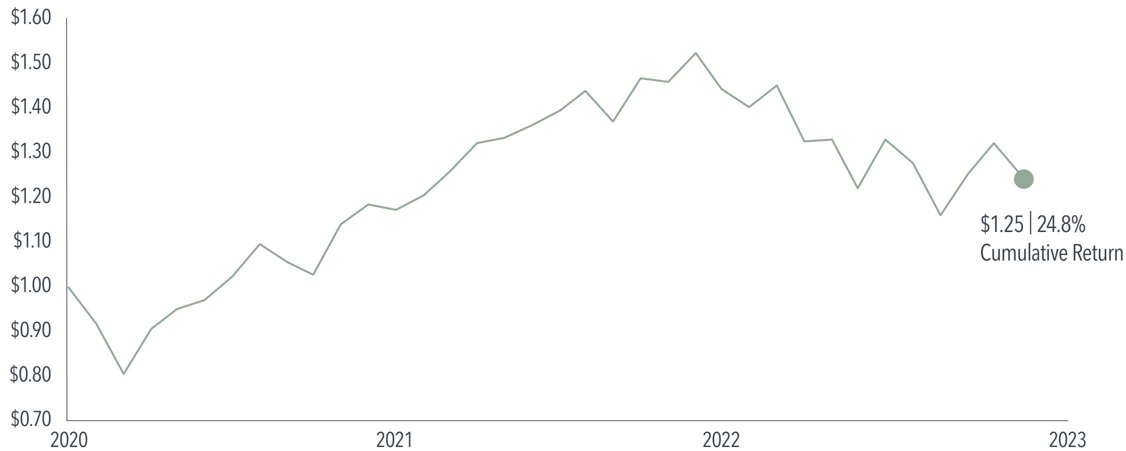
Consider everything investors have been through in recent years: a global pandemic, rapid inflation, war in Europe, and volatile stock and bond markets. It's reasonable to feel uneasy in the face of so much uncertainty.

Now imagine it's the end of 2019 and you know what you know now. You're asked to predict market returns over the next three years. Will stocks be up 25%? Flat? Down 25%? It starts with talking about what's important to you. What are your goals? Which are your most important relationships? What are your values? Everyone may answer differently. That makes sense to me, because everyone is different. ▸

EXHIBIT 1

Big Picture

Growth of $1 invested in S&P 500, January 1, 2020–December 31, 2022



Past performance is no guarantee of future results. S&P 500 Index annual returns 2020–2022. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio.

As you can see in **Exhibit 1**, the market was up almost 25% from 2020 through 2022.[1] That includes last year's 19% decline. Too often, people look only at year-by-year returns and don't look at the total history of returns, which can be very informative.

EXHIBIT 2

Distribution of Returns

Distribution of calendar-year S&P 500 returns, 1926–2022

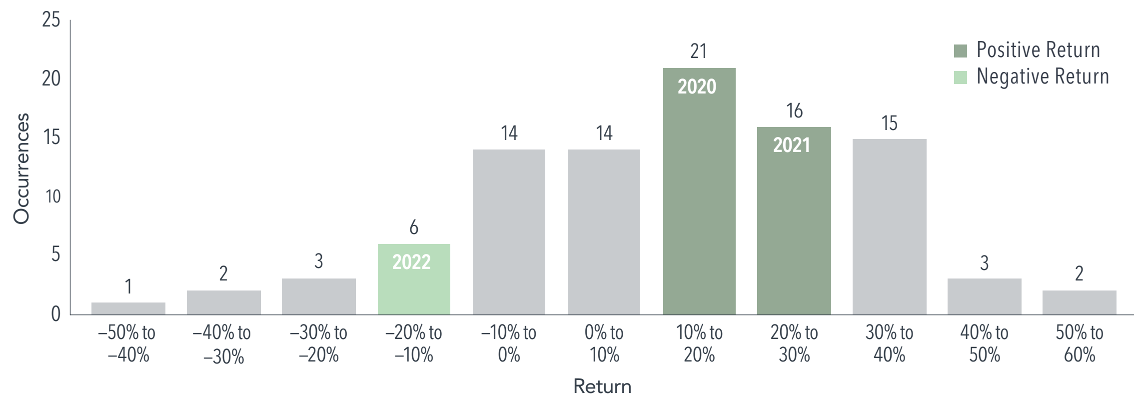
Past performance is no guarantee of future results. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio.

We now have 97 years of research-quality data on stock returns. **Exhibit 2** shows the distribution of annual returns over that time period, ranging from a year when the market lost almost 50% to two years when it gained more than 50%. The bulk of the returns are between –10% and +40%. When you look at a histogram like this, you get a sense of the distribution of returns, rather than a forecast of what any year's return will be. The best prediction of what will happen next year is a random draw from one of these 97 years.

EXHIBIT 3

Two Up, One Down

Distribution of calendar-year S&P 500 returns, 1926–2022



Past performance is no guarantee of future results. Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment. Decrease of 19.6% was from Jan. 1, 2020, to March 31, 2020.

Let's look more closely at the past three years. In **Exhibit 3**, the returns from 2020 and 2021 were positive, with 2022 negative. These three years to me seem representative of the history of stock returns: two steps forward and one step back. Two positive years and one negative. That's about the way the world works.

But how do we explain the stock returns of these last three years, given the stress that people have felt with the pandemic? I think of it in terms of ingenuity and flexibility bailing us out. What happens when companies or individuals get hit with bad news? We don't just sit there and take it—we try to figure out how to get back on track. That's what happened here.

The pandemic hit and markets dropped 20%.[2] Then human ingenuity kicked in by the end of the year. We had a vaccine and started distributing it at incredible speed. That innovation continued as businesses adjusted into the next year.

EXHIBIT 4

In Line with History

Annualized Returns

	S&P 500 Index	1-Month T-Bill	Equity Risk Premium S&P 500 Index minus T-Bill
1926–2019	10.20%	3.32%	6.88%
2020–2022	7.66%	0.64%	7.02%
1926–2022	10.12%	3.24%	6.88%

Past performance is no guarantee of future results. One-month Treasury bill data provided by Morningstar. Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio.

Let's look at how the last three years compare with the previous 94. **Exhibit 4** shows the returns on the S&P 500 index and US Treasury bills over the last 97 years. The first row is the 94-year time period of 1926–2019. The S&P 500 index compounded at 10.2% per year. Treasury bills, which we think of as being the riskless asset, compounded at 3.32%.[3] We think of the difference between 10.2 and 3.32, which is 6.88 percentage points, as the reward for taking the stock market risk. So that's the equity risk premium, almost 7% a year.

The next row shows the last three years. The S&P 500 compounded at 7.66%. Treasury bills were basically flat (0.64%). The difference between those two is also about 7%—7.02 percentage points. So, for the last three years, the risk premium of 7% a year is almost precisely what it had been the previous 94, about 7% a year.

In other words, the last three years in terms of equity returns have been "normal."

How can we explain normal returns when it seemed to some people that the world was falling apart? Think of public financial markets as a giant information-processing machine. When bad news comes in, prices drop. When good news comes in, prices rise. The stock market every day is trying to set prices to induce investors to come in to invest. If the stock market had a negative expected outcome, nobody would invest. The stock market is constantly adjusting prices so that investors have a positive expected outcome.

One of the most important principles of investing is being a long-term investor with an investment plan you can stick with. The stock market will go up and down. It always has; it always will. If during this three-year period you felt like you had to bail out of stocks for some reason, then you had probably invested too much in stocks to begin with. But if you had about the right amount, for you, invested in stocks, there was a good chance that you didn't have to make any adjustments to your portfolio mix.

What will happen over the next three years? Who knows? The good news is, if you've planned for the range of outcomes, you won't have to worry about relying on a prediction. ■

1. S&P 500 Index annual returns, 2020–2022.
2. S&P 500 Index decrease of 19.6% was from January 1, 2020, to March 31, 2020.
3. One-month Treasury bill data provided by Morningstar.

May 23, 2022

Worried about Stocks? Why Long-Term Investing Is Crucial

We are living in a time of extreme uncertainty and the anxiety that comes along with it. Against the backdrop of war, humanitarian crisis, and economic hardship, it's natural to wonder what effect these world events will have on our long-term investment performance.

While these challenges certainly warrant our attention and deep concern, they don't have to be a reason to panic about markets when you're focused on long-term investing.

Imagine it's 25 years ago, 1997:

- J.K. Rowling just published the first Harry Potter book.
- General Motors is releasing the EV1, an electric car with a range of 60 miles.
- The internet is in its infancy, Y2K looms, and everyone is worried about the Russian financial crisis.

A stranger offers to tell you what's going to happen over the course of the next 25 years. Here's the big question: Would you invest in the stock market knowing the following events were going to happen? And could you stay invested?

- Asian contagion
- Russian default
- Tech collapse
- 9/11
- Stocks' "lost decade"
- Great Recession
- Global pandemic
- Second Russian default

With everything I just mentioned, what would you have done? Gotten into the market? Gotten out? Increased your equity holdings? Decreased them?

Well, let's look at what happened.

From January of 1997 to December of 2021, the US stock market returned, on average, 9.8% a year.[1]

A dollar invested at the beginning of the period would be worth about $10.25 at the end of the period.[2]

These returns are very much in line with what returns have been over the history of the stock market. How can that be? The market is doing its job. It's science.

> *Investing in markets is uncertain. The role of markets is to price in that uncertainty.*

Investing in markets is uncertain. The role of markets is to price in that uncertainty. There were a lot of negative surprises over the past 25 years, but there were a lot of positive ones as well. The net result was a stock market return that seems very reasonable, even generous. It's a tribute to human ingenuity that when negative forces pop up, people and companies respond and mobilize to get things back on track.

Human ingenuity created incredible innovations over the past 25 years. Plenty of things went wrong, but plenty of things went right. There's always opportunity out there. Think about how different life is from the way it was in 1999: the way we work, the way we communicate, the way we live. For example, the gross domestic product of the US in 1997 was $8.6 trillion and grew to $23 trillion in 2021.

I am an eternal optimist, because I believe in people. I have an unshakable faith in human beings' ability to deal with tough times. In 1997, few would have forecast a nearly 10% average return for the stock market. But that remarkable return was available to anyone who could open an investment account, buy a broad-market portfolio, and let the market do its job.

Investing in the stock market is always uncertain. Uncertainty never goes away. If it did, there wouldn't be a stock market. It's because of uncertainty that we have a positive premium when investing in stocks vs. relatively riskless assets. In my opinion, reaping the benefits of the stock market requires being a long-term investor.

By investing in a market portfolio, you're not trying to figure out which stocks are going to thrive, and which aren't going to be able to recover. You're betting on human ingenuity to solve problems.

The pandemic was a big blow to the economy. But people, companies and markets adapt. That's my worldview. Whatever the next blow we face, I have faith that we will meet the challenge in ways we can't forecast.

I would never try to predict what might happen in the next 25 years. But I do believe the best investment strategy going forward is to keep in mind the lesson learned from that stranger back in 1997: Don't panic. Invest for the long term. ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1997–2021.
2. Data presented for the growth of $1 are hypothetical and assume reinvestment of income and no transaction costs or taxes. This value is for educational purposes only and is not indicative of any investment.

July 23, 2021

The 50-Year Battle for a Better Way to Invest

Mac McQuown recruited me to help create the very first indexed portfolio in 1971. I was 24 years old and living in San Francisco, where more people my age were following the Grateful Dead than the stock market. The think tank Mac set up felt like a start-up, although it was long before anyone used that term. We were excited by the opportunity to turn academic research into a new way of investing. Many people thought we would fail. Some even called what we were trying to do "un-American."

But we didn't worry about the attacks; we focused on how indexing could improve the lives of investors. The fund offerings available at the time were actively managed portfolios that tried to outguess the market and were expensive, lacked diversification, and performed poorly. So-called star managers sold investors on their ability to win against the market; they sold products as opposed to solutions. Problem was, there was no compelling evidence they could reliably beat the market. We were confident that indexing—a highly diversified, low-cost investment solution that relied not on a manager's ability to pick winners but on the human ingenuity of hundreds or thousands of companies—would change lives for the better.

Fifty years later, $9.1 trillion is invested in index mutual funds and exchange-traded funds (ETFs).[1] This represents 51% of the total $17.9 trillion in equity ETFs and mutual funds. Six of the original academic consultants Mac hired to work on that first index fund went on to win Nobel Prizes. I have worked with four of them at Dimensional.

Flexibility is one of the key differences between index investing and Dimensional Investing and where so much of our innovation has taken place.

When we started Dimensional in 1981, indexing was beginning to catch on. But the primary index used was the S&P 500, made up of 500 of the largest companies in America. My colleague Rex Sinquefield and I thought investors could be better served by adding small capitalization stocks to the mix, since they were underrepresented in portfolios and offered diversification and expected return benefits. We were the first to treat small cap companies as a separate asset category. It was an exciting idea, but it made many people nervous. An academic paper circulated that said the performance of small cap stocks couldn't be captured because of trading costs. Many academics, even those who worked with us, were skeptical that we could deliver on our big idea of creating a small cap strategy. (After 40 years of results, the skepticism about our ability to deliver has subsided.)

There was perceived risk in trading against professional investors who might take advantage of us with all their knowledge and experience. But we found a way to turn trading to our advantage: *flexibility.*

Flexibility is one of the key differences between index investing and Dimensional Investing and where so much of our innovation has taken place. Because we weren't beholden to tracking any particular index, we could harness the power of markets, even beat the indices. The protocols, systems, and teams we've developed—as well as the experience we've accumulated—have shown to be applicable to a wide range of strategies, from fixed income to value to international investing.

I thought 1971 was the most exciting time to be in this business. Then, I thought 1981. The truth is, it's every day.

So what happens next? Where will we be in 50 years? I've built a career in finance without making predictions, but I do believe that technological innovation is lowering barriers to entry for everyday investors and enabling greater personalization. In 1971, there was one index fund. In 1981, there was one small cap strategy. Today, investors have more access to customized portfolios than ever before.

Sitting down with a trusted advisor, investors can develop a plan and build a portfolio solution that gives them the best chance of having a good investment experience. For example, many people are interested in environmental, social, and governance (ESG) strategies, but ESG can mean different things to different people. So rather than choosing from what exists, new technology allows you to get exactly what you want.

For me, working in finance has always been about improving people's lives. We created indexing to improve upon stock picking. We created Dimensional to improve upon indexing. Each day we strive to help our clients in new and better ways. That's why I thought 1971 was the most exciting time to be in this business. Then, I thought 1981 was the most exciting time to be in this business. But the truth is, it's every day, as long as we're able to keep helping people in innovative ways. ■

1. Data obtained from Morningstar on July 6, 2021. The sample includes US-domiciled equity mutual funds and ETFs. Funds of funds and money market funds are excluded.

June 2, 2021

Inflation: An Exchange between Eugene Fama and David Booth

With the economy starting to recover from the COVID-19 pandemic and investor concerns turning increasingly toward inflation, Dimensional Founder David Booth talked with Nobel laureate Eugene Fama about inflation and how investors should think about it in their portfolios. Excerpts from their conversation have been edited for clarity.

On Predicting Inflation

David Booth: Gene, you are a founding Director of Dimensional and have been involved in our research and corporate governance for more than 40 years. People may not know that you've also done a lot of research on inflation and interest rates.

We always tell people, "We don't try to forecast. We try to be prepared for various outcomes." Inflation is one of those things you want to be prepared for. There's a pickup in inflation risk that wasn't there, say, 10 years ago. Does that cause you to worry?

Eugene Fama: Historically what's happened is, when there's a spike, the spike persists for a long time. Inflation tends to be highly persistent once you get it. Once it goes down, it tends to be highly persistent on the downside. You've got to be prepared for that. Predicting next month's inflation may not be very hard because this month's inflation can be a pretty good predictor of next month's inflation, or next quarter's inflation, or even the next six months' inflation. Persistence is a characteristic of inflation.

We haven't been in a period of high inflation, or even moderate inflation, for at least 10 years, so I'm not particularly concerned that inflation will be high soon.

On How Investors Should Think about Inflation and Their Financial Goals

Booth: Conditions change, so is there anything about the current environment and the risk of inflation heating up that would cause you to change your portfolio?

Fama: I don't think anybody predicts the market very well. Market timing is risky in the sense that you've always emphasized: You may be out of the stock market at precisely the time when it generates its biggest returns. The nature of the stock market is you get a lot of the return in very short periods of time. So, you basically don't want to be out for short periods of time, where you may actually be missing a good part of the return.

I think you take a long-term perspective. You decide how much risk you're willing to take, and then you choose a mix of bonds, stocks, Treasury Inflation-Protected Securities, and whatever else satisfies your long-term goals. And you forget about the short term. Maybe you rebalance occasionally because the weights can get out of whack, but you don't try to time the market in any way, shape, or form. It's a losing proposition.

Booth: As you get to the point in life where you actually need to use your portfolio, does that change the kinds of allocations you'd want?

Fama: The classic answer to that was, yes, you'd shift more toward short-term hedges, short-term bonds. Once you had enough accumulated wealth that you thought you could make it through retirement, you'd want to hedge away any uncertainty that might disturb that. That's a matter of taste and your willingness to take risk and your plans for the people you will leave behind, like your charities or your kids. All of that will influence how you make that decision. But the typical person who thinks they'll spend all their money before they die probably wants to move into less risky stuff as they approach retirement.

Booth: The notion of risk is pretty fuzzy. For example, if I decide that I want to hold Treasury bills or CDs when I retire, and you did that 40 years ago, when we started the firm, and you've got that 15% coupon, that's pretty exciting. With $1 million at 15%, you're getting $150,000 a year. Today you might get less than 1%.

Fama: Right, but I remember when inflation was running at about 15%, so not much better off!

Booth: Those are different kinds of risks.

Fama: When you approach retirement, you're basically concerned about what your real wealth will look like over the period of your retirement, and you have some incentives to hedge against that. You face the possibility, for example, that if you invest in stocks, you have a higher expected return, but you may lose 30% in a year and that might be devastating for your long-term consumption.

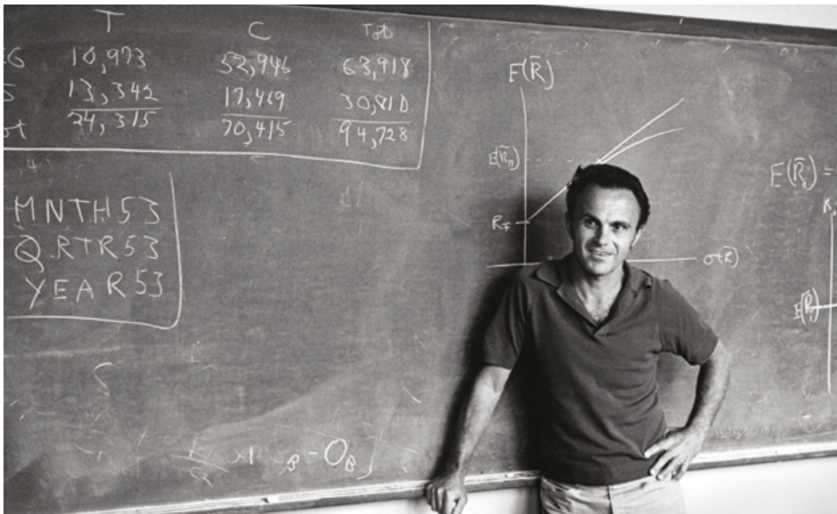
Booth: I think part of planning is not only your investment portfolio, but what to do if you experience unexpected events of any kind. We're kind of back to where we start our usual conversation: "Control what you can control." You can't control markets. What you can do is prepare yourself for what you'll do in case bad events happen. Inflation is just one of many risk factors long-term investors need to be prepared for. ■

April 15, 2021

Dimensional at 40: Timeless Lessons from My Decades in Finance

Early in my career, I was lucky enough to work on one of the first index funds. It was an incredibly exciting time, because before that the only equity option for investors was to pick stocks. The academic evidence from people like Gene Fama—my graduate school advisor, who would later be recognized as a Nobel laureate—showed there was a better way to approach investing, but no one had put it into practice yet. So we did. Forty years ago, we started Dimensional Fund Advisors because we believed there was a way to invest that was better than stock picking and improved upon index funds.

Today, more than half of the wealth held in mutual funds and ETFs is in index funds, and Dimensional has grown to more than $600 billion in assets under management, largely through word of mouth and the growth of our clients.[1] As an industry, we've made incredible progress driving down costs, encouraging diversification, and developing innovative solutions that benefit investors. These advances have been profound for investors, and I believe it's just the beginning.



Longtime University of Chicago Professor Gene Fama received the 2013 Nobel Prize in Economic Sciences for his work on the empirical analysis of asset prices. Dimensional Fund Advisors would build upon research by him and other celebrated academics after the firm's 1981 founding.

Yet despite all of the progress, I believe people keep falling into the same old traps. They might chase the latest fads and keep picking stocks. (Just in the past year, we've seen frenzies surrounding FAANG stocks, Tesla, and GameStop.) They might try to time markets. Too many people may have sold at the bottom of the financial crisis in 2009 and at the start of the pandemic in 2020. These investors can hurt their chances of long-term success while adding to their anxiety. Investing doesn't have to be that way.

We need to change the conversation so that people can invest better—and live better. As we celebrate our 40th anniversary as a firm, I've reflected on what I've learned over the years that I wish every investor could know.

1. Gambling Is Not Investing, and Investing Is Not Gambling

Gambling is a short-term bet. If you treat the market like a casino, and you're picking stocks or timing the market, you need to be right twice—in an aim to buy low and sell high. Fama showed that it's unlikely for any individual to be able to pick the right stock at the right time—especially more than once.[2] Investing, on the other hand, is long term. While all investments have risk, there are things you can do as a long-term investor to manage hose risks and be prepared. As my dear friend and Nobel laureate Merton Miller said, "Diversification is your buddy." Investing, to me, is buying a little bit of almost every company and holding them for a long time. The only bet you're making is on human ingenuity to find productive solutions to the world's problems.

Merton Miller (center), Dimensional founding US mutual fund Independent Director, received the 1990 Nobel Prize in Economic Sciences for his contributions to finance.

2. Embrace Uncertainty

Over the past 100 years, the US stock market, as measured by the S&P 500, has returned a little over 10% on average per year but hardly ever close to 10% in any given year. The same is true of dozens of other markets around the world that have delivered strong long-term average returns. Stock market behavior is uncertain, just like most things in our lives. None of us can make uncertainty disappear, but dealing thoughtfully with uncertainty can make a huge difference in our investment returns, and even more importantly, our quality of life.

The way to deal with uncertainty is to prepare for it. Without uncertainty, there would be no opportunity to do better than a relatively riskless return like that from a money market fund. We always emphasize that risk and expected returns are related, which means you can't have more of one without more of the other. Make the best-informed choices you can, then monitor performance and make portfolio adjustments as necessary. Come up with a plan to get back on track in case things don't go as expected. And remember, you can't control markets, so don't blame yourself for results outside your control—try to relax knowing you've made the best-informed choices you can. A trusted financial advisor, a fiduciary who puts your interests first, can help you cultivate this sort of discipline and long-term perspective.

3. Implementation Is the Art of Financial Science

I was compelled to approach investing differently by the research Fama and other leading academics were doing to better understand markets and returns. There's general agreement on what financial science tells us, yet so much can be gained or lost in application. Just as some sports teams can consistently execute their strategies better than others, investment professionals can consistently add value by dealing better with market mechanics.

Bob Merton, our colleague, and Myron Scholes, a founding Independent Director of the US mutual funds, were recognized as Nobel laureates for their options-pricing model, which shows that flexibility has value. Great implementation requires paying attention to detail, applying judgment, and being flexible. That's what we've built our firm to do. We start with a fairly simple notion about markets and expected returns, and the real value comes from how we implement those ideas every day. It's important to us that clients understand we're advocating for them along every step in the investment process. What do we mean by "advocating?" That when it comes to implementation, the little things add up. We fight for every basis point, never forgetting that we're investing money our clients have worked lifetimes to save.

Dimensional Resident Scientist Robert Merton (left) and Dimensional founding US mutual fund Independent Director Myron Scholes accepted the 1997 Nobel Prize in Economic Sciences for their role in developing an options-pricing formula.

4. Tune Out the Noise

If an investment sounds too good to be true, it probably is. When people ask me if I'm investing in the latest shiny investment idea, I tell them, "If I don't understand something, I don't invest in it." That's because I've seen a lot of fads come and go.

TV pundits handing out stock tips? Friends letting friends in on their next big investment? I see these more as entertainment than information. Stress is induced when people think that they can time markets or find the next winning stock, or that they can hire people who can. There is no compelling evidence that professional stock pickers can consistently beat the markets.[3] Even after one outperforms, it's difficult to determine whether a manager was skillful or lucky.

The good news is you can still do well without having to find what markets might have missed. While markets are unpredictable and may even seem chaotic at times, they have an underlying order. Buyers and sellers come together and trade, which is the activity that sets market prices. Unless each side agrees to a price, they don't trade. New information and expectations about returns are quickly incorporated. Consistently finding big winners is difficult, but everybody can have access to the expected returns that a diversified, low-cost portfolio can generate.

5. Have a Philosophy You Can Stick With

It can be difficult to stay the investment course during periods of extreme market volatility. At the end of March 2020, the S&P 500 was down nearly 20% for the year. Record amounts of money exited from equity mutual funds and went into money market accounts. Those investors who stayed out of the equity market missed out on the subsequent 56% gain in the S&P 500 over the next 12 months.[4] We will all remember 2020 for the rest of our lives. It serves as an example of how important it is to maintain discipline and stick to your plan.

By learning to embrace uncertainty, you can also focus more on controlling what you can control. You can make an impact on how much you earn, how much you spend, how much you save, and how much risk you take. This is where a professional you trust can really help. Discipline applied over a lifetime can have a powerful impact.

These are the ideas upon which we've built our firm. Back when we started, we thought there was a better way to invest than what was on offer. We all shared a philosophy about markets and how they work. We believed that the transparency of markets and the way they incorporate all available information in real time could make investing fair to all. We believed we could add value—not just to the bottom line, but by helping change the industry for the good of all investors. We saw a better way, and we got to work.

I'm so proud of what everyone at the firm has worked together to achieve, not only building a successful business but also providing investment solutions to families and institutions around the world. That continues to be what guides us—bettering the investment and client experience and sharing all we've learned with those we serve. It's what we have done for the last 40 years and what we'll continue to do every year going forward. ■

Past performance is no guarantee of future results.

1. As of December 31, 2020, Dimensional had $601 billion (USD) in firmwide assets under management.
2. 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.
3. For details, see Dimensional Fund Advisors' *Mutual Fund Landscape* report.
4. Decrease of 19.6% was from January 1, 2020, to March 31, 2020. Increase of 56.35% was from March 31, 2020, to March 31, 2021.

The Seductive Nature of Fat Tail Distributions

David Booth: Market prices have shown us that certain companies have benefited from the way society has changed during the COVID-19 crisis. A group of tech-focused businesses, referred to as FAANG stocks, have seen their share values increase in ways that are challenging to put in perspective.[1] As my friend and colleague **Gene Fama** said recently:

These firms are entirely different from one another. And they are the end result of a process that started back maybe before 2000, where companies involved in various aspects of tech, of which there were hundreds, or maybe thousands at that point, were all competing to boil to the top. And these five or whatever boiled to the top, so we tend to concentrate on them and forget about the fact that most of this industry died. If you were trying to pick out who were going to be the winners back then, you probably have an empty sack at this point. What we have now are basically the ex post winners. But going ahead, we do not expect them to have 20% returns, never mind 34% returns or whatever the number is. That's out of the ballpark as far as an expected return goes.

But despite Gene's warning, stocks with 34% returns are pretty alluring to investors. This is because of what I think of as the seductive nature of fat tail distributions. The term "fat tails" is used to describe outliers in stock returns. Research has shown that there are many more extremely good and extremely bad returns than might seem reasonable. Fama wrote about fat tails in his dissertation 50 years ago, and the other day he said:

I wrote my thesis on outliers in stock returns, so it's not surprising that we see them. They've been around with relative high frequency for as long as there have been data.

His research partner, Ken French, continued:

I want to pick up on a point Gene was making, which is, returns are made up of two parts: there's the expected part; if you were looking forward, that's your best guess of what's going to happen; and then there's the unexpected part, the surprise, the deviation from your best guess. If we were to look at a relatively short period—and to most people, what Gene, David, and I would think of as a relatively short period is a long period—people are fooling themselves about what they can infer from random stock returns. And the best example I have right now… FAANG stocks.

Ken and Gene have spent their careers trying to figure out what expected returns are. Yet when we're meeting with clients, we're largely talking about unexpected returns, whether extremely good or extremely poor. FAANG stocks may make up part of a well-diversified portfolio. But a well-diversified portfolio is much more than those five stocks. That's why it's so important not to fall for the sirens singing songs of fat tails. ■

Past performance is no guarantee of future results.

1. Facebook, Amazon, Apple, Netflix, and Google (a subsidiary of Alphabet) are often referred to as the FAANG stocks.

David Booth on Value and Values

We built Dimensional around sensible ideas which are compelling, implementable, and well-documented by decades of investment research. When forming portfolios, we start by deciding how much to hold in relatively risky assets, such as stocks, and how much in relatively riskless assets, such as bonds and bills.

The stock-market premium, which is the expected premium return of stocks over Treasury bills, makes sense to us because stocks are riskier than Treasury bills. Bonds are backed by a promise to the investor, while stocks offer more uncertainty. Because the investor takes more risk investing in stocks than bonds, they expect to be paid a higher return.

I haven't met many people who expect stocks returns to be less than T-bills. But back when we started the firm, we found ourselves at the end of a 16-year period where T-bills had outperformed the stock market. The cover of *BusinessWeek* proclaimed, "The Death of Equities." People were saying the stock market would never be positive again. Then came the best 19-year bull market run in history.

In addition to the stock premium, we think it's reasonable to expect that holding small cap and value stocks in a greater proportion than they make up in the market will increase a portfolio's expected return. Not only does the research show this to be the case, but the value and size premiums make intuitive sense. Low-priced stocks, like value stocks or small cap stocks, should have higher expected returns. In both cases, they sell at lower prices relative to growth and large cap stocks. All other things being equal, the lower the price you pay for an asset, the higher your eventual return. As my friend and colleague Robert Novy-Marx has said, "I wake up every day expecting to see a positive value premium."

But obviously, that is not what always happens. All three of these premiums are not always positive. If they were, they would violate the notion of risk and return. So we've always understood and explained to our clients that there will be periods when one group outperforms another. That's what we're seeing right now with value.

It's uncomfortable, but it's not surprising. And it's also not that unusual. Fama and French estimate that over a 10-year period, there's a 15% chance the stock market will underperform Treasury bills, a 17 % chance value will underperform growth, and a 28% chance small caps will underperform large caps. This is basic statistics, as true now as it was when started our firm almost 40 years ago, and has to do with the size of the various premiums relative to their variability.

So there can be long periods of time when any of these premiums, stock market, value, and size, can go in either direction. And even during a long period, such as now without a positive premium, there's no compelling research that says size and value expected premiums should no longer be there, just as there was no compelling research that says the stock market premium should no longer be there, even at the end of that disappointing 16-year period.

We're often asked, how long do I have to wait to see positive premiums return? There's no obvious answer. But if you have a sensible, implementable idea, well-documented by academic research, why would you ever give up on it?

We focus on controlling what we can control, which is how we implement these strategies. We fight for every basis point.

If you're concerned about the performance of value stocks right now, maybe you own more than you're comfortable with. That's fair. But I've been doing this for 50 years, and again and again I see that returns come in spurts. That's why getting in and out of the market repeatedly is a bad idea. You frequently are going to get caught on the wrong side of your decision. Returns cannot be timed nor predicted, which is why long-term investors have to be patient if they want the chance to capture premium returns.

It's natural to question any strategy when returns are disappointing. We are a research-driven firm and for us to change our strategy we would need a brand-new theory, backed up by compelling evidence. Scientific rigor and the conviction that comes with it form the foundation of our core values, and that will never change. ■

Past performance is no guarantee of future results.

Glossary

Premium: Return difference between two groups of stocks.

Value stock: A stock trading at a low price relative to a measure of fundamental value such as book equity.

Value Premium: The return difference between stocks with low relative prices (value) and stocks with high relative prices (growth).

Profitability: Operating income before depreciation and amortization minus interest expense divided by book equity.

David Booth Essay Featured in *Worth*

Worth recently shared an essay by Dimensional Founder and Chairman David Booth on how investors can have a rewarding experience by changing the way they think about investing.

Living in Fear of a Market Downturn?

It's easy to feel anxious about investing these days. Those who claim they can foresee market moves are out in force, on screen after screen, citing factors such as trade wars or the inverted yield curve as signals that stocks will soon go down.

Maybe we will have a recession, maybe we won't—but be wary of predictions on how markets will behave. It's a losing game. The results of those who try to time markets or pick winners have been studied extensively, and there is no compelling evidence they do better than you would expect by chance.

The good news for investors is you can have a rewarding investment experience without trying to outguess the market. But you may need to change the way you think about investing.

I learned about this different way of investing when I took Gene Fama's economics class at the University of Chicago 50 years ago this fall. Professor Fama went on to become a Nobel laureate and remains my close friend and colleague today. One of Gene's many breakthroughs was the efficient market hypothesis, which implied that speculation and stock picking were a waste of time. Market prices reflect all available information—in real time, all the time—by bringing together buyers and sellers who voluntarily agree to transact.

If markets do a good job incorporating information into prices, what does that mean for investors? Answering this question has shaped both my professional and personal journey. In the early 1970s, it led to the development of index funds by my collaborators Mac McQuown and Rex Sinquefield. Jack Bogle later went on to make index investing available to all investors.

When starting Dimensional in 1981, we wanted to make it possible for investors to choose a path rooted in science and fueled by the power of markets. We were met with skepticism, but we fought on in pursuit of what we saw as a better approach than what was available. We now have nearly four decades of live results. Our strategies were built to draw insights from research and the academic community about what drives expected returns and then focus on implementing those insights well—balancing expected returns against costs and diversification every day.

The power of markets is still not broadly accepted. People continue to make rash decisions in times of volatility instead of waiting things out. Over the long haul, markets have behaved the way we hoped they would. In the nearly 100 years of data we have, for example, the U.S. stock market has returned 10 percent per year on average, though it has rarely returned that in any individual year. Think of the markets' force as a raging river. Any experienced rafting guide will tell you not to fight the rapids. You're better off charting your course, adapting incrementally and not oversteering.

There's more work to be done. The industry has advanced with science, but not enough. Even index funds, which were designed to deliver market returns, are now being used to try to time the markets. We can improve people's lives with better and safer financial services. That was true 50 years ago, and it will still be true 50 years from now. My hope for young professionals entering finance is that the industry embraces science, challenges norms and comes up with new ways to help more investors.

Many of those who have changed investing for the better are still at it. Just last month, Gene and his research partner Ken French—two of our company directors—published a paper studying the predictive value of the aforementioned inverted yield curve. They found no evidence that inverted yield curves predict stocks will underperform Treasury bills—again choosing scientific inquiry over conjecture.

If you're living in fear of the next downturn, consider shifting your thinking instead of your investments. Focus on controlling what you can control, such as how much you save, or finding the right stock/bond mix. As famous basketball coach John Wooden once said, "Don't mistake activity for achievement." Not doing anything is doing something—think of all those people who sold out of the market in 2008 and missed the last 11 great years for equities.

Know that there is a growing field of professionals fueled by science, not speculation. If you accept a different view of markets, the benefits can go way beyond just investing money. Learn the science, accept a few truths and live your life differently. One bonus may be a portfolio that stays on track even if we do experience another financial crisis. But it's the secondary benefit that really matters: less time worrying about things you can't control. ■

> *Think of the markets' force as a raging river. Any experienced rafting guide will tell you not to fight the rapids. You're better off charting your course, adapting incrementally and not oversteering.*

Past performance is no guarantee of future results.

YOU CAN DO IT

August 18, 2018

The Keys to a Good Investment Experience

In most endeavors, there are things you can control and things you can't. That's true in life. That's true in business. That's true with investing.

The good news about investing is that markets have rewarded investors over the long term. But over the short term—as anyone who has paid attention to markets knows—markets go up and markets go down. I thought it would be helpful to share some observations about the investment business and what it takes to have a good experience.

Things You Can't Control

The Random Performance of Traditional Money Managers

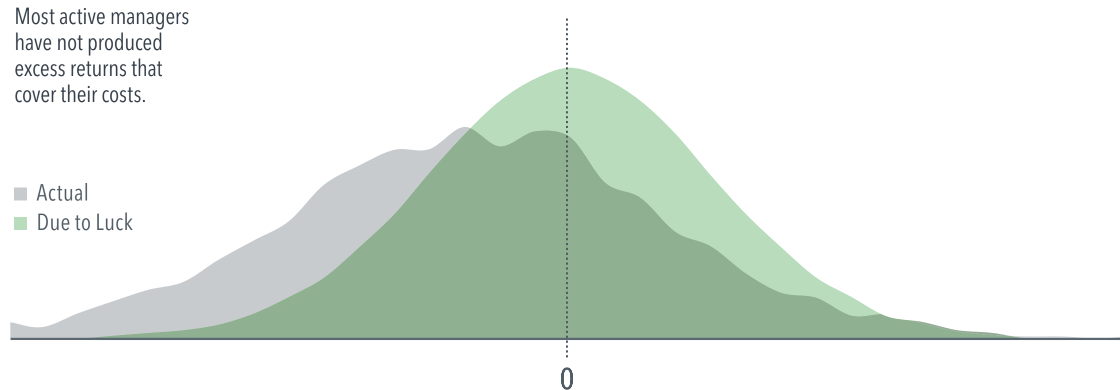
Few things have been studied as extensively as the performance of professionally managed funds. While the results indicate that some managers have good track records, there are far fewer of them than you would expect by chance.

What does that mean to investors? It means that even after analyzing all the data, you can't separate skilled money managers from lucky ones. And if you can't identify superior managers after the fact, how can you identify them in advance? Based on the overwhelming evidence, there is no magic to investing.

EXHIBIT 1

Distribution of Luck vs. Skill in US Equity Mutual Fund Performance

3,870 US Equity actively managed mutual funds, 1984–2015



Past performance is no guarantee of future results. The data shown here is derived from the CRSP Survivorship-Bias-Free Mutual Fund Database and Ken French's data library. Methodology based on Fama and French (2010). Please see disclosure in Appendix for important information regarding bootstrapped simulations and methodology details. Fama, Eugene F., and Kenneth R. French. 2010. "Luck versus Skill in the Cross-Section of Mutual Fund Returns." Journal of Finance *65, no. 5: 1915–1947. Meyer-Brauns, Philipp. 2016. "Mutual Fund Performance through a Five-Factor Lens." Dimensional Fund Advisors.*

The Uncertainty of Markets

Throughout their lives, people must continually deal with uncertainty and make choices—what school to attend, what career to pursue, where to live, and so forth. You make these decisions without knowing the outcomes. You look at all the possibilities, and then you decide.

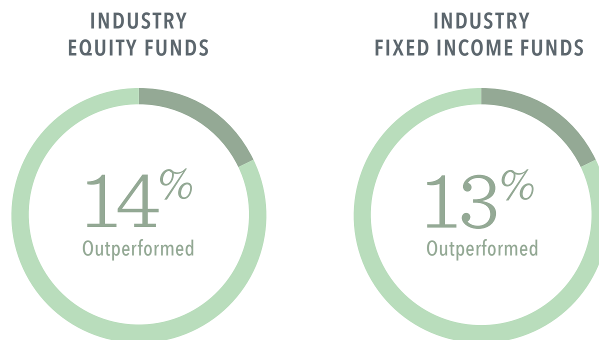
Much of the financial services industry is geared toward making people think they can eliminate uncertainty in investing. However, the future is unknowable. The best approach to dealing with uncertainty is to make informed choices, adjust as your needs and objectives change, and be comfortable with the range of possible outcomes.

EXHIBIT 2

Industry Mutual Fund Performance

US mutual funds over 15-year period ending December 31, 2017

Over time, few mutual funds have outperformed their benchmarks after costs.



Past performance is no guarantee of future results. The sample includes funds at the beginning of the 15-year period ending December 31, 2017. Survivors are funds that had returns for every month in the sample period. Winners are funds that survived and outperformed their respective Morningstar category benchmark over the period. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. See Appendix for more information.

Things You Can Control

Developing an Investment Philosophy You Can Stick With

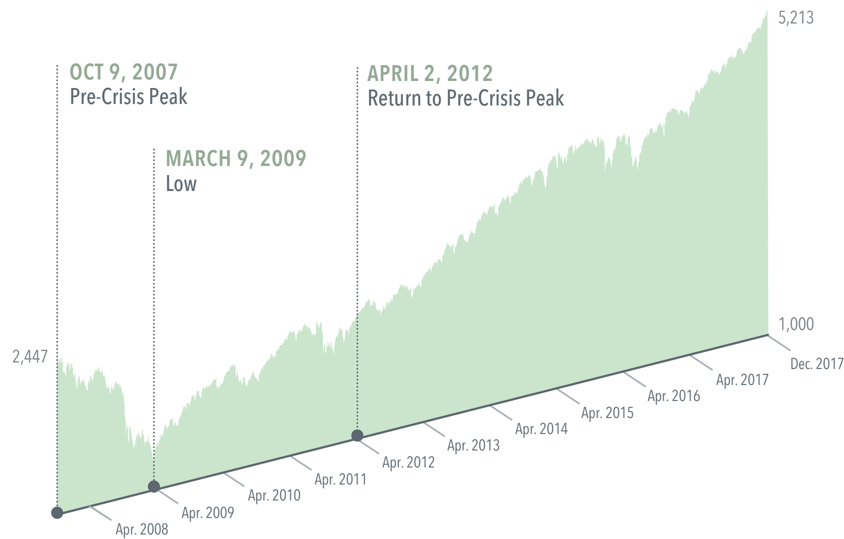
A philosophy serves as a compass to guide you through turbulent times. When you've got a compass, it doesn't take drastic directional changes to find your way. Small adjustments are all you need to stay on course.

In 2009, the US stock market was down more than 50%, which seems to happen about once every generation. A lot of people were stressed out by the uncertainty, so they cashed out. That locked in their losses. The market, as it turned out, rebounded and some of those people who got out of the market may have to wait decades to get back to where they were. It's unfortunate they didn't stick it out so that they could have better weathered the storm. Index is not available for direct investment; therefore, its performance does not reflect the expenses associated with the management of an actual fund.

EXHIBIT 3

Weathering the Storm

This example shows the performance of the S&P 500 index in the US during the global financial crisis. In five months, the index lost more than half of its value. Roughly three years later, the index returned to its pre-crisis level.



Past performance is no guarantee of future results. Index is not available for direct investment; therefore, its performance does not reflect the expenses associated with the management of an actual fund.

Trusting Your Strategy and Being Patient

Trust involves many different parts. To trust markets, you must understand how they work, which means having a source of reliable knowledge. The best source is scientific research, not opinions and hunches. You must also trust the professionals who are managing your investments, which should involve a clear understanding of what services and expertise you are buying and what you are paying in fees and costs.

Most people lack the knowledge to manage their own investment portfolio. A trusted financial advisor can help you figure out your goals, present different ways of forming portfolios, and ensure you understand the possible distribution of outcomes. This way, you can make informed choices about how to invest. Your advisor then keeps watch over what is happening, and together you revise your investment plan if needed.

> ***Investing is a dynamic process and a lifelong journey. It's having a philosophy you can stick with, considering the range of possibilities, and adjusting along the way.***

These are the keys to a better investment experience. Stay disciplined, control what you can control, and keep a long-term view on your destination so you can focus on what really matters and enjoy your life. ■

December 18, 2023

Many Happy Returns

This past year had its share of financial uncertainty, from inflation and rising interest rates to volatile stock and bond markets. Headlines added to the unease, from the growth of artificial intelligence (AI) to the collapse of Silicon Valley Bank and other lenders to the threat of government shutdowns. So it's no surprise some people feel anxious right now. When it comes to investing during trying times, it can be easy to lose track of how well markets function. Spoiler alert: They've been working just the way we'd expect.

The reason why? Human ingenuity. Throughout history, there have been people and businesses working hard to make the world better. Solving problems can generate profits, and profits lead to market returns. That's why I say the market runs on human ingenuity.

Despite all the stressful headlines, including geopolitical crises from Ukraine to the Middle East, the MSCI All Country World IMI Index returned 15.5% through the first 11 months of the year.[1] In fact, since the global pandemic started in 2020, that index has averaged about 6.8% per year, which is in line with its historical returns.[2]

So when taking the time to reflect on lessons from this year, make sure to reflect on markets and how they worked. Markets do a good job of processing information and incorporating it into the prices of stocks and bonds. Trying to time markets or find mispricings is a waste of time—unless, of course, you know something that other people don't, before anyone else can make a move.[3] I don't. Do you?

When I look back on this year, I'm struck that so many of the crises around the world have been priced into the market. It's not surprising to me that when interest rates went up, bond yields increased. Whatever happens, the market seeks to adjust appropriately. That's as true for the potential of AI as it is for the prospect of a government shutdown. That's what we said in the first quarter of 2020, when COVID started spreading around the world.

> *I believe that the key to successful investing is to cultivate a long-term perspective, where you think in decades, not days.*

I believe that the key to successful investing is to cultivate a long-term perspective, where you think in decades, not days. Anxiety, not information, is trying to get you to make short-term moves. So how do you stay focused on the long term? Developing a financial plan you can stick with, built upon a strong investment philosophy, will put you in a good place to withstand uncertainty.

These principles can help you stay grounded, even in moments of doubt:

- Find hope in the power of compounding.
- Ask yourself, "What's your true net worth?"
- Make sensible connections between health and wealth and apply the long-term discipline needed to reap the benefits of improvements in both.

So when you look back at the past year, remember that people have memories; markets don't. I can confidently predict that in the future there will be recessions, interest rates will change, elections will be decided, and AI will impact your life in some way. The great news in all of this is that you don't have to make any predictions in order to have a good investment experience.

When I look back at not only this year but the previous 50 years of my career, human ingenuity keeps winning. I used to think I was an optimist, but now I think that maybe I'm just a realist. ■

1. Indices are not available for direct investment. MSCI data © 2023, all rights reserved.
2. Indices are not available for direct investment. MSCI data © 2023, all rights reserved. The return of 6.8% is from January 2020 through November 2023. Since the index's inception in 1994, the annualized compound return is 7.07%.
3. Eugene F. Fama and Kenneth R. French, "Luck versus Skill in the Cross-Section of Mutual Fund Returns," *Journal of Finance* 65, no. 5 (October 2010): 1915–1947.

December 20, 2022

This Has Been a Test: Developing a Financial Plan You Can Stick With

Think back to December 2019. The economy was humming. Unemployment, interest rates, and inflation were at historically low levels. But then what happened?

- A global pandemic hit. By the end of March, the S&P 500 had dropped nearly 20% in value.[1]
- Later in the year, scientists announced that they'd developed a vaccine, and markets roared back.
- FAANG stocks soared … before giving up a lot of gains.[2]
- Meme stocks shot way up … and fell back down.
- Bitcoin and other cryptocurrencies reached record highs … and then crashed.
- Inflation spiked to the highest levels most of us have ever experienced.[3]
- And Russia invaded Ukraine, sparking a humanitarian crisis and geopolitical uncertainty.

I don't know anyone who predicted all of that back in December 2019. But what if someone had? What would you have done?

Next question: What if that person told you that, despite all that news, the Russell 3000 would average a return of 10% a year over the next three years?[4] Would you have believed them? Would you have stayed in the market?

Because that's what happened. A yearly return of 10%! That's pretty darn close to the stock market's historical average over the past century.[5]

The conclusion I hope you reach is that it's unrealistic to think you can outguess markets. You're probably better off expecting that markets do their job of capturing the human ingenuity taking place every day across thousands of publicly traded companies around the world.

What do I mean by markets doing their job? When news of the pandemic hit, markets adjusted and prices went down. In other words, when uncertainty peaked around March 2020, investors demanded a higher return to jump into the market. Then, when news of a vaccine spread, the market adjusted its expectations accordingly. In the short term, there are often wild swings up or down. Making a change during either can be dangerous.

The past three years were a good test of whether or not you had an investment plan that was sensible to stick with. So take a moment to think about why you did what you did, and prepare for next time. Because the next three years may be just as uncertain.

First, make sure your investment plan is sensible and based on financial science. Second, make sure it's realistic for you and your own unique situation. Even the greatest plan is no good if you can't stick with it during tough times. Invest in markets in whatever asset mix is right for you. If you're not sure, talk with a financial advisor who can help you.

> ***What has stayed constant throughout my life is the power of people to make progress in the face of challenges.***

I don't make predictions, but I do believe in the power of human ingenuity to fix problems big and small, innovating the whole way. What has stayed constant throughout my life is the power of people to make progress in the face of challenges.

We've seen it in the fight against COVID-19, where vaccines developed at lightning speed are now being administered around the world. We've seen it in the continued progress of gene therapy, which is revolutionizing the treatment of multiple diseases. So as we start 2023, let's remember the lessons of the past three years. Let's develop—and stick to—plans that take us through the short-term ups and downs of market fluctuations so we can capture the long-term benefits of human ingenuity. ■

Past performance is no guarantee of future results.

1. Decrease of 19.6% was from January 1, 2020, to March 31, 2020.
2. Facebook-parent Meta, Amazon, Apple, Netflix, and Google-parent Alphabet.
3. Gwynn Guilford, "U.S. Inflation Hit 7% in December, Fastest Pace Since 1982," *Wall Street Journal*, January 12, 2022.
4. Russell 3000 Index annual returns, December 2019–November 2022.
5. S&P 500 Index annual returns, 1926–2021.

October 28, 2022

Trust the Financial Advisor Who Trusts the Market

With over 200,000 financial advisors in the United States, how do you pick one?

First, eliminate the stock pickers. Those are the people making predictions about which stocks are going to be winners and losers. Cross off the market timers, too. They're the ones who get into and out of the market, trying to buy the dip and sell at the peak. The problem with these strategies is that it's unlikely any individual will be able to pick the right stock and the right time—especially more than once.[1] Over 50 years of research confirms that people can neither pick stocks nor time markets consistently year after year. The smartest person on the planet isn't as smart as the market. Markets are smarter than advisors and smarter than I am.

Why is that so? Markets do a sensible job for sensible reasons. Buyers and sellers have to come together to make a trade. Prices have to be low enough to attract new investors and high enough to entice someone to sell. Both sides have to feel good, or they don't make the trade.

That's why you should trust the financial advisor who trusts the market.

These are people who help investors try to capture the returns of the market rather than attempting to outsmart it. Decades of research supports this strategy. So does the explosive growth of index funds.[2] Our company is based on additional research that has provided insights into how to pursue higher expected returns than index funds offer. But all these strategies are based on the commonsense idea that markets do a good job of incorporating information into prices. We see that every time a big piece of financial news sends stocks up or down.

Think of the market as a giant information processing machine. Prices change as millions of buyers and sellers react to new information coming into the market. Prices settle at "fair" values that seems reasonable to both the buyer and the seller. This should be reassuring to people and give them the confidence to trust the market rather than to fight it.

Historically stocks have returned about 10% per year.[3] That's about 7% above inflation and 6% above what people think of as riskless assets like money market funds. Naturally there are variations, and there is no guarantee, but I think these are generally reasonable returns to buyers of shares in a company. Markets seem to operate the way people hope, which gives us a fair chance of winning.

What's the catch in all this? It's daunting to figure out what exactly to do, how to develop an investment plan. But you can't avoid it. Few things are more important than developing a well-thought-out plan when investing your life savings.

In my experience, it's easy to agree with these principles, but it's hard to stick with them when times get tough. You need to be a long-term investor.

If you accept these fundamental principles of markets and how they work, you owe it to yourself to find an advisor who does too. So trust the advisor who trusts the market. ■

Past performance is no guarantee of future results.

1. 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.
2. Index investing has grown considerably in recent decades, with US equity index funds representing 52% of the US equity fund market at the end of 2021. Data sourced from Morningstar; funds of funds are excluded.
3. S&P 500 Index annual returns 1926–2021.

June 22, 2022

So What's Your Plan for the Bear Market?

A lot of people are stressed out about a lot of things right now. Markets are down. Prices are up for many of the things you need to buy. Interest rates are rising and make it a confusing time to consider buying or selling a house, or making other major financial decisions. This all adds to the stress you may be feeling about your job, the ongoing pandemic, and the health of loved ones.

If you're stressed out about what is happening right now in the stock market, there is a better way to invest.

This isn't about a way to guarantee you a higher return. (For the record, if anyone guarantees you a higher return, stop reading that article or end that Zoom call). This is about having a plan for how you invest. It should prepare you for times like this when the market quickly falls. It should also prepare you for when the market quickly goes up (like it did right after the pandemic started). It should be a plan that lets you stay invested for the long term.

> *When choosing how much you want invested in stocks, balance the regret you would feel when markets go down with the regret of missing out when things turn around.*

But this plan is not the same for everyone. Because each of us is in a different situation. Different people can stomach different amounts of risk. That's based on what our goals are, how our brains are wired, and what we have lived through. When my dad died, I went to the small bank in the Kansas town where he'd lived and found a stash of cash in his safety deposit box. He had lived through the Depression. That was a time of deflation. Keeping cash in the safety deposit box was what he needed to feel safe, based on the life that he lived. That's not my plan, but it was his.

Everyone is different.

Yet everyone faces the same ups and downs in the public markets. So what's your plan?

- First, answer the question, "Why are you investing?" It's not a plan if there aren't goals. If you want to retire in 30 years, you may be able to bear more risk in order to maximize the growth of your portfolio than you would if you hope to retire in three years.
- Then, determine what balance of bonds and relatively more risky stocks is comfortable for you. If you reduce the percentage you have in stocks, you may feel better when markets go down, but you have to balance that with feeling like you're missing out during times when the markets go up.
- Focus on controlling the things that are in your control—like saving more and spending less.

If you find yourself tempted to make a change, think carefully about whether you're moving from one long-term plan to the next long-term plan. Trying to time short-term moves has more in common with gambling than with long-term investing plans.

When I look back over my past 50 years as an investor, I can make a long list of all the shocks that made markets go down. People are talking about high interest rates now. I remember in the early 1980s buying an apartment in Brooklyn with a loan that had a 15% interest rate. I didn't like it, but I didn't have a choice, because I needed a loan if I wanted to buy that apartment.

We have to accept that these shocks will happen. We should prepare for them rather than try to predict them. This time there is inflation, fear of a recession, a war in Ukraine, and increased volatility. We don't know when this will end. We also won't know exactly what will cause the next shock or when it will occur. The only thing I can guarantee is that it's going to be a surprise (because if it weren't, the market would have priced that in).

As a long-term investor, here's the good news: You can capture the returns of the market without having to accurately forecast (which is great, since almost no one is consistently good at that). So in times like this, when stock prices go down, the market is setting prices so shares will have a better return and attract buyers. When you see a big drop, prices are lower so that, going forward, the people who buy have a greater chance of having a positive outcome.

That doesn't feel great if you bought Netflix in the last couple years, but that's why I don't encourage people to buy individual stocks. I love that people can easily diversify and spread out their risk. When choosing how much you want invested in stocks, balance the regret you would feel when markets go down with the regret of missing out when things turn around.

When you can be a long-term investor and think in terms of decades rather than years, you have the greatest chance of capturing the power of compounding. Those little extra gains add up over time. It helps explain why over the past 95 years (including all those shocks that have happened), the return for the general stock market has been around 10% a year.[1] Markets rarely return 10% in any one year, but over time, long-term investors have been rewarded with that longer-term average. I think that's amazing. But I also know it's tough to stick it out. Because it means that you have to get through these tough times, even when the market has gone down and down.

I don't like to tell people what to do. I never told my dad what he should do. But I do want to help. I know how stressful this can be. I have always tried to share my perspective on investing with the hope that it can help people be long-term investors who have the greatest chance of meeting their goals. I know that right now is tough for many people. But I have seen over my career how many people have benefited from creating a plan that made sense to them and that they could stick with. It's not always easy, but it's the best option I know of.

And it's never too late.

So what's your plan? ■

Past performance is no guarantee of future results.

1. S&P 500 Index annual returns, 1926–2021.

David Booth on Righting the Ship

None of us has ever lived through anything like what we are experiencing with COVID-19. People are worried about their health and the health of their loved ones. They are asking when can they get back to work, or for those that have lost their jobs, when can they start looking for work. Everyone wants to know when we'll be able to get to the other side of this problem. I do, too.

Any time there is uncertainty, and perhaps there has never been more than right now, people want forecasts. If you know me, you know I'm not in the forecasting business. If anything, this crisis should remind us all how bad people are at predicting the future. Who predicted six months ago that the world would look like this today? I doubt one out of the eight billion people on this planet did.

So while I don't have a crystal ball to see into the future and tell you when this will be over, I do have a lot of hope. That hope is based on what I am seeing around the world. The energy and expertise of the human race is focused on this one problem. I've never seen anything like it.

Governments are jumping in trying to keep economies afloat. Even in the US, the legislative and executive branches have been working together. How many people a year ago would have predicted that a bipartisan bill worth $2 trillion dollars would pass? Yet another example of why I don't forecast.

The Federal Reserve is doing a great job. What we're seeing is so different from the Fed's response to the Great Depression. Back then, they did all the wrong things like draining liquidity out of the system. They didn't know what was happening. Today, things are very different.

What's the optimal amount of liquidity? We don't know exactly, but we've learned that it's better to overshoot than undershoot.

Medical scientists are constantly developing new tools to fight this thing, from testing to treatments. They are studying antibodies and immune systems, and hopefully we'll soon have a vaccine in place. Great treatments are likely to happen even sooner.

In the private sector, business owners are doing their darndest to keep people employed. No one likes laying off their workers. Businesses want to grow, not shrink. I am so impressed with how resourceful and creative people have been in doing so much work from home. Watching all this happen within my firm has just been remarkable.

There's been a lot of pain. There'll be more ahead. Lives are being lost. Many find themselves without jobs that were very secure just a month ago, but I believe things will get better.

So I may not know the when, but I do know the who, why, and how. Human beings are wired to improve their lives and the lives of others. We're all pitching in and trying to help in every way we can. Washing our hands, checking on elderly neighbors, paying our dog walkers not to walk our dogs. It's the big things and the little things. There's so much spontaneous goodwill. This is what people do. We help each other. We fix problems that need fixing. That's the core of every great business.

And that's why I have so much hope. While I may not know when we will right this ship, I have never felt more certain that we will. ■

Past performance is no guarantee of future results.

Righting the Ship: One Year Later

In early 2020, as the COVID pandemic spread, the world effectively shut down. By March, the S&P 500 had dropped nearly 20% in value.[1] In an essay around that time, "Righting the Ship," I addressed the question everyone was asking: When will we be able to get back to normal?

While I didn't make any forecasts, I believed then that the public and private sectors would come together to create solutions to this unprecedented challenge. That's exactly what has happened.

The question I want everyone to ask is: What lessons should we take from this past year?

When I think about what got people through a year of uncertainty, it's human relationships. FaceTime and Zoom helped keep families, friends, and coworkers connected even when we needed to be isolated. And many investors persevered because of the strength of their relationships with those advising them—independent advisors, consultants, or the staff at an institutional fund. There are many financial advisors who are skilled at helping clients through the tough times. Those advisors have rarely been needed so much.

Because investing is inherently complex. The job of a financial advisor then is to handle that complexity so their clients don't have to. Too many people, left to their own devices, end up bailing out of markets when they shouldn't. Investing is largely about making informed choices, and most people would benefit from having a professional on their team. A financial advisor can help you develop solutions you can stick with and keep you on track during the inevitable times when markets are down.

And quantitative analysis represents only a portion of what the financial advisors we work with do. They also devote time to calming anxious clients and helping them stay disciplined when things are tough. They know from experience that a long-term investment approach—one you can stick with through thick and thin—is what enables people to best meet their life goals.

This past year has reinforced why that matters. At the bottom of the market, in March 2020, a lot of investors thought about getting out. But, by the end of the year, markets had not only rebounded, but they were in positive territory. In the middle of a global pandemic, many investors still believed in the power of human ingenuity to solve problems and stayed invested. And those who stayed true to their investment philosophy—and stayed invested—were rewarded. Those who got out at the bottom of the market—and stayed out—lost big.

Today, markets have largely recovered—and then some. Investors who stayed invested should be back on track to achieve their financial goals. For those who did get out at the bottom and stayed out, I hope what happened reinforces the importance of having a good long-term plan.

We've said the same thing after every major crash, and we'll say it again after the next one. The alternative to having a long-term plan is trying to time short-term market movements, which has more in common with gambling than investing.

So how do we keep everyone moving forward? By staying invested for the long term. I find comfort in believing in the market—especially during difficult times—because it represents the power of human ingenuity. Of people coming together and finding creative ways to push ahead. Investing in the broad stock market means putting your money behind thousands of companies representing the passion and skills of millions of hardworking people working to make their lives better.

What did I learn from this year? That those of us who know there is a better way to invest must do everything we can to share these ideas. When the next crisis strikes—and it will—we want our loved ones to be prepared with a philosophy they can stick with. So we know what we want to do and let's start now. ■

Past performance is no guarantee of future results.

1. Decrease of 19.6% was from January 1, 2020, to March 31, 2020.

February 11, 2021

Think Investing Is a Game? Stop.

It's easy to view the stories of market speculation that have dominated the news recently as cautionary tales for individual investors. But we can also look at the current moment as an opportunity to welcome a new group of investors to the market: those who have been drawn in by all the high-stakes action, and yet may want a consistent, long-term investment solution that doesn't keep them up at night. This is probably a good time to mention that investing and gambling are not the same thing.

If you're not the type of person who feels comfortable betting your life savings on a long shot, the good news is that you don't have to find the next big stock to win in the stock market. Concentrating your whole investment on one or two companies means the stakes are high enough to expose you to unnecessary risk. Even if you manage to land a few big winners, our research has found that good luck is unlikely to repeat throughout a lifetime of investing. For every individual who got in and out of a hot stock at the right time, there's another who bought or sold at the wrong time. If you treat the market like a casino, not only do you have to pick the right stock, but also the right moment.

I've always believed you're better off betting with the whole market than on individual stocks, through a low-cost, highly diversified portfolio. Then let time and compounding do their work. Compounding is the investor's best friend: if an investment grows at a rate of 10% a year, that means a dollar invested has doubled every seven years.[1] As a point of

reference, the S&P 500 has grown at rate of 10.26% since 1926, though it's worth noting that the path is rarely smooth.

With all the options now available to investors, putting together a solid investment plan—one that you can stick with—is key. Markets have never been so accessible, and information has never been so widely available. And despite the fact that stories of stock-market gambling keep making the news, many investors have managed to enjoy growth in their investments using low-cost, highly diversified strategies like index funds.

Indexing has turned out to be a good solution for many people. I was involved in the creation of one of the first index funds early in my career, and I've enjoyed watching the positive impact indexing has had on the industry. For those who want more customization and flexibility, there are ways to build on the strengths of indexing while correcting for some of its weaknesses. At Dimensional, we've been working on improving upon indexing for the past 40 years.

If you're looking to become a long-term investor, commit to a long-term strategy that takes your own personal goals, situation, and risk tolerance into account. (A financial advisor can help with this part.) And remember that although the US stock market has returned about 10% a year on average, returns for individual companies and individual years can vary wildly. (We call these uneven distributions "fat tails.") It's always important to look at the big picture. A huge win on a stock bet today doesn't mean much if you lose it tomorrow.

Investing is a lifelong journey. Making money slowly is much better than making—then losing—money quickly. ■

Past performance is no guarantee of future results.

1. Information is hypothetical and assumes reinvestment of income and no transaction costs or taxes. For illustrative purposes only and is not indicative of any investment.

September 25, 2021

10 Obstacles to Investing—and How to Overcome Them

We've learned a lot about investing over the past 60 years, a period that has seen many breakthroughs in the world of finance. What we know comes from studying public markets and is grounded in serious academic research. The lessons are clear: Investing in markets is an excellent plan for meeting long-term goals, like maximizing your retirement income. When you develop a deeper understanding of public markets, you can cultivate a sense of optimism about investing.

Two ideas are at the heart of embracing this approach:

First, markets provide a way for both sides to win. In order to trade, both buyer and seller have to agree on a price. If either side felt the price wasn't meeting his or her needs, hey wouldn't trade. This is what we mean when we say market prices are fair.

Second, markets allow all of us to invest in human ingenuity—and get paid for it. We want to help as many people as possible access what markets offer in investment opportunities and wealth generation so they can live better lives.

Even though the investment principles we run on are simple, they aren't always easy to understand and accept. Many people struggle with some of the basic concepts behind long-term, highly diversified investing—it's a matter of human nature.

Here are some of the objections I've encountered. I think most of us can relate to at least one of them.

1. "I don't see the point of investing in the first place."

Any decision you make with your money—even not investing—is an investment decision involving risk and rewards. You're focused on the risk involved in investing. But what are you risking by not investing? You're risking today's money having less value in the future because of inflation. You're missing out on the magic of compounding, which Albert Einstein is said to have described as the Eighth Wonder of the World. (Assuming an average 10% return, as the S&P 500 has returned historically, money invested in the stock market doubles every seven years.) You're forgetting that diversification—spreading your investments across a large number of companies—is a powerful way to minimize risk. When it comes to personal goals, everything has a tradeoff. Most people don't have enough money saved to be able to live adequately in retirement without earning some kind of investment return. In the simplest terms, by not investing, you risk outliving your money.

2. "I'm too late. The train has left the station."

It's natural to feel regret about decisions you're unsure about. But it's never too late to invest. Every day, we expect the stock market to go up. Otherwise, investors would find other things to do with their money.

3. "When it comes to investment advice, I don't know who I'm supposed to trust."

Here's the good news: You don't have to "trust" anyone. Just trust the market. No human being can tell you more than the market has already told you through setting prices. Markets are always reacting to new information in real time. Anything you hear a pundit say on TV or read on an internet message board is yesterday's news. And it may seem obvious, but you have to remember: There's a difference between fact and opinion. Cultivate a healthy sense of skepticism when it comes to financial punditry, and remember that it's not news, but entertainment. And if you need a trustworthy sounding board, consider meeting with an independent financial advisor, whose interests are aligned with your own.

4. "It's too hard to figure out when to get into—or out of—the market."

Human beings have a natural urge to transact. But getting into and out of the market is gambling, not investing. If you treat the market like a casino, and you're picking stocks or attempting to time the market, you need to be right twice—in an aim to buy low and sell high. Fortunately, you don't need to time the market to have a good investment experience.

Professor Eugene Fama, a Nobel laureate in economic sciences, showed that it's unlikely for any individual to be able to pick the right stock at the right time—especially more than once.[1] Once you decide to be a long-term investor, the timing debate is off the table. And that's a big relief. When you buy the whole market, you're investing in human ingenuity to find productive solutions to the world's problems.

5. "I'm afraid I'm going to lose it all."

If you're lucky enough to live a long time, you'll face big market downturns. You're much more likely to "lose it all" with concentrated investments than with a well-diversified portfolio. Individual investments may go to zero, but the modern-day market has been around for almost a century, has an average annual return of 10%, and has never lost more than 43% in a year.[2]

6. "I don't know what I don't know, and that makes me nervous."

It's OK to be nervous! If investing were a slam dunk, there wouldn't be a positive expected payoff. In order for an investment to offer the possibility of a return above money-market funds, it needs to carry risk. And when it comes to deciding how to grow your hard-earned money, the stakes are high. Uncertainty is scary, but without uncertainty, there would be no opportunity. Stock market behavior is uncertain, just like most things in our lives. None of us can make uncertainty disappear, but dealing thoughtfully with uncertainty can make a huge difference in investment returns and quality of life. Your challenge is to stick with an established plan. A financial advisor can help.

7. "I only want to invest in companies I'm familiar with."

Stock markets contain all of the publicly traded companies out there. Every company has an incentive to do better. Investing in human potential across a broad range of companies is more likely to pay off than trying to predict which individual company is going to perform best. You can do well without having to outguess the market.

8. "I'm afraid there's going to be another financial crisis."

History shows us that there's always going to be another financial crisis—and another recovery. Every crisis has a different cause, so it feels different every time, but the market has always delivered a positive return once things settle down. Crises, by definition, are not predictable. Markets are forward-looking and remind us of the power of human resilience.

9. "I'm overwhelmed. It's just too much to think about."

Inertia is a powerful force. Thinking a little bit about it right now means worrying a lot less in the future. Inaction comes with a price, but this is where a financial advisor can really help.

10. "I don't have enough money to invest."

When it comes to investing for your family's future, there is no minimum. The first and most important step toward investing is saving. It's human nature to procrastinate. Half the battle is just getting started. This can mean "paying yourself first" by directing a small percentage of each paycheck into savings. Putting money aside regularly becomes a feel-good habit, like exercise. You can witness your own incremental progress and the boost in self-esteem it brings. You'll be surprised by how easy it is to set this in motion, and you'll feel good—for yourself, and your family. Just look at these numbers: If you invest $100 today and then $100 per month for 30 years with a 10% return, you'll end up with almost $200,000.[3] ■

Past performance is no guarantee of future results.

1. 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.
2. S&P 500 Index annual returns, 1926–2020.
3. The performance reflects the growth of a hypothetical investment and assumes reinvestment of income and no transaction costs or taxes.

What's Your True Net Worth?

Many apps today claim to instantly calculate your net worth by adding up your banking and investment accounts and then deducting what you owe on your credit cards and mortgage. But in my mind, that number reflects wealth. Worth is more complex. Because I believe that if you make life better for someone else, then you're worth something. That's true in business, and it's true in life. My parents never made a lot of money, but they were worth a lot.

So what's your true net worth?

This is a tough question with a lot of moving parts. That's why I always encourage people to talk it over with their financial advisor. And if they don't have a financial advisor, this is a great reason to find one. Because this conversation is about deepening the connection between your life and your money and making sure that they are working together to meet your goals: finding the integration between wealth and worth.

It starts with talking about what's important to you. What are your goals? Which are your most important relationships? What are your values? Everyone may answer differently. That makes sense to me, because everyone is different.

Once you identify what's really important, your advisor can help build a plan that gives you the best shot of reaching those goals. But this isn't a set-it-and-forget-it situation, because life events may require you to adjust your plan. In fact, a plan is really more of a process that helps

you think through a range of possible outcomes—all the way from preparing for the worst to hoping for the best.

At Dimensional, we call this path L.I.F.E., which stands for Lifetime Integrated Financial Experience. Money management is a lot more than just buying and selling stocks. It should find ways to connect individual financial goals to life goals over the long term. It should offer personalized solutions, because no two investors are alike. It should value not just wealth, but also worth.

Dealing with uncertainty is central to this approach. Some of us are better at handling uncertainty than others, but we've all had to deal with it. Because life is full of surprises—some good, some bad. You might not get into the school of your choice, but that might lead to an unexpected opportunity. You might marry and start a family, but later divorce. Any one of these experiences may change your goals or require you to adjust your plan.

Just as life is complex and full of uncertainty, so too is investing. At Dimensional, we apply insights from financial science. Financial science emerged in the 1960s, when researchers gained access to data they could use to test their hypotheses. It was a huge change. It didn't mean that we could start to predict what was going to happen with the stock market. But it gave insights into developing strategies to give you the best chance of meeting your investing goals.

That's the long-term goal with Lifetime Integrated Financial Experience. But there's an immediate one, too. Which is to lower your anxiety and help you feel better about your life right now so you can spend more time—and better time—with the people you care about most, and focus on what you value.

People are naturally concerned about their own lifetime financial experience, but maybe even more about the financial future of the people they'll leave behind. Legacy is a big part of net worth.

What kind of memories are you going to leave with the people you care about? At the end of it all, will you feel comfortable with what you've accomplished?

You don't have to deal with these tough questions alone. Make time for that really important conversation with your financial advisor: the one where you tell them what really matters to you. It could change your life. And it could help you figure out your true net worth. ■

Appendix

Distribution of Luck vs. Skill in US Equity Mutual Fund Performance: The data shown here is derived from the CRSP Survivorship-Bias-Free Mutual Fund Database and Ken French's data library. Methodology based on Fama and French (2010). Fama, Eugene F., and Kenneth R. French. 2010. "Luck versus Skill in the Cross-Section of Mutual Fund Returns." *Journal of Finance* 65, no. 5: 1915–1947. Meyer-Brauns, Philipp. 2016. "Mutual Fund Performance through a Five-Factor Lens." Dimensional Fund Advisors. The analysis follows the methodology of Fama and French (2010) and French (2008) using the Center for Research in Security Prices (CRSP) mutual fund data from 1984 to 2015. Only funds that invest primarily in US equities were included and different classes of the same fund were combined, with asset weights, into a single fund. To better focus on the performance of active managers, index funds were excluded from the analysis. To lessen the effect of incubation bias, funds with less than $50MM in assets under management as measured in December 2015 US dollars were not included in the analysis. A return history of at least 12 months after exceeding the $50MM AUM minimum for the first time was required to facilitate estimating benchmark regressions. Only funds that appear on CRSP at least five years before the end of the sample period were included in order to avoid a large number of new funds with short return histories. Tests for nonzero true α in actual fund returns use bootstrap simulations on returns that have the properties of fund returns, except that true α was set to zero for every fund. To set α to zero, a fund's five-factor α estimate was subtracted from its monthly returns. A simulation run is a random sample (with replacement) of 384 months, drawn from the 384 calendar months of January 1984 to December 2015. Benchmark regressions were then estimated, fund by fund, on the simulation draw of months of zero-alpha adjusted returns, and funds that are in the simulation run for less than 12 months were excluded. 10,000 simulation runs were performed to produce a chance distribution of t(α) estimates for a world in which true α is zero. The projections or other information generated by bootstrapped samples regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Results will vary with each use and over time.

Industry Mutual Fund Performance: The sample includes funds at the beginning of the 15-year period ending December 31, 2017. Each fund is evaluated relative to the Morningstar index assigned to the fund's category at the start of the evaluation period. So if, for example, a fund changes from Large Value to Large Growth during the evaluation period, then its return will still be compared to the Large Value category index. Surviving funds are those with return observations for every month of the sample period. Winner funds are those that survived and whose cumulative net return over the period exceeded that of their respective Morningstar category index. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. Index funds and fund-of-funds are excluded from the sample.

See Dimensional's "*Mutual Fund Landscape 2018*" for more details, including Morningstar categories included in the fund samples.

Past performance is no guarantee of future results.

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Facebook, Amazon, Apple, Netflix, and Google are often referred to as the FAANG stocks.

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