

*I have too many unread books on my shelves, so why should I buy yours?*

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## WHAT'S GOOD TO KNOW FIRST

This preface distinguishes what's different about this book compared to others on investing during retirement. In doing so, it introduces the purpose, the problem, and the approach. Most importantly, it helps you decide if this book is right for you.

### THE PURPOSE

It's common knowledge few Americans save enough for retirement. The surprising part is, those who do then rarely invest it well *during* retirement. This is unfortunate. To a degree, it squanders what has been diligently saved. Why does this happen? Investing during retirement is more difficult for sure, but that's not the root of the problem

Our brain doesn't deal well with ambiguity, conflicting opinions, and a constant bombardment of misleading information...the domain of investing during retirement. Ultimately, there is too much wrong guidance and not enough right guidance, and it's difficult to discern which is which. No wonder so many get it wrong.

Adding to the problem, the investing landscape has changed significantly over the past 20 years, outdated practices once considered correct. Financial economics has been and still is in a state of transition. Old theories are known to be lacking, but there is no consensus on what should take their place. Without clear unified guidance from economists, many retirees stick to what was deemed best in the past; unfortunately, this seemingly conservative stance is not a good one.

This book consolidates exactly what you need to know to invest well in retirement. It provides an updated set of best practices. There is no ambiguity or incomplete answers. All recommendations are supported with proper evidence to understand not only what works but why, including side-by-side comparisons of alternatives. Today's retirees can do appreciably better than previous generations by applying these updated practices—this means more income with less risk.

What kind of numbers are we talking about? It's impossible to provide guarantees, but I'll estimate adhering to this book's recommendations will increase your retirement income by 15% to 50%, depending on previous practices. Of course it also depends on what is happening in the markets, but the recommendations are generally most valuable during poor to moderate markets...when it matters most. At the extreme end, when all this book's recommendations

are combined (as shown in Chapter 10), the average annual income under a global benchmark increased 87% over specific practices still used by some retirees.

Be clear this book is not about tricks and wishful thinking, but about applying rational evidence-based practices. Considering the magnitude of the payoff, investing well in retirement is a rare life opportunity.

## THE SCOPE OF THE PROBLEM

Anyone aiming to create a top-performing plan for investing during retirement quickly encounters a host of barriers, making the task extremely difficult.

The literature varies in its usefulness. On topics like risk the discussion rarely provides objective help for the hardest decisions to be made. Other well-covered topics, like asset allocation, generally apply but without retirement specifics (e.g., what fund combinations are most suitable; what are the appropriate stock-bond ratios; what are the tradeoffs). Specialized topics, like income-harvesting and variable-withdrawal strategies (explained later in depth), have reasonably good coverage if you can find it, but no means to compare alternatives—performance comparisons are difficult or impossible to make. When precise studies and comparisons can be found, the assumptions\* don't support the needs of today's retirees.

Unsubstantiated claims are perhaps hardest to deal with. Outside academic studies, conclusions and advice are frequently handed out with minimal supporting data. When evidence is provided, even in academic studies, it's typically based either on one set of United States historical data, or computer simulations lacking a resemblance to true markets. This isn't enough.

It's also important to understand academic standards aren't aimed at the pragmatic needs of retirees. Early on I believed academic research set the highest standard for retirement guidance: a combination of scientific method, mathematical rigor, logical analysis, and peer reviews. As my own research progressed, I became aware of the extent academia's goals for original research differed from my need for pragmatic guidance. To begin with, fundamental truths aren't always practical and practical solutions don't always lead to fundamental truths. I also found caveats are a well-honed tool within academic writings, often used to address ambiguities that are crucial to the pragmatist, or to equivocate on practical implications. Completeness is also not a criterion, given the research goal is often narrow, independent from how it might be applied. However, this is not a critique of academia but a reality for investors to understand—the goals of academia within financial economics are generally its own, with too rare of focus on pragmatic guidance.

This book is concerned with real people investing their savings in real markets, tangibly affecting their lives for better or worse. Proper guidance in this context must sort through the ambiguities, deal with what's lacking, verify assumptions, and compare alternatives, all to arrive at balanced judgments. For anyone publishing retirement guidance, there is an implicit obligation to provide one's best—incomplete coverage accompanied by caveats or equivocating, whether in a conclusion or a footnote, cannot soften poor outcomes.

Another problem is biases are pervasive within the investing domain. This isn't a critique, but an acknowledgement of the effects incentives have on human nature. Biases aren't from intent, but from a lack of self-awareness. Biases arise out of the subtle influences incentives exert on our thoughts and actions. The magnitude of a bias generally correlates to the magnitude of the incentive, even when unconscious.

Strong incentives contribute to biases in the retirement industry. The financial media is generally biased towards investment news that best captures an audience. Financial planners and money managers are generally biased towards

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\* Common assumptions are a US-based market portfolio, annual rebalancing, and inflation-adjusted fixed withdrawals.

investment strategies that aid their business, either through simplifying their operations or generating more revenue. Financial authors are generally biased for a diversity of reasons—it may stem from their business or career interests, or a mindset that reinforces their actions, reputation, or esteem. Some professionals are much more objective than others, some admirably so, but no one is totally immune.

Luigi Zingales, an economist as well as a professor at the Chicago Booth School of Business, wrote a revealing paper<sup>1</sup> on how economics as a profession has pervasive biases. He discusses how economists who support business interests have better career opportunities, resulting in biases. From the opposite side, some economists are rewarded for being anti-business, forming an opposing set of biases. Zingales also describes\* how papers supporting certain research conclusions are more likely to be published in leading journals due to editor bias (driven by a different set of incentives). This implies biases even play a role in deciding who is awarded university tenure. The implications of this are sobering. While we can expect economists to be more objective than the average person, their incentives to varying degrees shape the financial industry.

I can easily say this book is freer than most from biases. I'm not exposed to industry incentives. My aim isn't to grow a financial business or attract new clients. My dominant goal is to write a worthwhile book, and sell enough to write another worthwhile book; however, avoiding biases is not that straightforward. I'm not bias free. While researching this book I noticed a subtle predisposition to favor concepts and strategies I originated or supported. I found it necessary to deliberately counterbalance these natural biases by focusing on the data, continually questioning the results, and giving attention to proper research methods.

We can't eliminate our biases, as a producer or a consumer, but we can substantially reduce them with conscious effort and discipline. The best advice I can give for reading this book is to temporarily put all investing mindsets on hold, taking a careful look at the data presented, only then forming your conclusions.

## THE TARGET AUDIENCE

This book is for those living off their money, planning to, or helping others to do so. It applies to individual investors from non-financial careers as well as financial advisors or investment managers, basically anyone interested in taking a careful look at the data and the best practices it implies.

The common investing scenario is a retiree drawing annual income from a combination of retirement accounts (e.g., 401Ks, IRAs), taxable brokerage accounts, and perhaps other investments like annuities or individual bonds. Additional income may come from a pension, Social Security, or other sources; however, to apply this book's guidance a significant portion of income must stem from market assets directly controlled.

Unfortunately, this book cannot be considered a proper guide for beginning investors. It too often digs into topics with the depth and pace to satisfy more experienced investors. Also, a substantial portion focuses on the supporting evidence, which tends to be more difficult to understand than the recommendations. Less experienced investors can still profit from this book if they are dedicated readers, but it will take extra effort and occasional Internet queries to fill in background knowledge.

Fortunately, once understood investing well during retirement is not difficult. This brings us to the challenge this book presents.

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\* Luigi Zingales talks about his paper in an October 20, 2014 interview on EconTalk, economist Russ Roberts' excellent and readily available podcast series.

## THE READER'S CHALLENGE

This book is best approached by setting aside some time. The coverage is pragmatic, but a complete reading takes a level of involvement beyond what most books on investing require.

Only a small percentage of retirees are motivated enough to actively seek how to invest well in retirement. If you fall into this group, this book will be easier to read, perhaps even providing an enjoyable foray through what the data shows. However, many more retirees are sitting on the fence—they want to invest well but find it burdensome and formidable. If you fall into this larger group, consider the following: there's a large payoff for investing well in retirement (remember the earlier numbers!) and you can take advantage of it.

The average lifetime includes 2000 work weeks—I estimate it'll take one week of studying this book to substantially magnify the benefits of what you've worked long and hard to save. It's all doable: *if you had the forethought and discipline to save well for retirement, you have what it takes to benefit from this book.* You don't have to be a genius or have a degree in economics. What you need is a strong dose of emotional intelligence—that's what sustains our motivation to follow through when our best interests are at stake.

It's been said there is more benefit from reading one good book five times, than from five average books once. It takes an uncommon amount of effort to gain the full benefits of a good book. I believe this is a good book. You needn't read it multiple times, but there may be parts requiring more than one read to fully gain the benefit. I suggest you start by flipping through the book a time or two to orient yourself before settling into a more serious read.

Despite the challenge, you can take shortcuts if you want to substantially reduce your effort. Conceptually, there are two books here: a 75-page how-to book wrapped in a much larger why-it's-so book. A Chapter Guide before the start of each chapter explains what is essential (i.e., the how-to portion) versus the broader explanations more suitable to in-depth readers. To profit, a reader need only understand the recommendations, even though the essence of the book is in the why-it's-so parts.

Fortunately, very little ongoing effort is needed once a plan is put in place, with the benefits continuing throughout retirement.

## A COMPANION SPREADSHEET

Despite the reader challenge, there is no need for retirees to do their own calculations to follow the recommendations. Applying the recommendations doesn't even require a lot of calculations, but it's still better to avoid the possibility of errors. As an aid, a downloadable spreadsheet is provided for free on the book's website: [www.livingoffyourmoney.com](http://www.livingoffyourmoney.com).

## THE INVESTING ASSUMPTIONS

A set of assumptions underlie every approach to the market. This book's primary assumptions are listed below.

- a. Complex investment instruments rarely make good investments; they are usually created to benefit the industry, not investors.
- b. Low-cost index funds are generally the best instruments for stocks and bonds, although managed funds are sometimes a reasonable choice.

- c. Retirees want their investments to perform well during retirement, but only at a level of risk they are comfortable with.
- d. Top retirement plans don't need frequent attention, typically annual or semi-annual maintenance is sufficient.

## AN EVIDENCE-BASED GUIDE — APPLYING SCIENCE TO DATA

It has already been said the recommendations in this book are supported by proper evidence. Now is the time to clarify what this means, but a quick story will set the stage.

Recently, a bestselling author on investing told financial advisors they lose potential clients by providing too much data. He explained, clients make their decisions based on emotional connections; the data only clutters up the process. Regrettably, this reflects the prevailing norm: emotions, sound bites, and sales pitches drive key financial decisions more than knowledge. This book takes an opposing approach, emphasizing the power of data and the knowledge it conveys.

The market data we have in hand is an excellent guide, showing what works and what doesn't investing during retirement. This data spans long periods of time, multiple countries, and different asset classes. Properly used it provides the best possible answers. However, we must tread carefully through the data to reach correct conclusions.

Harvey Campbell, a Duke professor of economics and expert on data mining, argues along with his coauthors<sup>2</sup> that “most claimed research findings in financial economics are likely false” due to improper data techniques—this is especially startling considering he is talking about experienced researchers.

This book applies the science of analyzing data\* to form answers, following an approach known as evidence-based research. Wikipedia defines evidence-based research in the following words:

Evidence is comprised of research findings derived from the systematic collection of data through observation and experiment. All practical decisions made should be based on research studies selected and interpreted according to some specific norms. Typically, such norms disregard theoretical studies and qualitative studies and consider quantitative studies according to a narrow set of criteria of what counts as evidence.

Wikipedia continues with the definition of an evidence-based practice.

An evidence-based practice develops individualized guidelines of best practices to inform the improvement of whatever professional task is at hand. Evidence-based practice is a philosophical approach that is in opposition to rules of thumb, folklore, and tradition. Examples of a reliance on “the way it was always done” can be found in almost every profession, even when those practices are contradicted by new and better information.<sup>3</sup>

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\* The word *data science* is avoided due to its overuse and broader connotations. Certainly data science is applied in this book, but its better known facets, including machine learning and Bayesian analysis, are less applicable to investing during retirement compared to more classical statistical approaches.

The above definitions, along with a skeptical mindset, capture the approach and philosophy of this book. The only thing missing is a clear statement of the specific norms for proper evidence within the domain of investing during retirement.

The following four criteria define the norms to comply with for all recommendations in this book— if for some reason a recommendation cannot fully comply with these norms then it's clearly stated.

1. Recommendations must be verified with real market data (i.e., market simulations alone are not sufficient... we don't know how to fully model markets).
2. Recommendations must be based on methods supporting independent confirmation by other researchers (i.e., results that cannot be replicated are not sufficient).
3. All recommendations must be verified using at least one independent data source but preferably several; testing with independent data is the only way to insure correct results, preventing a data-mining bias (which is thoroughly defined later).
4. All recommendations must hold up to robust testing, designed to seek out counterevidence or identify weaknesses. Typically this requires a diversity of tests, cross-verifying conclusions across multiple contexts and datasets. Only by consciously seeking to identify flaws in favored strategies can the natural biases in research be counterbalanced.

A brief example makes the above clearer. A new strategy, Prime Harvesting, is recommended in Chapter 3; however, before it's recommended it has to satisfy the norms of evidence-based research. For this particular case, it means showing satisfactory performance (compared to its peers) under the following diverse conditions: multiple real markets (US, UK, and Japan), varying withdrawal rates, varying retirement lengths, several thousand randomly-generated portfolios, several thousand simulated markets, and varying risk metrics (e.g., worse-case scenario, top-90% performance, average performance). These tests are explained later, but as a whole they reflect the primary premise: a strong dose of due diligence, applied according to the norms of evidence-based research, produces exceptionally strong answers.

## THE MODERN MECHANICS — WHAT'S NEW HERE?

*Modern Mechanics* in the title of this book corresponds to the best practices that will be identified. *Modern* fits because the recommendations are mostly based on research from the last 20 years. *Mechanics* fits because the recommendations are detailed and complete, delving into the nuts and bolts of all it takes to invest well in retirement.

So what's new? For a start, very few retirees apply anything close to the ideas covered, mostly because they have not been systemically sorted through and presented with sufficient data. It's like all the parts have been lying around but never assembled—certainly there is no up-to-date evidence-based retirement plan circulating in the general literature. More specifically, several new strategies are recommended, ones you won't find elsewhere, plus a couple of existing strategies are enhanced to perform better. Additionally, new metrics are introduced to help compare alternatives...the most important supports comparing which portfolios are best suited for retirement.

Finally the form of the book is new. This book follows the data, directly compares alternatives, and delivers a complete set of step-by-step recommendations.

It's safe to say there are no comparable books. It may be due to timing, the lack of author incentives, or publishers not believing there are enough savvy readers to justify books like this. Whatever the reason, providing pragmatic in-depth well-verified complete answers for investing well during retirement is new.

## THE PAST VERSUS THE FUTURE

We are all familiar with some form of the common investment disclaimer: past performance does not guaranteed future results. This disclaimer is certainly true, but it's also true (and will be shown) that the historical data is the best guide we have to future markets.

The market exhibits fundamental behavior in the form of real returns. Although real returns vary greatly year to year, they also maintain some forms of consistency across diverse conditions over long time periods. I call these consistent behaviors *market invariants*. Market invariants have influenced real market returns throughout history. Just as important, there is no reason to believe these invariants will cease to exert their influence in the future.

Market invariants play a role in financial economics. Fama and French's three-factor model of the market is based on invariants. Shiller's valuation work based on price-earnings ratios (i.e., CAPE-10) is also based on invariants. There appears to be consensus that momentum is an invariant.

The existence of market invariants support the rationale of defining a set of best practices for the future, based on what has been observed in the past. Certainly not all market influences are invariants and invariants can be difficult to directly leverage; nevertheless, the data makes clear invariants persist across extremely diverse circumstances, exerting their influence to keep the markets as a whole within certain boundaries. The outcome is past market characteristics, when prudently considered, provide the best approximation we have of future market characteristics.

On the other hand, acknowledging and considering the influence of market invariants doesn't preclude planning for extreme scenarios where they can't be relied on; however, this type of planning, based on speculation beyond known bounds, is best served by supplementing with guaranteed income...the topic of the last chapter.

## SYSTEMIC WITHDRAWALS AND THE RETIREMENT-INCOME PHILOSOPHY

This final topic before officially starting the book concerns the philosophy taken towards retirement income.

Jeremy Cooper and Wade Pfau in their paper, *The Yin and Yang of Retirement Income Philosophies*, explain that retirement strategies fall into two main camps: probability-based and safety-first. The probability-based camp focuses on a portfolio of volatile stock and bond funds to meet income needs. The safety-first camp focuses on a portfolio of guaranteed-income (e.g., annuities, bond ladders) to meet income needs. Neither of these camps is pure, though: the probability-based camp often supplements with guaranteed-income in a secondary role; the safety-first camp often supplements with stock and bond funds in a secondary role. Nevertheless, the differences are major.

Philosophically, the safety-first camp makes complete sense; however, this book fits squarely into the probability-based camp for several reasons briefly outlined below.

First, the data shows by using an updated set of probability-based best practices (the topic of this book) there is significantly lower risk than traditionally estimated—most retirees will find the risk acceptable and the reward worthwhile.

There's another reason, often overlooked. The risk of insufficient income can come from poor markets *or unexpected expenses*. In both cases the result is not enough income to meet expenses. When stocks make up a substantial portion of the portfolio, there is typically surplus value from the stocks (over 90% of the time historically). This frequent surplus value from stocks can help or fully cover unexpected expenses, essentially providing an extra hedge.

In contrast, a safety-first solution often costs significantly more than traditionally estimated because of longer life spans—low returns from guaranteed-income solutions rarely support long retirements well. Also, a safety-first solution doesn't generally have the built-in hedge for unexpected expenses—the bulk of the portfolio is more likely to be allocated to guaranteed income, limiting both the stock allocation and the potential for surplus value to cover any unexpected expenses.

Ultimately, it will become clear that many retirees can't afford a pure safety-first approach, or if they can, they aren't willing to pay the price, or sacrifice the loss in flexibility, or accept the exposure to unexpected expenses. Guaranteed income still has an optional role, but it must be a balanced one.

From within the probability-based camp, this book focuses on what is called *systemic withdrawals*\*...a conglomerate of strategies generating sustainable income from a portfolio of stock and bond funds. The first 10 chapters identify and verify the best practices for systemic withdrawals. The last chapter, almost a book in itself, shows how guaranteed income can supplement systemic withdrawals to handle cases worse than we've seen in the past.

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Once you've completed this book, you'll be well prepared to form your own plan and put it into action. The downloadable spreadsheet will aid you, plus the book's website can keep you abreast of updates, but everything you have to have is here.

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\* A similar term, systematic withdrawals, is commonly used in the literature, but its definitions vary and sometimes misalign with the solutions covered.