nebowealth

The Perils of Outsourcing Asset Allocation to a Risk Score

EXECUTIVE SUMMARY

For too long, the industry has been outsourcing asset allocation decisions to the risk score. This approach often results in portfolios that are disconnected from actual client goals and are unresponsive to changes in clients' financial situations. As a result, investors are not receiving truly personalized portfolios, leading to sub-optimal outcomes and the much bigger risk that clients don't meet their goals.

Our research advocates for an Investment Policy Process that appropriately balances the crucial elements of time horizon, risk tolerance, cash flows, and return objectives into a dynamic, ongoing strategy that adapts in real time to your clients' changing lives and market conditions.

By pioneering not only technological innovation, but also process innovation, Nebo Wealth is redefining how the industry engages with clients, offering a more adaptive and comprehensive approach that seeks to improve investor outcomes.

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Risk Score Über Alles[1]

According to none other than that bastion of financial education, the CFA Institute, an investment policy statement should be "a written document that clearly sets out a client's return objectives and risk tolerance over the client's relevant time horizon, along with applicable constraints such as liquidity needs, tax considerations, regulatory requirement and unique

1. "Über alles" is German for "above all else."

circumstances." Simply put, the three pillars of the investment are the client's required rate of return, risk tolerance, and time horizon.

Yet when it comes to financial planning and building a client's portfolio, pretty much one component dominates everything – risk tolerance! Both the required rate of return and the time horizon are at best poor distant cousins in the discussion, or at worst banished like Harry Potter to a closet under the stairs. And most often we see all the complexities of a client's risk tolerance boiled down to a single number: the dreaded risk score. The risk score ends up being the virtually exclusive determinant of the client's asset allocation.

> "It's time to stop outsourcing asset allocation – the most important component of a client's investment returns – to a risk score."

It's time to stop outsourcing asset allocation – the most important component of a client's investment returns – to a risk score. The alternative is to connect the client's financial plan (not the risk score) to a portfolio specifically customized for the client through an Investment Policy Process which more appropriately balances required return, time horizon and risk tolerance.

Achieving this goal of coherently connecting planning and investing requires a big idea. Instead of defining risk as volatility, the big idea is to define risk as "not having what you need, when you need it" and to then build portfolios seeking to minimize that risk. This is a significant leap forward for goals-based wealth management.

The Dangers of an Over-Reliance on the Vagaries of a Risk Score

The process many advisors use today centers on subjecting the client to a risk tolerance questionnaire. The risk score generated by the questionnaire is then used to determine the client's asset allocation, arguably one of the most important portfolio characteristics. There are numerous problems with this approach. First and foremost is that clients with vastly different

circumstances can end up owning the same portfolio all because…wait for it…they have the same risk score. Take the example below:

Exhibit 1: Advisory Accounts

Risk tolerance tends to drive asset allocation

Investor		
	Investor 1	Investor 2
Current Age	30	60
Retirement Age	64	64
Income	$75,000	$160,000
Savings Rate	5%	8%
Account Balance	$40,000	$800,000
Risk Tolerance Score	**60**	**60**
Equity / Fixed Income		
Equity	60%	60%
Fixed Income	40%	40%

For illustration purposes only.

Even at a cursory glance, it is clear these clients have very different circumstances. Investor 1, a young client with a long-time horizon but not much in the way of financial assets, should hold the most aggressive portfolio they can tolerate. Investor 2 is nearing retirement with a great deal more in financial assets. A 60/40 portfolio could be the right allocation for them depending on their goals and objectives, but without understanding those goals, putting the client directly into a 60/40 solely based on their risk score is just another version of autopilot.

On the surface, boiling a client's risk tolerance down to a risk score may seem alluring. It's easy to both understand and communicate. But it also fails to take into account any nuance into the client's needs and circumstances. Using a risk score to build a client portfolio essentially nullifies an advisor's great financial planning, throwing all that work out the window. The resulting portfolio is completely disconnected from the client's financial plan. If a client's goals and objectives change, their portfolio does not. The only way a client's portfolio would change is if that dreaded risk score changes. The portfolio is not connected to the financial plan – it is connected to the risk score! And we have not even gotten into the issues related to determining the risk score itself. Read on!

The Behavioral Backdrop

There are myriad well-documented behavioral issues related to risk tolerance questionnaires and risk scores. Where do we begin? Let's start at a very basic level – the client. Risk scores fail to distinguish the degree of risk tolerance on a granular or individualized level (even if we accept the concept of volatility as risk[2]) such that the vast majority of clients end up in the "moderate" risk tolerance bucket. The result is a one-size-fits-all solution – the polar opposite of the customization clients demands and advisors seek to provide.

This approach is akin to what might be called shoe-size investing. It is like turning up at the shoe shop and saying, "I'm a size 10," and the assistant presenting you with a pair of shoes without regard to the activity you intend to undertake. After all, the activity matters – I require a very different type of shoe to go running than I need to take a ballet class, and I'd certainly prefer to go hiking in my boots versus donning my favorite brogues – I'd rather reserve those for strutting my stuff on a Saturday night!

As if this wasn't all bad enough, a recent study by Sivarajan and De Bruijn[3] found that many risk tolerance questionnaires fail to accurately measure the very thing they purport to assess. This failure is compounded by the time inconsistency of risk tolerance – that is to say, "stated investor preferences differ significantly ex ante and ex post market events…Risk preferences are, therefore, not just innate (or dispositional) but also context-dependent (or situational)."

As we have observed before, everyone starts out saying they are a long-term investor right up until the first patch of poor performance when they suddenly become obsessively interested in today's/this week's/this quarter's returns. We have previously labelled this time inconsistency as poor emotional time travel.[4]

In one of the first critiques of the risk tolerance questionnaire, Yook and Everett[5] gave students questionnaires from six different investment forms and compared the results. They found the average correlation across the six questionnaires was just 0.56! If the assessed risk tolerance of the same individual differs from questionnaire to questionnaire, what is actually being measured, and what is the value of measuring it?

Pan and Staten[6] summarized the issues with risk preference questionnaires, observing five key points:

- There is no clear link between the scores on a risk tolerance questionnaire and the resulting portfolio recommendations

2. Of course, we reject this equality. We have written extensively on the dangers of equating volatility and risk. As Buffett once opined, "Volatility is almost universally used as a proxy for risk. Though this pedagogic assumption makes for easy teaching, it is dead wrong: volatility is far from synonymous with risk. Popular formulas that equate the two terms lead students, investors, and CEOs astray."

3. Sivarajan and de Bruijn, "Risk Tolerance, Return Expectations, and Other Factors Impacting Investment Decisions," *Journal of Wealth Management* (Nov 2020).

4. See Your Own Worst Enemy II: Present Bias (Montier, Tarlie, and Kadnar 2023).

5. Yook and Everett, "Assessing Risk Tolerance: Questioning the Questionnaire Method," *Journal of Financial Planning* (Aug 2003).

6. "Questionnaires of risk tolerance, regret, overconfidence, and other investor propensities," Carrie H. Pan & Meir Statman, March 2012.

- Risk tolerance is situational – it varies by circumstances and associated emotions
- Ex-ante and ex-post risk tolerance are different
- Propensities other than risk tolerance impact the measure of risk aversion
- Investors have multiple risk tolerances (one for each goal, e.g., retirement, child's education, etc.)

Given that a client's risk tolerance is usually the link between their financial plan and their portfolio, it is little wonder that in our surveys of financial advisors, nearly 60% (of ~400 respondents) reported a struggle in aligning the clients' financial plans with their investment portfolios. Indeed, nearly 90% said they observed a gap between financial planning and asset management. Using the risk tolerance measure as the lynchpin or keystone is like trying to build on quicksand! It makes for a really bad foundation.

"In our surveys of financial advisors, nearly 60% reported a struggle in aligning the clients' financial plans with their investment portfolios."

Not only are the foundations of risk tolerance shaky to say the least, the near dictatorial power wielded by the risk tolerance questionnaire and risk score should be concerning from a behavioral perspective because it runs the risk of creating an anchor.[7] As we have previously argued, humans are best seen as cognitive misers (see Your Own Worst Enemy (Preface) – Darwin's Mind: The Origin of Biases), and one of the ways that this presents itself is through a focus on only a subset of information – particularly dangerous when you are dealing with a topic as complicated as risk tolerance. When a number like a risk score is presented, it can become a crutch on which decisions are based. As Simon Caulkin observed (summarizing the work of Ridgway[8]), "what gets measured, gets managed – even when it's pointless to measure and manage it, and even if it harms the purpose of the organization to do so." Replace "organization" with "client" and you have a pretty good description of how we view risk scores.

7. "Anchoring" refers to instances when people cling to irrelevant inputs in the face of making decisions under uncertainty.

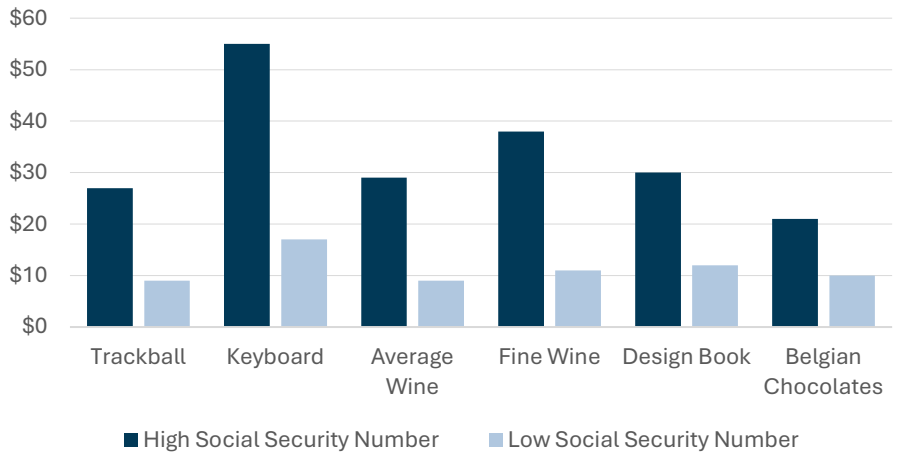
8. Ridgway, "Dysfunctional Consequences of Performance Measurements," *Administrative Science Quarterly* (Sep 1956).

If risk tolerance is so widely condemned, why do so many still rely upon it? The psychological literature is replete with examples of people clinging to irrelevant inputs in the face of making decisions under uncertainty – classic anchoring behavior. For instance, Ariely, Loewenstein and Prelec[9] report a series of experiments where they asked people to write down the last two digits of their social security number. Having done this, people were then asked to value a variety of objects. If people were "rational," the results should show no correlation between the essentially random input of the last two digits of their social security number and the valuation they placed on objects.

However, as Exhibit 2 shows, people with the highest last two digits in their social security number were willing to pay anywhere from 2-3.5x the amount that people with the lowest social security numbers were willing to pay!

Exhibit 2: Anchoring at Work

Willing to pay 2-3.5x more if you have a high social security number!



Now you may dismiss the Ariely et al results because they were using MBA students (although we would caution against such a rejection). Although the fact the MBA students would all pay more for a keyboard than a fine wine is a little alarming!

But Englich, et al[10] tested judges (with around 15 years of experience) making decisions in a mock trial. Before the sentence for shoplifting was passed, the judges were asked to roll a pair of dice. The dice were loaded so that they either showed a combined score of 3, or a combined score of 9. In the cases where the low anchor (3) was used, the average sentence was 5 months in jail. As you see in Exhibit 3, in the cases where the high anchor was used the average jail time was just under 8 months! Yikes.[11]

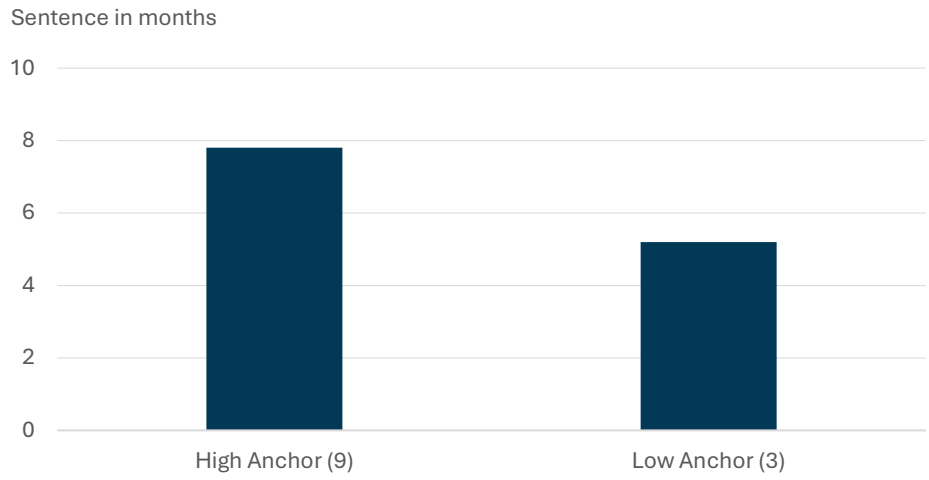
9. Ariely, Loewenstein, and Prelec, "Coherent Arbitrariness: Stable Demand Curves Without Stable Preferences," *Quarterly Journal of Economics* (Feb 2003).

10. Englich, Mussweiler, and Strack, "Playing Dice with Criminal Sentences: The Influence of Irrelevant Anchors on Experts' Judicial Decision Making," *Personality and Social Psychology Bulletin* (Mar 2006).

11. There are myriad other studies essentially confirming these findings in other unique and interesting ways. One of us (Montier, 2007) has shown that investment managers are just as likely to suffer from this behavioral error as everyone else. Montier asked investment managers to write down the last four digits of their telephone number and then asked them to estimate the number of doctors there were in London. The one thing we know is that there should be a zero correlation between the investors' phone numbers and their guesses. However, as, a strong positive correlation was observed. Those who had phone numbers that ended in 7000 or higher thought on average there were around 8000 doctors in London. Whereas those with telephone numbers ending in 3000 or lower thought an average of around 4000 doctors could be found in London. Clear evidence of anchoring once again.

Exhibit 3: Anchoring at Work

Experts are vulnerable too – Judges with over 10 years of experience



In the cases above, the anchor was truly irrelevant. It had precisely zero bearing on the correct answer, yet despite its undoubted irrelevance, people still clung to it as if it were driftwood in a tempest. The situation we are dealing with in respect of risk scores is much worse because it isn't just individual anchoring that we must combat, but also institutional anchoring.

As noted above, the key role of the risk tolerance questionnaire and risk score has grown so pervasive that anyone questioning the centrality of the risk tolerance or risk score would be faced with the stymieing retort of, "So what is the alternative?" Yet we no longer live in a world ruled by TINA ("there is no alternative"). We have argued before that financial planners are stuck in the past, wedded to anachronistic constructs, and bad assumptions.[12] It is time to break free.

We Have the Technology, We Can Rebuild[13]

In the past we have pointed out that it is very hard to stop humans from being human. Even if it were possible, it isn't clear that it would be a good idea. One attempt to address this problem is the robo-advisor, where the human is replaced by the machine. In our view this is a terrible idea. Humans, though fallible, generally have instincts in the right direction. But they need help. The role of technology is to enhance, not replace, the human. In the context of the advisor/client relationship, we can use technology to help both advisor and client understand choices and tradeoffs. So instead of constantly trying to debias decisions, it is often

12. See Investing for Retirement II: Modeling Your Assets & Correcting the Flaws in Monte Carlos (Montier and Tarlie 2022). The bad assumptions here relate to the near-ubiquitous use of the "Random Walk" in Monte Carlo simulations found in the vast majority of financial planning tools. In this paper, we argue that the Random Walk is different than empirical returns for stocks and bonds, and that this can significantly distort a Monte Carlo simulation and the resulting analysis of a financial plan.

13. For those who did not watch much TV in or from the 1970s, "we can rebuild him" is a reference to the epic television series "The Six Million Dollar Man" ("The $43 Million Dollar Man," in today's dollars).

better to seek to rebias,[14] which effectively turns the behavioral pitfalls to our advantage.

When it comes to anchoring, two ways of dealing with the problem spring to mind. First, provide a better anchor. That is, instead of focusing upon the risk tolerance questionnaire, focus on the two key questions that lie at the heart of our approach: what do you need and when do you need it? This leads to a very different framing of risk than the traditional view of equating risk to volatility. These questions drive our pioneering goals-based portfolio optimization framework.

The abandonment of risk tolerance questionnaires may be too extreme a step for many. The goal of the risk questionnaire, after all, is critical. Understanding what downside risks a client can withstand is crucial in terms of helping the client stick with the plan. Having a client exclaim "no mas" as the equity markets fall (and future expected returns rise) defeats the whole purpose. It is insult on top of injury on top of…I'm not sure what else, but just think of something absolutely dreadful. Understanding the limitations of a risk questionnaire is vital to making sure the client can withstand the slings and arrows that the market will inevitably provide. There are also more robust behavioral solutions on the market that attempt to address some of these concerns.

"We believe that an 'Investment Policy Process' (IPP) that better balances Target Return, time horizon, and risk tolerance will lead to improved client outcomes."

Creating the portfolio specifically designed to achieve the client's goals as shown in their financial plan and then assessing whether the plan and portfolio run afoul of the investor's psychological risk aversion provides essential context for both the client and the advisor. If the plan and portfolio are not in sync, the advisor is well armed to talk to the client about the tension between the client's goals and their risk aversion. This seems to be a much more constructive approach than declaring that the psychological risk aversion is so well calibrated by the questionnaire and so fundamentally immutable that all other considerations should be tossed aside.

14. See Your Own Worst Enemy I – Framing and Nudges, (Montier 2023). We know from a behavioral perspective that the framing of questions can radically alter the answers given and that it is incredibly hard to remove people's biases. In the paper, we explore how framing, nudges and re-biasing can influence answers to questions, and how at the philosophical heart of Nebo is a focus on the importance of asking the right questions.

Introducing the "Investment Policy Process"

The three pillars of the Investment Policy Statement are target return, time horizon and risk tolerance. We believe that an "Investment Policy Process" (IPP) that better balances target return, time horizon, and risk tolerance will lead to improved client outcomes. In the remainder of this paper, we use the Nebo Wealth platform to illustrate how to operationalize an IPP centered on the three primary pillars using our pioneering portfolio optimization engine to construct the perfect-fit portfolio for every stage of life. This process will illustrate how Nebo Wealth sits at the critical junction between the financial plan and the client's asset allocation and portfolio design, bridging the gap between the two in a seamless manner.

The IPP begins with understanding the basic time horizon of the client – current age, retirement date, and estimate of longevity. Building a portfolio without an understanding of time horizon is the same as sailing across the ocean with no navigation. By sheer luck, you may get to where you want to go, but likely not. Yet most portfolio construction tools are built around a mean-variance optimization that has no concept of time horizon and has only one dimension: volatility as risk. And you know our feelings on that subject…

In terms of risk tolerance, we have taken the suggestion of Harold Evensky and his CFA curriculum, which advocates that the most crucial aspect of risk tolerance is the maximum loss a client can tolerate. He provides estimates of losses based on historical bear markets and the 2008 Global Financial Crisis, and then translates those maximum tolerable losses into portfolio constraints – either a maximum weight in stock or a maximum portfolio volatility.

With the client's time horizon, risk tolerance, and portfolio constraints established, we can balance the return necessary to achieve the client's objectives against their time horizon and risk tolerance. We do this by understanding the client's future cash flows and legacy desires, both of which embody their goals and objectives. Leading financial planning tools do a good job of building out these cash flows, and we can integrate those cash flows directly into Nebo Wealth. Our platform also has several tools that allow you to get a broad sense of client cash flows, and another tool that allows you to drill down to a more granular level.

With the client's cash flows all set, we can explore the different feasible Target Returns that can satisfy the client's goals and objectives. An advisor can set different legacy goals at the household level and then assess the return and calculate the resulting terminal wealth. Our approach is agnostic between a goals-based and a possibilities-based approach.

"With the client's specific time horizon, risk tolerance, and Target Return set, with a click of a button, you can build the perfect-fit portfolio for each client at every stage of life."

With the client's specific time horizon, risk tolerance and Target Return set, with a click of a button, you can build the perfect-fit portfolio for each client at every stage of life taking into account your firm's Capital Market Assumptions, investment building blocks, and preferred implementation (ETFs, individual stocks, or mutual funds). This portfolio is optimized to maximize the likelihood of the client achieving their specific goals and objectives. If the client's goals and objectives change, the portfolio will seamlessly evolve as the client's needs and circumstances change – you no longer rebalance to a static allocation. Instead, you re-optimize based on the dynamic nature of capital markets and client circumstances to the new perfect-fit allocation.

A Case Study in Goals-Based Portfolio Construction

To bring the Investment Policy Process to life, let's look at a case study of a 60-year-old couple with five years to retirement, $3.1 million in assets and a 35-year time horizon. They are saving $40,000 a year until retirement, and through the financial planning process,[15] they determined they will need $190,000 a year in current dollars to fulfill their retirement goals.

In terms of the IPP, the key aspect of risk tolerance is understanding the maximum loss a client can tolerate and translating that into a portfolio constraint – either a maximum weight in equities or a maximum volatility. This is not the easiest thing to do, as we make clear with the research on judges and MBA students. There is a subjectivity that needs to be taken into account when assessing a client's ultimate capitulation point.

However, the platform provides the advisor with flexibility to implement a variety of portfolio constraints based on the client's risk tolerance. We can also include a constraint on the amount of liquid alternatives (or other asset classes) based on the client or the advisor's preference. In the example below, we will set a maximum weight in liquid alternatives of 20%.

With time horizon and risk tolerance set, you can explore different Target Returns to understand the tradeoffs between the client's long-term wealth accumulation needs and their ability to withstand short-term market fluctuations. A good starting point for the Target Return is the return that, if achieved, results in a terminal wealth value of zero – this is the return required to achieve the common objective of simply not outliving your money.

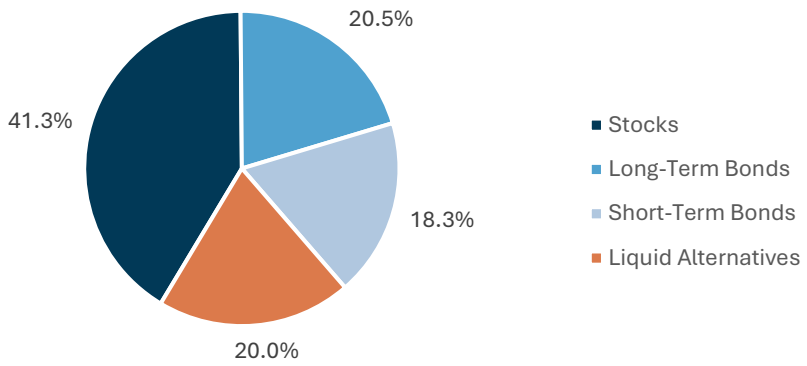
For this client, the minimum return required to avoid running out of money before the end of the plan is 2.5% net of taxes, fees, and inflation. With just a handful of pieces of information[16] and a click of a button, you can build the

15. With Nebo Wealth, you can build out cash flows using our Simple or Enhanced Cash Flow tool, or we can integrate cash flows from eMoney, MoneyGuidePro, or Right Capital.

16. Technically, the client's date of birth, retirement date, longevity, current wealth, savings rate, net withdrawal rate in retirement, and a Target Return is required to produce the personalized portfolio for the client.

perfect-fit portfolio based on the client's need to achieve a 2.5% real return and a 35-year time horizon (see Exhibit 4).

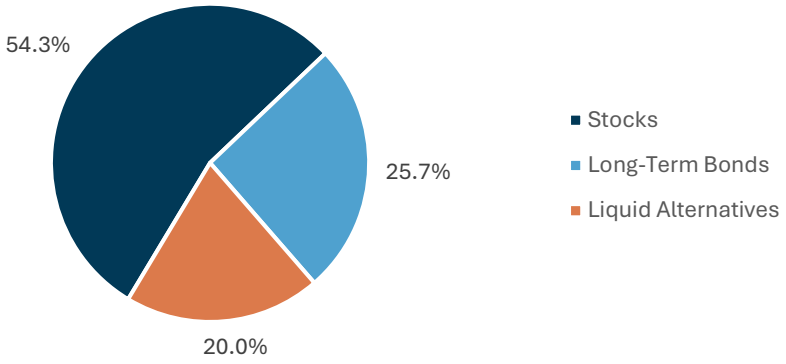
Exhibit 4: Portfolio Allocation



E[Ret] = 3.6%, Vol = 8.5%, Equity Beta = 0.45, Bond Beta = 0.35

If the client's goals change – for example, they want to incorporate a legacy or preserve purchasing power – Nebo will recalculate the Target Return needed to satisfy the goal. In this instance, to preserve the purchasing power of $3,100,000, the Target Return becomes 4.0% real. Again, with the click of the button, you can build the perfect-fit portfolio based on the client's new goal (see Exhibit 5).

Exhibit 5: Portfolio Allocation



E[Ret] = 4.0%, Vol = 10.9%, Equity Beta = 0.59, Bond Beta = 0.40

Using ACME Advisor's Capital Market Assumptions

In this example, we are using the Capital Market Assumptions (CMAs), as illustrated in the screenshot below. The platform is fully open architecture, both from a CMA as well as an implementation perspective. This open architecture is critical as it allows the advisory firm to preserve their investment identity. Not only are the CMAs customizable to the advisory firm, but so are the portfolio building blocks. Each of the asset class categories shown below are customizable to the advisory firm, resulting in a platform tailored to the philosophy and identity of the advisory firm.

Exhibit 6: Capital Market Assumptions

	Short-Term Expected Return	Volatility	Stock Correlation	Bond Correlation	Long-Term Expected Return
Stock	4.6%	18.1%	0.94	0.00	6.0%
Long-Term Bond	2.8%	6.8%	0.16	0.82	3.1%
Short-Term Bond	1.6%	3.0%	0.00	0.50	1.5%
Liquid Alternatives	3.8%	8.0%	0.43	0.00	3.7%

The single most common piece of feedback we have received from Nebo Wealth advisors is their increased confidence that the client is in the right portfolio for the client's goals and objectives. Nebo Wealth helps the advisor understand what they need to believe to own a portfolio for the client – what they need to believe about the client, and what they need to believe about the markets. This increased understanding translates into increased confidence. And ultimately, advisors that are more confident grow faster.

Another important element of confidence is the array of tools available to test the viability of the client's plan. You can test the viability of the client's financial plan using our next-generation Monte Carlo simulations.[17] You can also run an array of scenario tests varying the key inputs – required return, savings and withdrawal rates, and retirement dates. This array of robustness tests provides you with the best data we can to help you guide the client to the best portfolio for their long-term wealth accumulation needs, balanced against their ability to withstand short-term drawdowns.

Lastly, you can then export the portfolio to your rebalancer, trade the portfolio yourself or trade the portfolio directly through Nebo Wealth. Real personalization with scale and efficiency.

17. Nebo's Monte Carlo engine does not use the Random Walk model in generating its return and volatility profiles. Through our research, we have found that the Random Walk understates the riskiness of bonds and overstates the riskiness of equities. The result is an artificially wide distribution of returns and a distorted assessment of the viability of the financial plan. See Investing for Retirement II: Modeling Your Assets & Correcting the Flaws in Monte Carlos (Montier and Tarlie 2022).

A Leap Forward in Goals-Based Wealth Management

Financial planning tools have done a great job of helping advisors build out the cash flows necessary to achieve a client's long-term goals. However, these financial planning tools have also ventured into the world of asset allocation. And here, our view is that they fall woefully short. In a great number of cases, the client's risk score ends up being the primary determinant of a client's portfolio.

Nebo Wealth provides an alternative that empowers the advisor to take a much more holistic approach, balancing the client's long-term wealth accumulation needs and short-term risk tolerance through an Investment Policy Process and proprietary risk optimization based on the simple concept that risk is "not having what you need, when you need it." This critical information is then used to build portfolios designed to maximize the likelihood of clients achieving their goals.

The result, we would argue, is first and foremost better outcomes for clients. For advisors, Nebo Wealth provides an unparalleled level of personalization and delivers it in a way that allows advisors to grow and scale their business more efficiently and profitably.

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