Lifeworks

From Investment Products to Investment Solutions

BY ALEX MATHÉ-CATHALA

Currently available investment products and services hardly provide a satisfying answer to the retirement investment challenge. We are critical on two grounds.

First type of criticism: Naive diversification

Proper diversification is seldom achieved. The nature of the tools available to advisors and the color of the investment advice individual investors receive largely derive from Modern Portfolio Theory[1] (MPT). MPT is an asset allocation framework fathered in the 1950s by economist Harry Markowitz. It intends to explain the relationship between "market risk," also referred to as "systemic risk," and asset returns. It argues that the "optimum" portfolio construction depends crucially on the market risk and return of each asset class and on the correlations between asset classes. MPT provided rules to construct the optimal portfolio that still prevail in the investment industry today. Why is this of concern?

First, because MPT can only be loosely applied. Indeed, future returns and correlations –the two central inputs in MPT– are not observable in the real world. Investment managers need to forecast them ex ante. To illustrate the predicament they find themselves in, **Figure 1** shows the correlation of monthly returns between the S&P 500 index, a usual proxy for the equity class, and U.S. 10-year Treasury Bond index, a common proxy for the fixed income class. It is blatantly evident that correlation is far from being constant and has a random structure. Such characteristics violate

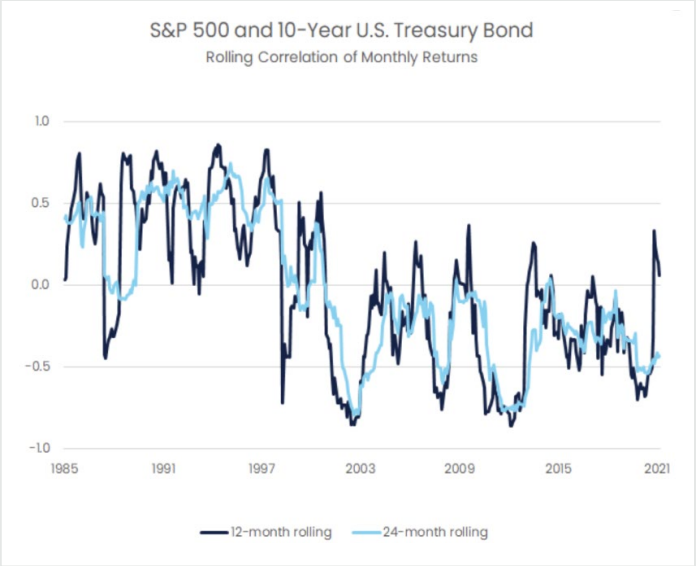

Figure 1 Historical correlations look like a random generator of numbers between -1 and 1. Sources: Intrinio (market data) and Lifeworks (calculations).

the central assumptions at the heart of MPT. Considering the wild randomness that seems to guide correlations, our investment managers are doomed to severe inaccuracy.

Second, because MPT uses the volatility of asset prices as its sole proxy for risk. Conceptually, volatility can be thought of as the typical deviation observed between an asset's actual return and its historical average evaluated over an arbitrary period of time. The higher the volatility number, the "riskier" the position according to MPT. Followers of the financial markets will regularly stumble

1. To be more precise, this statement and the conceptual definition that precedes describe what the "mean" deviation is. "Standard" deviation used by MPT is a slightly different animal, a more blurry one conceptually speaking and also a more complex one as far as calculations are concerned. However, ilt exhibits convenient mathematical properties, hence its wide applications. We won't delve into technicalities here but the relevant wikipedia article won't disappoint its reader.

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When Alex and his team aren't developing algorithms to augment our investment offerings, they are preparing market insights and quantitative analyses that add value to our advisors and clients.

upon such common statements as "ABC Corp. has a 20% vol" which means that, typically, the returns delivered by ABC Corp.'s equity will deviate by about 20% in a given year from their average[2] – either downwards or upwards. Does it tell it all about the risk of owning ABC Corp.? Infamous collateralized debt obligations ("CDO") created from low-quality subprime mortgage-backed securities ("MBS") had relatively low volatilities in the few years running up to the Great Financial Crisis until the bubble burst in 2008. Their value consistently increased, such that both their actual returns and their average returns were equally high, such that the deviation between the two was quite low, and such that the volatility number, or MPT's "risk" measure, was low. It implied that they weren't risky from MPT's point of view. We ask the question again. Did it imply that they weren't risky in any sense of the word? Clearly, it didn't. Although their historical returns, the only ones used to forecast volatility, were quite steady, it became obvious after the fact that these CDOs had been bearing a gigantic "left-tail risk." Left-tail risk is the name given to these threatening events looming over our "neo-liberal", globalized economy, that have an extremely low probability of occurring but whose impacts on asset prices would be extreme. Think global wars, natural disasters, mass cyberattacks, pandemics, socialist revolutions and other threats that still do not have a name given that they lie outside the realm of regular expectations. The potential impact of the previous events doesn't show in realized volatilities of asset returns given that they haven't occurred yet. If you should retain one thing, this should be it: there are numerous shades of risk and all of them should be accounted for when building your investment portfolio. The concept of volatility satisfies our desire to simplify uncertainty but that implies reducing to one single number matters that are too rich to be hollowed out that way. Many serious financial mathematicians will consider investment managers using volatility as their sole measure of risk and randomness as quasi-charlatans.

Third, we also add that market regime diversification should be an essential objective that is ignored by MPT[3].

Second type of criticism: Personal goals are not accounted for optimally

Traditional investment managers and their products ignore the single most important measure to the success of their mandates: the chance of reaching the investor's target. Channeling efforts into the product– rather than the investor's characteristics– results in sub-optimal sets of probabilities of reaching investors' specific goals. It logically follows that managers fail to maximize their investor's utility.

The limits of the 60-40 types of portfolios, also called "policy portfolios", were emphasized as early as 2003 by Peter Bernstein[4]. The claim was that the necessity to react to changes in market conditions affecting investors' chances of achieving their goals undermines the relevance of any portfolio which would be held constant over time. By now, enough compelling research was compiled by highly recognized academics (e.g., Robert C. Mertonv[5] and Saad Badaoui) which are lending credence to this claim for us to say that a fatal blow should be brought to the policy portfolio.

Needless to say, providers of traditional policy and target-date portfolios have been recently at the epicenter of a tectonic fault, and their landscape has been disrupted. But their principal disruptors, the so-called robo-advisors, have missed the mark as well. Robos explicitly market the pursuit of investors' goals, but they consistently fail at recognizing that relevant risk for investors and, like incumbents, inevitably end up offering policy and target-date fund portfolios. True, their efforts to squeeze trading costs to a minimum, operate automated portfolio rebalancing, and gamify investments with user-friendly interfaces, is a great advance from an investor's point of view. But for all the good reasons there were to disrupt incumbents, robo-advisors missed the most critical one exposed above. They also fail to recognize the uniqueness of each investor and of each investor's goal. Investors are indeed eventually bundled into very large groups according to the type of their goal (major purchase, retirement, education, general

[2] Markowitz, H., "Portfolio Selection". The Journal of Finance, Vol. 7, No. 1., pp. 77-91, March 1952.

[3] Lifeworks Advisors, "The Moneyball Theory for Capital Markets".

[4] Bernstein, Peter. "Are Policy Portfolios Obsolete?" Economics and Portfolio Strategy, March 2003.

[5] Merton, Robert C. "The Crisis in Retirement Planning." Harvard Business Review, July 2014.

investing, etc.). Subsequently, all investors within the same homogenous group are assigned the same stock-to-bond distribution. Hardly is the product customized, and in no way is it calibrated.

Lifeworks

Lifeworks proposes a solution to this double limitation. We expand the Markowitz paradigm of diversifying market risk to also include the two concepts of market regime risk and personal goals.

Our asset allocation methodology is premised on a profound conviction: the core objective of the investment portfolio should be to maximize the investor's probability of **achieving their consumption and legacy goals**. From this angle, the investment portfolio is the vehicle piloted by the financial plan. It is unique to the investor and it is liability-driven. Thus, it ought to be dynamic, flexible, liquid, and hedged, as required. We will explain what these attributes mean below. It is truly a **solution**.

Its objective shouldn't be to amass the biggest pot of money possible, or to take the least amount of risk to best preserve capital. It should neither seek a satisfactory compromise between these two extremes by attributing a reductive risk tolerance score to the investor via an unreliable questionnaire to finally target an arbitrary level of risk, as is still the common practice. Such a practice tends to disconnect the portfolio from the plan. Thus, the resulting portfolio tends to be static, hardly flexible, sometimes illiquid, and rarely hedged. It is just a **product**.

We consider the conventional product-based practice to be obsolete. Following in the footsteps of some of the most recognized finance academics, we have long advocated for innovation and have built the technology to propel the new liability-driven, dynamic, and flexible investment paradigm. Such a shift, **from investment products to investment solutions**, has far-reaching implications on the methodology followed by the advisor and the Lifeworks investment team, working hand in hand.

Liability-driven vs. behavior-based

Our investment process is liability-driven. The portfolio discussion and construction do not start until the client has established a first version of the financial plan with their advisor. This is for two reasons:

1. As alluded to above, the portfolio's core objective is to accomplish the plan and it is evident that a plan must first be formulated in order to get accomplished;

2. We are not brokers, we are not selling commission-based products, we are simply strategists providing an investment solution.

We quantify the variables that describe the client's economic life. Expected revenues (assets) and consumption and legacy goals (liabilities) are projected on an annual basis. What is implied by "liability-driven" is that the amount, timing, and likelihood of the client's future cash flows – both in- and outflows – are the primary drivers of the portfolio allocation. They define the composition and risk loading required of the portfolio in the accumulation phase and, subsequently but not independently, the replacement income generation strategy in the decumulation phase.

Our system improves on the traditional approach by target-date funds. Target-date funds shift allocation to more conservative assets over time as the investor gets near or in retirement. In a similar fashion, we recognize that risk loading should depend on the timing of liabilities. But target-date funds utilize a single input: the investor's retirement year. By taking the magnitudes and timings of all liabilities and assets into account, we significantly increase the granularity of our inputs. It allows us to define three risk buckets, or "tranches", to map risk loading to future income requirements, as is illustrated in **Figure 2** below.

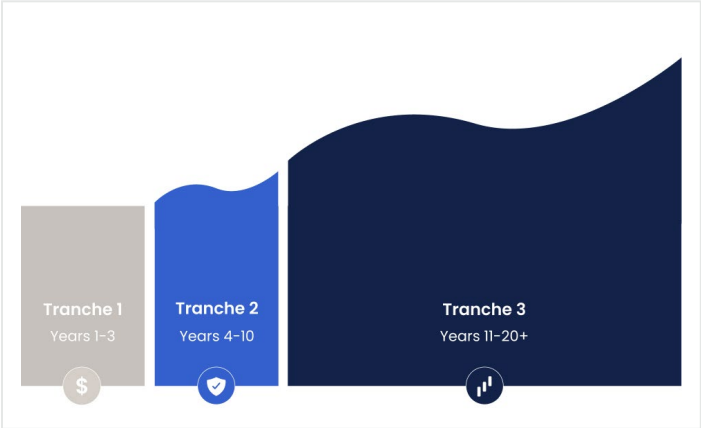

Figure 2 Tranches replacing risk assessment questionnaires and alleviating the portfolio construction problem.

Our system also improves on the traditional risk-tolerance approach of many advisory firms. Risk surveys are a norm when it comes to investment advice. They may vary in content and length, but their common purpose is to distill an investor's complex profile into a single measure of how much risk their portfolio should assume. Inputs include

age, wealth, income, investment horizon and investor behavior. The resulting measure, either qualitative or quantitative, is meant to be reductive enough so as to be interpreted by the person or the algorithm building the portfolio. It ultimately determines the target volatility constraint inputted in a portfolio optimizer function. There is no denying that it is hard to design the perfect survey: from the impact of recent market performance to question order, many factors can negatively influence the quality of the final metric. But, most critically, a single metric to summarize such the complex economic life of an individual cannot allow for effective capital allocation. The explanation is three-fold: risk surveys focus on the wrong objective –appetite for market risk–, they imply static or deterministic risk loadings rather than dynamic ones, and they blur the value of the advisor. We delve into these three limits here.

Contrary to traditional portfolios that are risk-tolerance-driven, and contrary to target-date funds that constitute a superficial and standardized approach to liability-driven investing, Lifeworks' RIS allows for a customized, dynamic, and flexible risk management strategy as is discussed in the next section.

Unique, dynamic, flexible, and hedged

Because every client's cash flows are unique, so is every client's optimal risk loading, and so is every client's portfolio as determined by Lifeworks' RIS. **Figure 3** represents the optimal allocation between tranches for a Lifeworks client given their specific future liabilities.

As the financial plan is revised by the client and the advisor, tranches and risk loading get updated. Tranche allocation is dynamic. Our portfolios, described below, are constructed with the most liquid and flexible assets to allow for much flexibility.

Tranche 1 ("T1") represents the projected net cash flow needs for the next 3 years:

- So as to preserve purchasing power, we have a particular focus on inflation-protected safe instruments.
- Instruments used range from cash, to money market ETFs, U.S. Treasuries, and CDs;

Tranche 2 ("T2") represents the projected net cash flow needs for year 4 through 10:

- The primary objective of tranche 2 is to generate income while pursuing capital appreciation opportunities.
- Our **Balanced Income Portfolio** invests in high-quality and low-volatility dividend-paying stocks and strategically layers an exposure to investment-grade bonds. The result is a stable, income-producing portfolio.

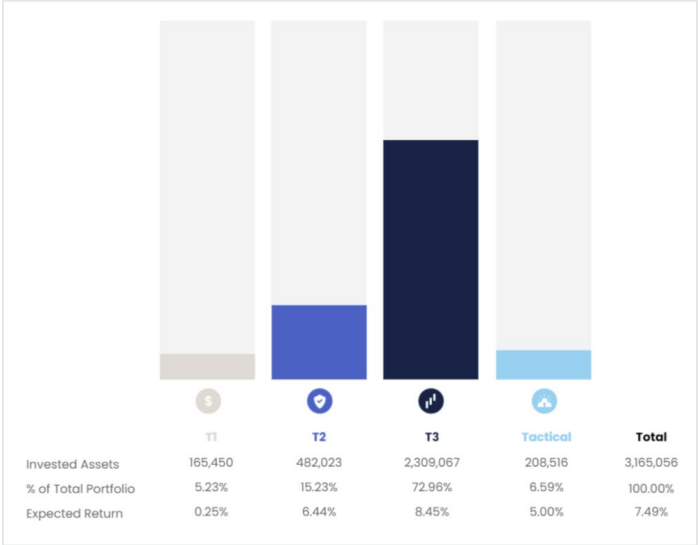

Figure 3 Customizing tranches according to the client's financial projections

Tranche 3 ("T3") represents the projected net cash flow needs for year 11 and beyond:

- Tranche 3 is geared towards long-term growth and capital appreciation.
- Our **Diversified Premia** strategy ("DP") is at the cutting edge of investment innovation and strategy. It combines the benefits of smart beta ("Diversified") and factor investing ("Premia") to deliver superior risk-adjusted returns. Our team of quantitative investment strategists tailors exposure to rewarded risk factors while diversifying away the unrewarded risks that undermine traditional investment strategies. DP portfolio leverages big data, rigorous scientific and mathematical models, and is dynamically recalibrated to incorporate the most relevant economic and financial market information into the portfolio. DP can be decomposed into its two pillars, the Opportunity strategy and the Quality strategy;
- **Opportunity** strategically focuses on more dynamic growth factors including innovation and momentum. This growth-focused strategy offers exposure to the 50 stocks with the highest trading momentum and the greatest potential to disrupt industries. It benefits from the same smart beta structure as Diversified Premia.

• **Quality** focuses on a set of robust value factors such as high profitability, high payout, and low volatility. It invests in the 50 equities that have established the most durable operational edges over competitors, exhibit the highest profitability margins, and take the most shareholder-friendly corporate actions. It benefits from the same smart beta structure as Diversified Premia;

• Our **World ETF** model, and our **direct** and **diversified** indexing strategies provide the advisor with additional flexibility;

Finally, the **Tactical portfolio** provides exposure to alternative asset classes that are stores of value and represent safe havens during market sell-offs (commodities like gold); or that have the potential to become widely accepted as stores of value (digital coins like bitcoin) or mediums of exchange (digital coins like ethereum); or that have singular return profiles like real estate (diversified and liquid investments only). Lifeworks' tactical allocations are customized to each client in order to optimize the efficiency of their portfolio and increase the probability of achieving their personal wealth management objectives.