"*Constructive Skepticism*" Volume 3 – Notebook #I: *Model Risk*

Introduction

This Notebook, titled Volume 3 - Notebook #I: Model Risk, addresses the quantitative aspects of "*Constructive Skepticism*", a curriculum of Workbooks, Handbooks, and Notebooks in three volumes focused on making good individual, business, and investment decisions. This curriculum for clients, distributors, and manufacturers of retirement planning products and services addresses what we can trust, and what we must doubt in order to protect trust, or to re-build trust in relationships, brands, and institutions in the age of the "*New Normal*".

As you can see from the Notebook's title, and the first paragraph, words with a specific "*Meaning*" anchored in the work of a referenced author show up in "*Italicized Quotes*" to alert the reader that these words have a specific "*Terms-of-Art*" definition in the Glossary (See Volume 2 – Handbook #I: Glossary List and "*Terms of Art*" Definitions). These italicized words lessen the potential for confusion that may come from reading through the text linearly with an implicit, and different understanding.

How & Why Did We Get There?

Having witnessed first as a child, then as an adult, the difficult retirements of two prior generations, retirement planning became a personal focus of attention. This experience with prior generations showed that retirement looked like a problem worth trying to solve over a lifetime of work. Not only would the results apply to this writer, but they would also apply to nearly all readers.

This lifetime of work showed that retirement planning starts as a decision problem based on hard-to-see clinical inputs about client preferences, and that retirement management continues as a measurement problem based on observable outcomes. First launch the rocket-plane, then make course corrections to assure a smooth landing. Thus, creating a retirement plan starts in the domain of moral choice, addressing values, goals, and individual ambiguity before continuing in the domain of economics, addressing issues about asset types, income flows, and historical averages.

This perspective resulted in the creation, and the selling of several start-ups, as well as this formalization of the "*Tools, Checklists & Processes"* that support the curriculum for "*Constructive Skepticism*". Looking back at prior ventures, this perspective also informed the earlier development of the household balance sheet, the calculation of a dollar measure for risk capacity, and the development of retirement planning recommendations based on risk management techniques allocations. Having reached retirement age, and lived for a few years in retirement has demonstrated the personal value of this perspective, and the solutions derived from it.

A major source of individual ambiguity in retirement planning comes from recognizing the timing & impacts of the technological, and demographic dislocations that will drive the economic, and policy "*Responses, Threats & Opportunities*". For this writer, this perception of actionable dislocations started with the Dot.com Boom, and the power of low cost & near-instantaneous access to information. This led to the creation Rational investors, Inc. in 1996 to provide "*Mass Customized Investment Advice in 401(k) Plans, over the Internet*".

The second perception of an actionable dislocation came from seeing Boomers retiring at the rate of 10,000 individuals per day, thus transitioning the Financial Industry from an accumulation perspective to a decumulation perspective. This led to starting Retirement Engineering, Inc. in 2002 in order to create a product solution, the Guaranteed Retirement Income Security (GRIns). It also led to starting The Retirement Income Industry Association (RIIA) in 2005 in order to create a "*Process*" solution, the Retirement Management Analyst professional designation based on the household balance sheet analysis.

The third perception of an actionable dislocation came from living through the COVID-lockdowns, and witnessing the resulting collapse of the people's trust in experts & institutions. Many clients stopped responding well to "*Trust me*" messaging, and across industries. The depth of this heart-felt collapse in trust may cause it to last for more than one generation. On the other hand, it will create new addressable market segments, if only from market fragmentation.

Thus, many individual customers, including retirement planning clients will respond better to "*Show Me*", and "*See for Yourself*" approaches. As a result of these observations and experiences, CTRI joined Substack in 2022 as a platform to socialize the "*Tools, Checklists & Processes*" of the "*See for Yourself*" curriculum for "*Constructive Skepticism*" to these new markets and audiences. This curriculum helps clients, distributors, and manufacturers work together in order to re-build trust in the age of the "*New Normal*".

A quote from the book "*Old School*" written by ***Tobias Wolff***, and first published in 2004 illustrates the purpose of this perspective and continuing work: "*In former time Arch had supposed that his sense of being a distinctive and valuable man proceeded from his own qualities, and that they would sustain him in that confidence, wherever he happened to be. He's never imagined that this surety was conferred on him by others, by their knowing and cherishing him. But so it was. Unrecognized he had become a ghost, even to himself.*" This quote reveals the importance of sharing what we know with others, and for the mutual benefit of all involved. "*Meaning*" comes from what we do with others, and for others, as well as what they do with us, and for us.

However, this effort also revealed the dangers and opportunities that arise when deriving "*Meaning*" from cooperation turns into deriving "*Meaning*" from consensus. The collapse in trust comes from what people have done, and can do to one another when pressed for time and resources. In the rush of real-life, what must we check for ourselves, and what can we trust when trust in consensus leads to the individual pain, costs & failures that come from “*Willful Ignorance, Error & Deceit*”?

Experience shows that it pays to find ways to open our eyes to see beyond “*Meaning*” from consensus especially in fields like retirement planning where dangers compound over time, opportunities take time to become fruitful, and the time remaining to open our eyes and make corrections becomes shorter and shorter as we get older. CTRI, a membership-based, not-for-profit R&D institute started in 2018 and this writer’s in-retirement project, develops solutions that validate, improve, and justify retirement planning best practices above and beyond what was developed in prior ventures. These solutions include the “*Constructive Skepticism*” curriculum.

The “*Constructive Skepticism*” curriculum examines what we can trust, and what we must doubt. It articulates the “*Ecological Rationality*” of resolving doubt with “*Tools, Checklists & Processes*” that include emotions, algorithmic heuristics, conceptual models, and quantitative models. This Reading Note on Model Risk shows what readers should think about, and what questions they should ask in order to “*See for Yourself*” the level of trust that they can place in the quantitative models that support their retirement plan.

Setting the Stage for Analyzing Quantitative Model Risk in Retirement Planning

Back in the early 2000s, the typical perspective of Modern Portfolio Theory (MPT) focused on the portfolio, and a single optimization period. It was not designed to focus on the client’s household balance sheet, and make repeated spending, saving, and investing decisions over the retirement horizon.

The application of this portfolio-centric perspective to retirement planning usually started with estimates of Capital Market Expectations to feed forecasting models that ranged from doing multiplications in Excel over the time horizon to developing equations for stochastic processes such as Monte Carlo Analysis.

These portfolio-centric retirement plans projected the present into the future using estimates of expected values, variances, and correlations between financial assets for comparison to minimum thresholds that stood for the client’s desired retirement income from financial capital. Typically, these portfolio-centric retirement plans provided the client with several options for asset allocations, as well as their matching probabilities of failure to meet the thresholds. Thus, these retirement plans used a decision-criterion external to the model, and based on the client’s feeling about utility and risk.

In the 2010s, the level of demand for retirement plans that came from the market dislocation created by the wave of retiring Boomers at the rate of 10,000 per day overwhelmed the industry’s ability to provide clients with good outcomes. This led to a search for answers to questions that included the following:

- Should portfolio allocation in retirement planning continue to come from the client’s feelings about the market volatility of their investments?

- Should portfolio allocations in retirement planning only look at the part of the financial assets, and not at the whole of the client’s household balance sheet?

These questions, and the creation of RIIA in 2005 led to the development of the household balance sheet, risk capacity expressed in net present valued dollars, and the articulation of the risk management techniques allocations before setting the portfolio asset allocations as differentiating components of the RMA curriculum. These new best practices for retirement planning marked an important turn in the historical timeline of client-centric planning. Readers can find this timeline in “*Constructive Skepticism*” Volume 2 – Handbook #4: The Template for Reading Research Papers – 1.6 “*Context*” from the Paper’s “*Historical Lineage*” (Pages 12 & 13).

In 2017, IMCA acquired RIIA’s RMA, as well as the Retirement Management Journal (RMF), and the Retirement Management Forum (RMF) conferences. This acquisition and continued developments since then established the wholistic, and client-centric style of retirement planning in the mainstream of the financial industry. CTRI kept RIIA’s research I.P. and continued the exploration of retirement planning questions, and solutions by focusing on the reading of foundational research papers about Health, Wealth, and Statistics.

By the early 2020s, not much had changed with the portfolio-centric approaches to retirement planning, so much so that industry researchers observed recently that not much had changed in the last 20 years with Monte Carlo Analysis. This lack of change proved problematic in the context of the third actionable dislocation mentioned earlier, the COVID lockdowns, and the matching collapse of trust in experts and institutions. Fortunately for retirement planning, the transparency and intuitive understandability of the household balance sheet made it a structurally trust preserving, and trust building best practice.

Further, CTRI’s continued work on the foundational “*Axioms, Assumptions & Hypotheses*” of the ***Logic & Statistics Program*** that validates the “*Rational*” portfolio-centric approaches led a long list of “*Puzzles, Paradoxes & Anomalies*”. This list triggered new questions, and new solutions for the improvement of quantitative approaches to retirement planning in the context of trust, including trust in Monte Carlo Analyses. These questions include:

- Should quantitative models for retirement planning rely on “*Expected Values*” that represent the likely outcome of the ensemble, or should they rely on “*Time Average Growth Rates*” that represent the likely outcome of the individual?

- Should quantitative models for retirement planning allow the client to choose a utility function that may or may not match the “*Growth Dynamic*” of their investment assets, or should they use the inverse of the “*Growth Dynamic*” as an internally coherent transformation function?

- Should researchers use the “*1/N Heuristic*” as the “*Null Hypothesis*” for the Hypothesis Testing of Asset Allocation models?

These new questions and new solutions improve the quantitative aspects of both the portfolio-centric and the client-centric styles of retirement planning, and this Reading Note focuses on the risks that client and advisor must examine before they place their trust in the results of such quantitative models.

What Comes Next?

This Reading Note, titled Volume 3 – Notebook #I: Model Risk, belongs to a larger set of material that includes the Workbooks collected in Volume 1, and the Handbooks collected in Volume 2. Published on Substack in 2022 and 2023 at the request of CTRI members, and in the form of a public peer-review process based on writing two-page sections each and every day, these Workbook and Handbook drafts will remain available on Substack until the eventual print publication of their final version on Amazon, and include:

Volume 1: A Book of Connections in Four Workbooks

- Workbook #I: Our Shared Humanity
- Workbook #II: Making Good Individual Decisions
- Workbook #III: Making Good Business Decisions
- Workbook #IV: Making Good Investment Decisions

Volume 2: A Book of Collections in Four Handbooks

- Handbook #I: Glossary List and “Terms-of-Art” Definitions
- Handbook #II: Author Profiles
- Handbook #III: References
- Handbook #IV: The Template for Reading Research Papers

Publication on Amazon will begin in 2024 with the print version of Template for Reading Research Papers so that readers can start with the end-product in hand, and use this collection of “*Tools, Checklists & Processes*” to “*See for Yourself*”. The ideas developed in these notebooks, written in long-form with no page limitation, and collected in Volume 3 will also become available on Substack until their eventual publication in print on Amazon.

The ideas gathered in these volumes rest on “*Axioms, Assumptions & Hypotheses*” described in the workbooks from Volume 1, and further defined in the handbooks from

Volume 2. These “*Axioms, Assumptions & Hypotheses*” start with the following “*Observations*”:

- “*Brains*” exists to manage “*Motions*” through “*Predictions*” (See Author Profile about ***Rodolfo Llinas*** in Volume 2), and continue with
- “*The Map is not the Territory*” (See Author Profile about ***Alfred Korzybski*** in Volume 2).

This reading note - Volume 3: Notebook #I: Model Risk – uses the Template for Reading Research Papers to find, and to present the shared “*Meaning*” of “*Observations*”, “*Perceptions*”, “*Predictions*”, and “*Motions*” about model risk, one key researcher at a time, and starting with a review of ***Mike Sutton***’s work about the myth of “*Iron & Spinach*” – our first analogy to describe a type of model risk.