Planning Perspectives 3Q 2019

Integrity in Investing

Smarter Strategy for Retirement Income Planning

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PROFESSIONAL FINANCIAL
Purposeful Wealth Management

> ***"Dimensional's investment philosophy is about more than returns—it's about a great client experience that can help people really relax."***
> – **David Booth**, co-founder and chairman, Dimensional Fund Advisors

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

Key takeaways:

- The goal of retirement savings is a long-term steady stream of future income
- Comprehensive retirement planning must consider risks affecting a secure income
- Managing uncertainty of income withdrawals leads to better retirement outcomes
- Optimizing reliable lifetime income withdrawals after-tax is an ideal retirement planning goal
- Focus your attention on those risks you can control, and learn what choices matter for planning

Planning for a secure retirement income may seem overwhelming. How much should you save and invest? How much retirement income will your wealth provide? If you are already retired, how much can you confidently withdraw each year to enjoy your lifestyle, and be sure you won't die broke? What risks have you overlooked in planning? How should your portfolio be arranged so it is simple to monitor and maintain and communicate to your spouse or children if they ever need to take over?

Gaining clarity for making informed planning retirement decisions can dramatically impact the security of your future income, and make a big difference how long you may live well, your peace of mind in retirement, and the legacy you may be able to leave. A sound investment philosophy and the right knowledge that addresses critical retirement risks you will face lets you take meaningful steps today to improve your retirement security and maintain your current lifestyle in the future.

The worst investor thinking, and behavior tends to come at market highs and lows. Large U.S. stock indexes hit record highs in mid-2019. *The Wall Street Journal* keeps observing how "Stocks Climbs" and relates such movement to events such as "… Fed Chief Signals Rate Cut."[1] Retired clients come in for second opinions and proudly show off large portfolios mostly in U.S. large stocks—but again and again are unaware of severe concentration risks or even a casual knowledge of basic financial history that returns of those same U.S. stocks lagged those of bonds or bank CDs for over a decade after the 2000 tech bust.

Our goal as CFP professional wealth management experts is to provide a great client experience to "retire abundantly." As personal chief financial officers, we work closely with a virtual family office network. Clients pass through a purposeful wealth management process. Since investment management for planning retirement income is our core expertise, we are concerned about current media propaganda causing clients and prospects to think that maximizing portfolio returns is a valid goal for planning. Making such portfolio choices ignores serious investing risks investors do not understand or know even exist.

KEY QUESTIONS FOR INVESTMENT MANAGEMENT

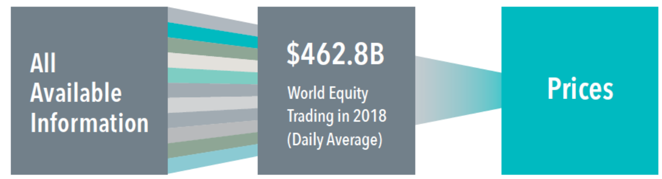
While some may have seen similar questions before, they remind us of critical financial concepts and principles which we tend to forget about over time due to information overload. Remembering these dramatically improve your odds of making successful investing decisions for retirement. These are based on decades of academic research that guide our implementation using the science of capital markets.

1. How much competition do investors face?

The market is a vast information-processing machine. Millions of market participants buy and sell securities every day as people risk real money, and the real-time information that brings helps set prices.

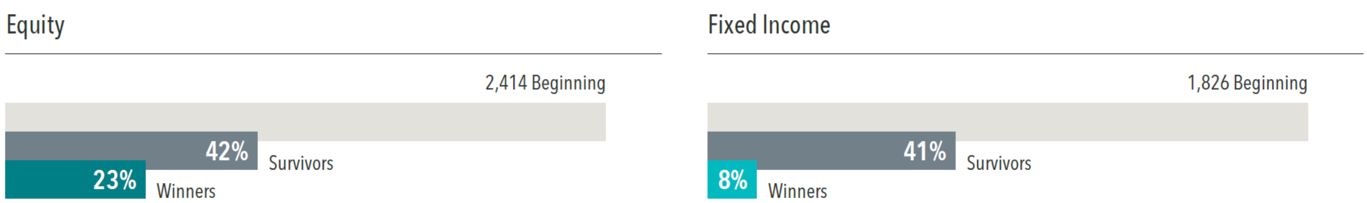
This means competition in the marketplace is intense and trying to outguess market prices is difficult for anyone, even professional money managers who have enormous research resources (see question 2 for more). *This is actually good news for investors.* Rather than rely on managers using traditional investment approaches futilely trying to find "mispriced" securities in a crowded field, investors can instead rely on information in market prices derived differently using techniques from modern financial science to better structure portfolios though an innovative dynamic implementation process (see question 5 for more).

Embrace Market Pricing



In USD. Source: Dimensional, using data from Bloomberg LP. Includes primary and secondary exchange trading volume globally for equities. ETFs and funds are excluded. Daily averages were computed by calculating the trading volume of each stock daily as the closing price multiplied by shares traded that day. All such trading volume is summed up and divided by 252 as an approximate number of annual trading days.

US-Based Mutual Fund Performance, *1999-2018*

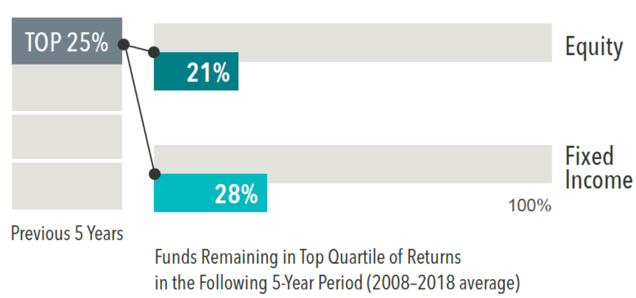


*Source: *Mutual Fund Landscape 2019, Dimensional Fund Advisors. See Appendix for important details on the study. Past performance is no guarantee of future results.*

2. What are my chances of choosing an investment fund winner that both survives and outperforms?

Flip a coin and your odds of getting heads or tails are 50/50. Historically, the odds of selecting an investment fund that will still around after 20 years are about the same. Combined with the chances of outperforming surviving funds, the odds are much worse. The market's pricing power works against traditional fund managers who attempt stock picking or market timing to outperform. One needn't look further than real-world results to see this. Based on research,* only 23% of U.S. equity mutual funds and 8% of fixed income funds have both survived and outperformed their benchmarks over the past 20 years. This assumes you were confident enough to stick with those funds in years when their returns were poor.

Percentage of Top-Ranked Funds That Stayed on Top



Source: Mutual Fund Landscape 2019, Dimensional Fund Advisors. See Appendix for important details on the study. Past performance is no guarantee of future results.

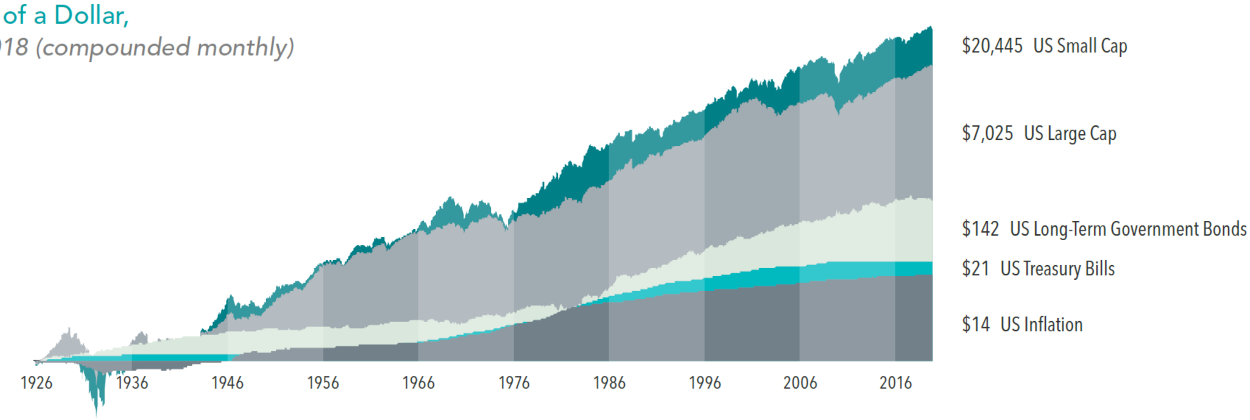
3. If I choose a fund because of strong past performance, won't it continue to do well in the future?

Most investors still select securities, portfolio managers, and mutual funds largely based on past returns. However, research shows that most funds having traditional active management styles (and by proxy, other non-fund managers) in the top quartile (25%) of previous five-year returns did not maintain a top quartile ranking in the following five years. In other words, past performance offers little insight into a fund's future returns. This is a serious concern for those who must plan for decades until retirement, and for retirees who similarly need to plan for decades after retirement. Research strongly suggests that traditional fund results do not improve with time. Indeed, for the few manager who do well, they retire.

4. Do I need to outsmart "the market" for a successful outcome?

Financial markets tend to reward long-term disciplined investors. Investors expect a positive return on the capital they invest for taking the risk of losing money, and historically, the equity and bond markets have provided wealth growth that has more than offset inflation and risk-free alternatives from banks. Instead of spending time and effort futilely fighting the markets and moving money around, consider a better way to let them work for you.

Growth of a Dollar,
1926–2018 (compounded monthly)



In USD. US Small Cap is the CRSP 6–10 Index. US Large Cap is the S&P 500 Index. Long-Term Government Bonds is the IA SBBI US LT Govt TR USD. Treasury Bills is the IA SBBI US 30 Day TBill TR USD. US Inflation is measured as changes in the US Consumer Price Index. CRSP data is provided by the Center for Research in Security Prices, University of Chicago. S&P data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Long-term government bonds and Treasury bills data provided by Ibbotson Associates via Morningstar Direct. US Consumer Price Index data is provided by the US Department of Labor Bureau of Labor Statistics.

5. Is there really a better way to manage investments and build wealth?

Decades of academic research has identified fundamental equity and fixed income "dimensions." These point to systematic differences of expected returns found among securities around the world. Years of rigorous study has shown these dimensions to be pervasive, persistent and robust over long periods. Instead of wasting time reading the paper or researching the internet trying to outguess market prices by traditional approaches or losing money by constantly changing funds to sell low when performance disappoints only to buy high again, investors can instead gain higher expected returns by structuring their portfolios and sticking with these dimensions.

Dimensions of Expected Returns

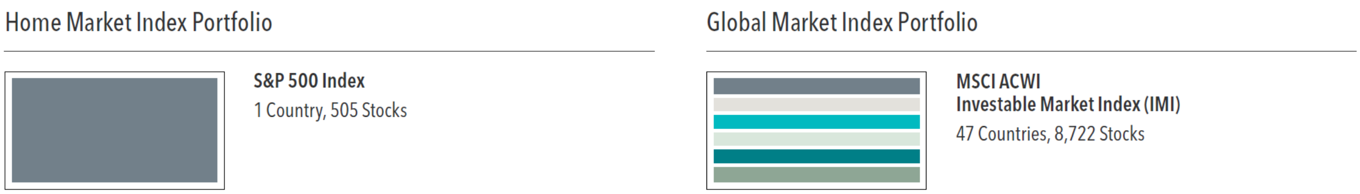
Equities			Fixed Income		
Company Size Market Capitalization	**Relative Price** Price/Book Equity	**Profitability** Operating Profits/ Book Equity	**Term** Sensitivity to Interest Rates	**Credit** Credit Quality of Issuer	**Currency** Currency of Issuance

Relative price is measured by the price-to-book ratio; value stocks are those with lower price-to-book ratios. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book.

6. Does international investing outside the U.S. help my results?

Global diversification has been shown academically to reduce risks that reduce expected return. Diversification only from concentrating within your familiar home market actually increases your investing risks. Familiarity bias, together with recency bias from emphasis on U.S. stock returns, can be a toxic combination for long-term planning. Instead, global diversification broadens your investment opportunity set and reduces the risk of missing higher returns in other countries as economic, political and social conditions change over time. With a global portfolio, you are much better positioned to capture returns wherever they occur.

Practice Smart Diversification



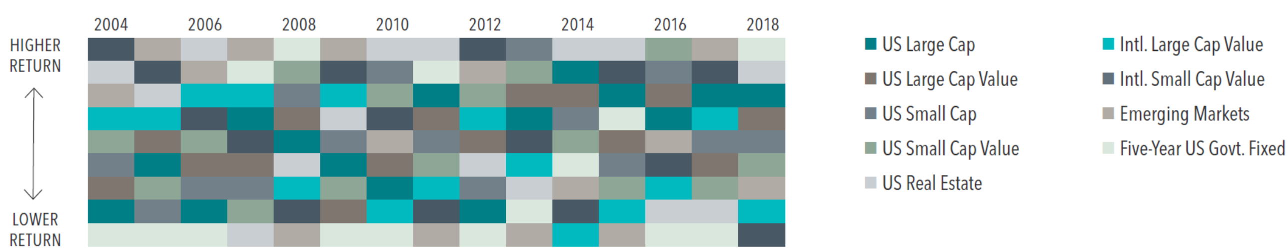
Number of holdings and countries for the S&P 500 Index and MSCI ACWI (All Country World Index) Investable Market Index (IMI) as of December 31, 2018. S&P data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. MSCI data © MSCI 2019, all rights reserved. International investing involves special risks, such as currency fluctuation and political instability. Investing in emerging markets may accentuate these risks. Investing in emerging markets may accentuate those risks. Diversification does not eliminate the risk of market loss. Indices are not available for direct investment.

7. Will frequent portfolio shifts help me gain greater investing success?

It's tough, if not impossible, to confidently know which market segments will outperform over different periods and for how long.

Accordingly, it's better for most investors to avoid unnecessary market timing calls or chasing fund or manager past performance. Research has shown that investors on average reduced their potential returns simply by trading too often and too soon. Allowing emotions or media opinions about short-term conditions (chasing winners or dumping losers) to impact what should be long-term planning decisions usually leads to disappointment. Investors earn market returns for bearing the right risks, not avoiding them.

Annual Returns by Market Index

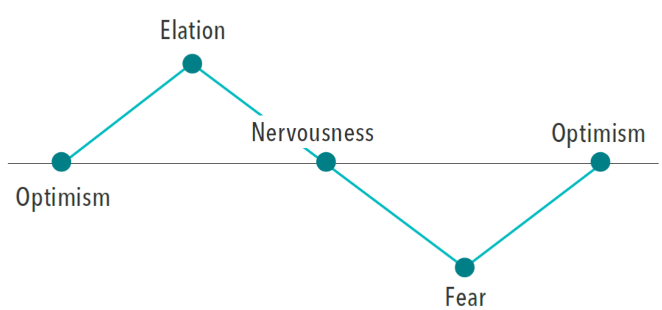


In USD. US Large Cap is the S&P 500 Index. US Large Cap Value is the Russell 1000 Value Index. US Small Cap is the Russell 2000 Index. US Small Cap Value is the Russell 2000 Value Index. US Real Estate is the Dow Jones US Select REIT Index. International Large Cap Value is the MSCI World ex USA Value Index (gross dividends). International Small Cap Value is the MSCI World ex USA Small Cap Value Index (gross dividends). Emerging Markets is the MSCI Emerging Markets Index (gross dividends). Five-Year US Government Fixed is the Bloomberg Barclays US TIPS Index 1–5 Years. S&P and Dow Jones data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. MSCI data © MSCI 2019, all rights reserved. Bloomberg Barclays data provided by Bloomberg. Chart is for illustrative purposes only.

8. How can my emotions negatively affect my investment decisions?

Many people struggle to separate their emotions from investing. Markets go up and down unexpectedly all the time. Reacting to temporary market conditions usually leads to poor investment decisions. A common costly mistake is to invest only when conditions seem "safe," and to get into cash when fearful. A firm's cost of capital is an investor's return. Expected return is inversely related to market conditions.

Avoid Reactive Investing



9. Should I react and change my portfolio again based on what I'm hearing today in the news?

RETIRE RICH
SELL STOCKS NOW
THE LOOMING RECESSION
THE TOP 10 FUNDS TO OWN
MARKET HITS RECORD HIGH
HOUSING MARKET BOOM

Hearing too much daily news and commentary increases a short-term focus on returns. That is harmful to long-term discipline. Media messages are regularly designed to stir anxiety and worry, while others tempt you to act and pursue an investment fad. If headlines are unsettling, consider their source and motives, and maintain a long-term perspective. The goal of headlines is to get attention, and that attention supports their advertising. It is not to provide prudent advice you should trust for planning.

10. So, how should I plan and invest for retirement and my future?

There is considerable "advisor risk" for those doing it all themselves or if they select the wrong advisor. Working with an experienced CFP wealth professional and other specialists can likely improve outcomes, and avoid common costly mistakes often discovered only much too late.[2] Focusing on what matters and using a process offers greater success:

- Work with a professional to create a plan to fit your needs, values, goals and risk tolerance.
- Stress test your current planning and identify opportunities for change or improvement.
- Establish a platform for complete management and monitoring for your portfolio and other finances.
- Structure a comprehensive portfolio, formally benchmarked against an investment policy.
- Work with a specialist team for mitigating taxes, protecting assets, transferring wealth, benefitting charities.
- Stay in control and disciplined through your entire life cycle with periodic reviews and stress testing.

The Professional Wealth Management Process

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Periodic
Retirement Envisionment Session	Retirement Planning Sessions	Planning Commitment Sessions	Investment Planning Sessions	Wealth Planning Sessions	Strategy Progress Sessions

The professional process is a coordinated series of phases envisioning an ideal retirement, identifying goals, stress testing old planning, designing new strategies, developing an investment policy, planning tax mitigation asset protection, wealth transfer, and charitable giving. The process monitors planning and annually stress tests strategy, incorporating family and financial changes.

STRATEGY FOR IN-RETIREMENT WITHDRAWALS FOR INCOME

For most people, a worthwhile retirement goal is maintaining their accustomed quality of life. In life-cycle theory models, the purpose of savings is to "levelize" a "consumption stream" that allows a family's desired, inflation-adjusted expenses to be met throughout retirement. Defining a sustainable withdrawal target for lifetime income for an "in-retirement" consumption stream is key in planning an appropriate investment solution.

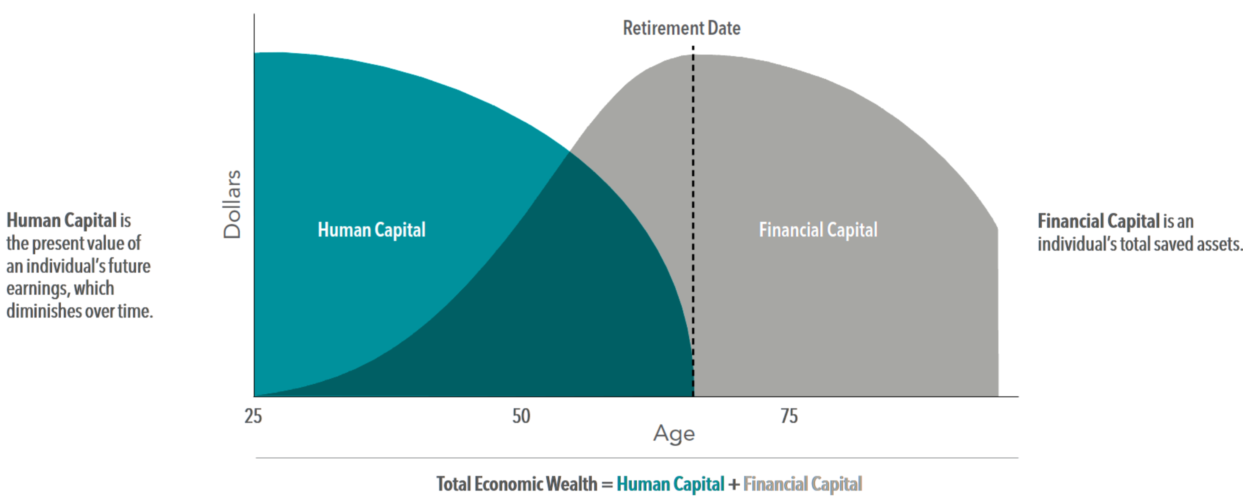
Any investment asset allocation strategy represents a tradeoff between the opportunity for future growth and reducing uncertainty about future outcomes. Accordingly, planning a solution for retirement income withdrawals should provide an ability to grow assets to increase expected consumption during retirement while seeking to manage uncertainty for retirement consumption. Clearly defining critical risks impacting the goal can help planning for managing these risks more effectively and ideally lead to a better tradeoffs.

If the client's primary planning goal is providing for a future retirement consumption stream, the key uncertainty must be how much consumption the accumulated savings can sustain over a lifetime at retirement. Market risk uncertainty is driven by uncertainty about future stock and bond returns, by interest rate risk, and by inflation risk. The planning question is how to balance the tradeoff between growth assets and risk management assets. Separate from market risk and sequence risk related to withdrawals are: longevity risk, healthcare expense and long-term care risk (contingent liabilities with potentially high variability requiring insurance related solutions), as well as public policy risk (such as Social Security and public pensions underfunding). We will concern ourselves in this study only with planning related to investing and spending for retirement income withdrawals.

Life cycle research highlights the importance of considering[1] the entire life cycle of the investor and[2] the sources of capital for the goal—in this case, timing of the retirement target—for making asset allocation decisions. The first element means monitoring the anticipated retirement consumption goal during the accumulation phase, not simply waiting until retirement to decide how much is needed to sustain future consumption. The second point is important because different sources of capital can have different risks related to funding the goal and withdrawing capital for expected consumption.

Most families fund their future retirement consumption through a combination of accumulated savings (their financial capital) and future savings (from human capital). In someone's career, most retirement funding is expected to come out of savings out of earnings from current income. Financial capital initially is a small fraction of expected funding. At this stage, growth portfolio for investing does not materially affect the overall risk of the future retirement funding needed because most of the accumulation occurs over many years and mostly in the decade or so before and after the targeted retirement date. As time goes by, accumulated assets become an ever-larger fraction of total capital, as we see in **Exhibit 1**. An increasingly conservative asset allocation strategy eventually becomes necessary to manage retirement risk.

Exhibit 1: Typical Cycle of Human Capital and Financial Capital



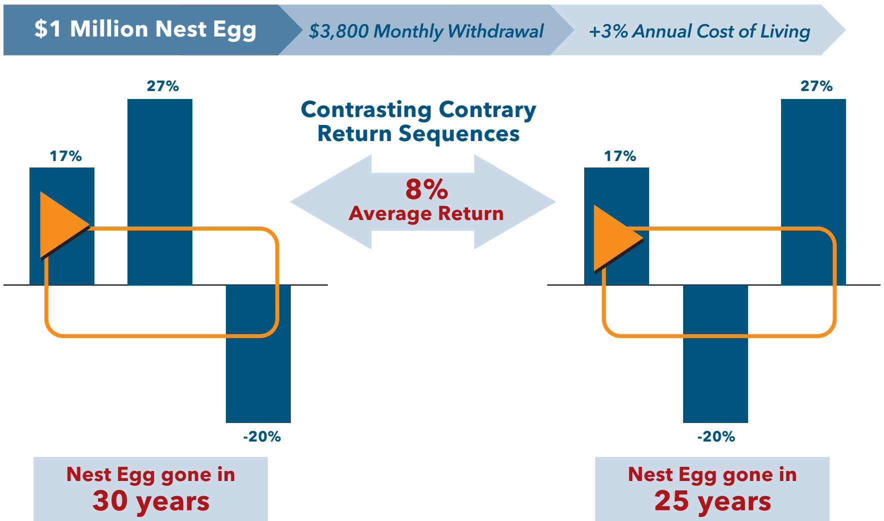
WITHDRAWAL RATES AND SEQUENCING RISK

Let's consider how much consumption a portfolio can generate over time in the context of a traditional portfolio of stocks and bonds in which the fixed income allocation is used to reduce portfolio volatility. What is a withdrawal rate that the portfolio can sustain in retirement with a high likelihood?

Equity market returns before and after retirement target dates matter a great deal. While average returns could be the same, retiring at the beginning of a bear market is hazardous because, without sufficient spending flexibility or a strong annuity income base (such as maximized Social Security), accumulated wealth can rapidly deplete, leaving not enough equity to benefit from even a strong market recovery.

Due to a strong U. S. equity market and low interest rates in the aftermath of the global financial panic, we found many investors within five years of retirement with eighty percent or more of their portfolios allocated to U.S. large growth equities. This investor behavior is a toxic mix of recency and familiarity bias. **Exhibit 2** illustrates the possible unhappy impact of sequence-of-return risk on a $1 million nest egg.

Exhibit 2: Premature Retirement Ruin from Unlucky Return Sequencing



Source: *Moshe A. Milevsky, PhD., "Retirement Ruin and the Sequencing of Returns" (2006). Hypothetical returns assumed are for 17%, 27% and -20% or 17%, -20% and 27% in three year cycles for duration of the surviving investment portfolio as monthly withdrawals increasing 3% annually are made from the remaining portfolio balance. Figures, calculations and graphs are hypothetical and for educational purposes only. They do not reflect any specific product or solution. Indexes used for illustration purposes are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. Annual charges, expenses, taxes and impact costs associated with investing are assumed to be 2.05% including a 1.0% advisory fee.*

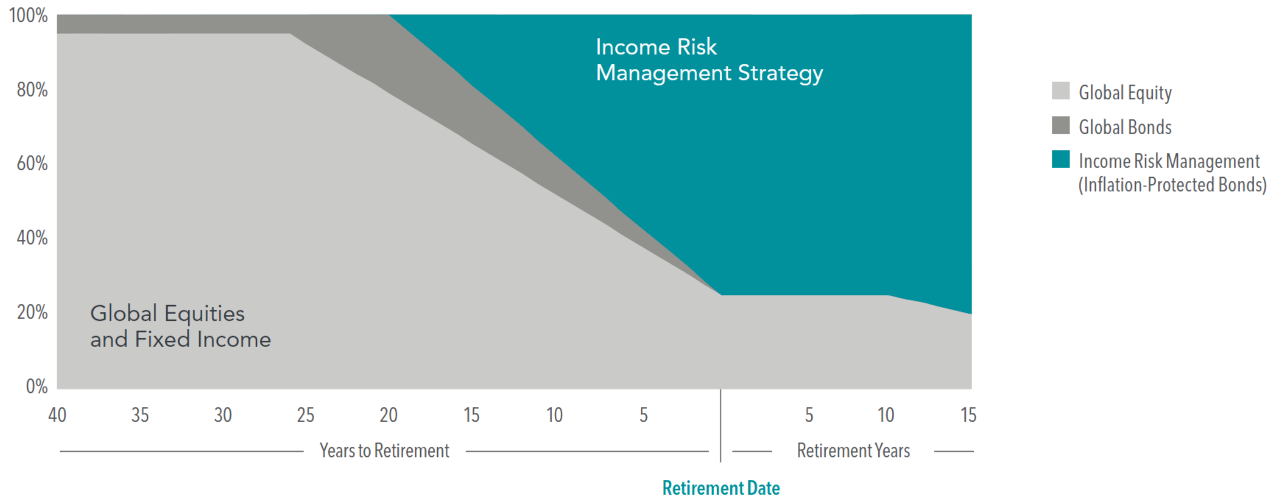
Littell, Drew and Walk (hereafter, LDW)[3] in a well-known study about sequence-of-return risk looked at accumulation and distribution phases of retirement income. They identified the 10-year periods both before and after the target retirement date as the "retirement risk zone." As we discussed, they found portfolios with conventional asset allocation most vulnerable to sequence-of-return risk during those twenty years. They determined that defined contribution plans generally accumulated about half of their account value in the final 10 years before retirement and maintained those high levels (at least in real terms) for about 10 years thereafter.

They tested the impact of a one-time investment shock of -21.6 percent in five-year increments occurring at different times during accumulation and distribution periods. At the 20th year of a 40-year savings period, the shock on retirement wealth was 16.0 percent less than when the shock occurred at year 5. As shocks occurred closer to retirement, the negative impact magnified. When the shock occurs at the retirement target year (year 40), wealth accumulation was 24.8 percent less than the base case. That means, retirement wealth simply due to bad luck of timing could be reduced by almost 25 percent!

The study then examined at the probability of premature depletion when the shock occurred after the retirement target date after withdrawals for retirement income had begun. The study found that if the shock occurred 15 years into the spending phase, a negative return shock resulted in a 33.5 percent chance of portfolio ruin at age 85. But when the shock occurred at the point of retirement, the chance of portfolio ruin jumped to 50.6 percent! (The study assumed no spending or retirement date flexibility.)

If substantial portfolio losses occurred early in the accumulation phase, additional contributions replenished an account's losses. This effect is familiar to those acquainted with "dollar-cost-averaging." As investment returns dwarfed contributions later in the accumulation phase, large investment shocks close to the target date had a disparate impact due to magnitude. For investors obsessively focused on maximizing portfolio returns by over-weighting equities up to the their retirement target date (perhaps due to previous portfolio losses or insufficient past savings or simply greed) and expecting to continue doing so, the ordering of gains and losses in the ten years before and after retirement is of critical importance to the probability of success of their withdrawal strategy. Managing equity volatility in the retirement risk zone is of critical importance and is done by paying close attention to a "glide path."

Exhibit 3: Expected Glide Path of the Dimensional Target Date Retirement Income Funds



Glide path based on expectation of the Dimensional Target Date Retirement Income Funds' asset allocation changes over time. The actual asset allocations utilized by each fund may deviate from the allocations illustrated by this glide path.

TARGET DATE RETIREMENT INCOME SOLUTIONS

Major firms like Dimensional Fund Advisors and Vanguard have developed all-in-one solutions for the institutional retirement plan market. These are termed "Retirement Target Date Funds." These funds make plan participants view their retirement savings in terms that matter for eventually withdrawing money for their primary goal—retirement income. These solutions are a framework that closely aligns participants' decision to save from salary with their retirement income goals. Participants are uninvolved with any details related to investing decisions.

All target date plans are designed to have a "glide path" with the portfolio allocation between global equities and fixed income strategies changing over time. The equity/fixed income allocation split adjusts periodically until the "targeted" retirement date. Closer to retirement date, the equity allocation progressively declines and the fixed income allocation correspondingly increases. In the Dimensional example in **Exhibit 3**, at the retirement target date there is a 25 percent equity allocation with 75 percent in fixed income, mostly long-term TIPS.

Under life cycle theory, a young person with 40 years until retirement has most of his "wealth" in his "human capital." The value of his human capital is determined by his expected total of future earnings. That gives him the capacity to accept large amounts of market risk because he has only a small retirement account balance and a long working horizon relative to the large value of his human capital. By retirement age, the employee's human capital is low and retirement accounts are at their highest. By substantially reducing the equity allocation and increasing fixed income of the portfolio before income withdrawals begin, the targeted portfolio structure mitigates sequencing risk and its exposure to market "shock."

The Dimensional Target Date solution relies on a risk management technique known as "Liability Driven Investing" (LDI). That approach carefully hedges the appropriate risk and avoids unnecessary retirement withdrawal sequencing risk through its management structure for more effective risk-return tradeoffs.[4] LDI strategy does not need estimates of future returns to determine sustainable income levels.[5] Market data on real interest rates at any point in time can be used. Where most of a retiree's savings may be inside such a risk management strategy, reliance on portfolio return assumptions is greatly reduced. Second, because the portfolio design hedges consumption risk, sequencing risk is further reduced.[6]

However, portfolio monitoring and reporting systems of most advisory firms do not work well with LDI schemes. For those with brokerage accounts, real estate company stock or non-qualified plans outside of their employer's retirement

Exhibit 4: Retirement Target Date Risk-Return Tradeoffs

Returns Statistical Period: 1/2003-6/2019

Market Indexes	S&P 500 U.S. Equity Index	S&P STRIDE Glide Path Indexes Target + 30 yrs 2050 Date Index	Target + 20 yrs 2040 Date Index	Target + 10 yrs 2030 Date Index	Target + 0 yrs 2020 Date Index	Bloomberg Barclay U.S. TIPS Index	ICE Bank of America/ML 1-Year U.S. Treasury Index
10-Yr Total Return (%)	14.7%	11.6%	11.4%	9.7%	8.3%	3.6%	0.8%
Annualized Return (%) 2003-2019	**9.8%**	**9.2%**	**9.1%**	**8.4%**	**7.6%**	**4.3%**	**1.7%**
Growth of Wealth 2003-2019	4.7	4.3	4.2	3.8	3.4	2.0	1.3
Lowest 1-Year Return (%)	**-43.3%** (3/08-2/09)	**-44.8%** (3/08-2/09)	**-44.8%** (3/08-2/09)	**-39.7%** (3/08-2/09)	**-31.0%** (3/08-2/09)	**-8.6%** (1/13-12/13)	**0.1%** (12/14-11/15)
Highest 1-Year Return (%)	53.6% (3/09-2/10)	55.6% (3/09-2/10)	55.6% (3/09-2/10)	47.6% (3/09-2/10)	36.3% (3/09-2/10)	19.6% (12/08-11/09)	6.9% (3/07-2/08)
Lowest 3-Year Return (%) Annualized	**-15.1%** (3/06-2/09)	**-14.0%** (3/06-2/09)	**-14.0%** (3/06-2/09)	**-11.4%** (3/06-2/09)	**-7.0%** (3/06-2/09)	**-2.3%** (1/13-12/15)	**0.2%** (1/13-12/15)
Highest 3-Year Return (%) Annualized	25.6% (3/09-2/12)	24.2% (3/09-2/12)	24.2% (3/09-2/12)	22.0% (3/09-2/12)	22.0% (3/09-2/12)	12.2% (12/08-11/09)	5.0% (12/08-11/09)

Source: *S&P Dow Jones Indicies, LLC, a division of S&P Global; Bloomberg Barclays data provided by Bloomberg Finance L. P.; ICE Bank of America/Merrill Lynch data by ICE Data Indices, LLC.*

In U.S. dollars. Return gross of dividends. Indexes are not available for direct investment, therefore past performance does not reflect expenses of an actual portfolio. Past performance is no assurance of future results, and there is always a risk that an investor may lose money. Performance does not represent the impact that economic and market factors may have had on decision-making if money was actually invested.

plan, there are conflicts in modeling how successful retirement planning would be evaluated. Major differences in performance and measurement mandates, make comparing a "successful" LDI portfolio outcome within conventional portfolio benchmarking practices potentially confusing.

For example, **Exhibit 4** illustrates S&P STRIDE Glide Part Index performance. That index is designed for benchmarking Dimen¬sional Target Date portfolios. This new S&P index has an inception date only from 2003. However, that period include one of the worst-performing periods in market history. The worst one-year returns of high-equity, long target date indexes is about -45 percent. One-year losses for indexes furthest from the target retirement date are similar to the S&P 500 index resembling a large U.S. stock strategy—and resemble portfolios of a number of prospective clients we've met. Interestingly, we see that the -45 negative returns are twice the "shocks" used in LDW studies! We also see that target date funds lowest 1-year losses at the retirement target date are still much higher than the -21 percent LDW "shock."

Exhibit 4 also shows -14 percent annualized losses for three years for both 2050 and 2040 target date indexes. Cumulatively these come to more than double the LDW "shocks" that lead to a 50 percent failure rates in model scenarios. Full portfolio recoveries did occur soon after following the decline "shock." But these indexes are from a very limited data sample. Is it reasonable to think that non-professional investors, uneducated in finance and investing, beginning a series of withdrawals for retirement income, will have the discipline and determination to stay with their plan if such a shock occurs for them? Or will a mass exit happen as investors, rather than focus on their withdrawals and instead watch portfolios values erode as popular media daily predicts another "end of the world" scenario? If those investors choose to rely instead on conventional benchmarking rather than their LDI model, it's potentially a retirement death zone moment.

FinaMetrica risk profiling models with conventional asset allocations that we use for estimating benchmark returns show that until a moderate growth 40 percent equity allocation is exceeded, one-year loss figures greater than LDW's -21% "shock" do not occur. A retiree taking systematic withdrawals could accept higher losses from portfolios with a greater equity allocation, but *only if they have the discipline to not sell equities* and instead sell only from the fixed income allocation for making withdrawals until markets recover in time.

Generally, a moderate growth 40 percent global equity allocation is likely to be suitable for most who rely on portfolio savings, Social Security and eventually their residences to have a consistent withdrawal rate for retirement income in order to maintain a quality lifestyle. This assumes, however, that a retiree has flexibility for taking periodic withdrawals (due to an income base from maximized Social Security, pensions or long-term care insurance). Only those with both a portfolio surplus and the income resources above plus the availability of reverse mortgages and QLACs should consider equity allocations of more than 50 percent.

Without liability matching to retirement consumption goals, estimated withdrawal rates are necessarily based on assumptions about future expected portfolio returns. For investors drawing down their portfolios without a formal LDI structure, the possibility of an unlucky equity return sequence early in retirement adversely impacting their ability to sustain lifetime consumption is always a risk. It should be remembered that interest rate and inflation risk also impact sequencing risk. For example, an unexpected severe rise in inflation early in retirement increases the likelihood of running out of money. Any conventional allocation to stocks and bonds is subject to the uncertainty of sequencing risk, above and beyond the time series variability of returns that investors have long been familiar.

METHODS FOR MANAGING SEQUENCE-OF-RETURN RISK

Reducing sequence of returns risk within the "retirement risk zone" includes the following:

(1) Lower your equity-fixed income allocation to 50% equity/50% fixed income or better 40%/60%, especially if funding goals are attained. If you've already won the game, why keep playing?

(2) Diversify globally with U.S., developed international and emerging market asset classes. Global diversification reduces overall portfolio volatility, and so reduces market losses when they occur.

(3) Allocate dimensionally, tilted toward higher expected returns (value, size and profitability).

(4) If you have surplus wealth and important legacy or charitable goals for funding, then bifurcate and manage the retirement income portfolio separately from your "growth" legacy assets.

(5) Allow for flexible levels of portfolio withdrawals depending on portfolio variability—specifically, reducing or deferring spending for lower withdrawals when portfolios decline and take larger withdrawals to catch up with spending after portfolio recovery, thus reducing sequencing risk.

(6) Maintain buffer reserves, such as CDs in banks or short-term bonds in brokerage accounts, or a reverse mortgage to mitigate need to sell equities during poor markets to fund withdrawals.

(7) For retirees with significant longevity risk, consider converting a portion of the portfolio to an income annuity or a qualified longevity annuity contract (QLAC) for guaranteed life income.

(8) Lastly for those who choose or are forced to retire early and cannot work part-time, spend conservatively relative to your portfolio assets, and maintain a 3 percent or lower withdrawal rate. Even if you have enough savings, a low withdrawal rate will mitigate sequencing risk.

IMPORTANCE OF RISK MANAGEMENT FOR PLANNING

Having the right risk management strategy is essential to plan for retirement and monitor your progress. Our web-based retirement planning technologies model client outcomes for funding retirement income goals reasonably well—but in the end, those tools are only models. Any model's projections are sensitive to future changes in the market, inflation, and interest rates, and there is no reliable way to predict what those will be. Even with informed investment management, some estimates may not be very meaningful.

For income estimates to be meaningful for planning, so that clients may plan their retirements with a higher degree of confidence, investors need solutions that better manage risks related to modeling. If the goal is future consumption, the investment solution ideally should manage consumption risk. That way, uncertainty about the funding of future consumption reduces over time as you approach retirement, providing clarity and confidence about estimates of the future spending that your savings can support.

We began this paper by asking questions related to informed investment management and showing how those answers could lead to better decisions. We went on to see how an informed investment strategy is critical for successful retirement planning due to risk related market returns—particularly in the decades preceding and following retirement. Experiencing years with large negative returns due to excessive equity allocations while in "the retirement risk zone" can have an especially disparate effect on the sustainability of retirement income. Managing multiple aspects of investment risk with an informed strategy based on modern financial science with an equilibrium view of risk and return can limit the potential negative impact of sequencing risk on retirement income, and lead to much greater success.

CONCLUSIONS

Planning a lifetime retirement income strategy is a complex problem to solve. Starting with defining retirement income and other goals, we must consider financial and non-financial risks in planning. We develop a risk management framework for helping you make a series of portfolio choice decisions over time. Smart planning for those choices must be aligned with your goals and preferences. This requires a structured but flexible process to manage unavoidable risks and avoid unnecessary risks for better risk-return tradeoffs in planning withdrawals for income and the uncertainty of how much and for how long.

We regard the wealth that we advise for our clients as more than just their portfolios. The asset held in your accounts represent the savings, sacrifice and dreams of your family that you have entrusted to us. As CFP wealth management professionals, we take that responsibility very seriously. The goal of a sound investing philosophy with a smart wealth management process employing robust and well-diversified strategies based on modern financial science is a reliable planning outcome, giving you greater peace of mind, the hope of a better future, and the expectation of an abundant retirement.

Endnotes

1 Asjylyn Loder, "Stocks Climb as Fed Chief Signals Rate Cut," *Wall Street Journal* (July 11, 2019), B1. See also, Corrie Driebrush, "Prospects of a Fed Rate Cut Propel Stocks, Oil Prices," *Wall Street Journal* (July 13-14, 2019), A1.

2 "Putting a Value on Your Value: Quantifying Vanguard Advisors Alpha," (Vanguard whitepaper, February 2019) https://advisors.vanguard.com/iwe/pdf/ISGQVAA.pdf. See also Michael Kitches, "A Hierarchy of the Value a Financial Advisor Provides," (March 8, 2016) https://www.kitces.com/blog/hierarachy-of-financial-advisor-value/.

3 Brett Doran, Michael E. Drew and Adam N. Walk, "The Retirement Risk Zone: A Baseline Study" (Griffith Business School Discussion Papers in Finance) No. 2012-07, ISSN 1836-8123.

4 De Santis, Massi, "The Value of Aligning Investments and Risk Management to Your Goals," (white paper, Dimensional Fund Advisors, 2016).

5 Dimensional provides a Retirement Income Calculator for those using its target date funds LDI solution: https://us.dimensional.com/retirement-professional/retirement-calculator

6 With the LDI approach, sequencing risk only comes through equity growth assets, which in retirement are a small fraction of the portfolio allocation during the withdrawal period.

APPENDIX

Question 2: The sample includes funds at the beginning of the 20-year period ending December 31, 2018. Each fund is evaluated relative to its respective primary prospectus benchmark as of the end of the evaluation period. Surviving funds are those with return observations for every month of the sample period. Winner funds are those that survived and whose cumulative net return over the period exceeded that of their respective primary prospectus benchmark. Loser funds are funds that did not survive the period or whose cumulative net return did not exceed that of their respective primary prospectus benchmark. Where the full series of primary prospectus benchmark returns is unavailable, funds are instead evaluated relative to the Morningstar category index assigned to the fund's category at the start of the evaluation period.

Question 3: This study evaluated fund performance persistence over rolling periods from 1999 through 2018. Each year, funds are sorted within their category based on their previous five-year total return. Those ranked in the top quartile (25%) of returns are evaluated over the following five-year period. The chart shows the average percentage of top-ranked equity and fixed income funds that kept their top ranking in the subsequent period.

Questions 2 and 3: US-domiciled open-end mutual fund data is from Morningstar. Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Global Real Estate, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Growth, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex-Japan Stock, Real Estate, Small Blend, Small Growth, Small Value, World Large Stock, and World Small/Mid Stock. Fixed income fund sample includes the Morningstar historical categories: Corporate Bond, High Yield Bond, Inflation-Protected Bond, Intermediate Government, Intermediate-Term Bond, Long Government, Muni California Intermediate, Muni California Long, Muni Massachusetts, Muni Minnesota, Muni National Intermediate, Muni National Long, Muni National Short, Muni New Jersey, Muni New York Intermediate, Muni New York Long, Muni Ohio, Muni Pennsylvania, Muni Single State Intermediate, Muni Single State Long, Muni Single State Short, Short Government, Short-Term Bond, Ultrashort Bond, and World Bond. See Dimensional's Mutual Fund Landscape 2019 for more detail. Index data provided by Bloomberg Barclays, MSCI, Russell, FTSE Fixed Income LLC, and S&P Dow Jones Indices LLC. Bloomberg Barclays data provided by Bloomberg. MSCI data © MSCI 2019, all rights reserved. Frank Russell Company is the source related to the Russell Indexes. FTSE fixed income indices © 2019 FTSE Fixed Income LLC. S&P data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global.

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Paul founded Professional Financial Strategies, Inc. in 1993 as one of the first independent financial and wealth planning advisory firms for affluent and aspiring families. Paul and his firm act as a personal chief financial officer for clients, bringing together a distinctive wealth management process and a network of experts that help families make smart decisions about money for investing wealth, mitigating excessive taxes, protecting assets from unjust loss, and passing securely a legacy to people they love and causes they care deeply about to make a difference in their community and in their world.

Paul earned pioneering designations as a Certified Financial Planner (CFP®), and ChFC® (Chartered Financial Consultant). A graduate with distinction from the University of Rochester, Paul earned an MBA in Finance from the Simon Business School. His professional education includes MFP (Master of Science in Financial Planning) and MSFS (Master of Science in Financial Services). Finally, Who's Who first presented Paul in 2018 with the Albert Nelson Marquis Lifetime Achievement Award, as seen in *The Wall Street Journal*.