

ReSolve Riffs - Advanced Portfolio Strategies with Roni Israelov - Tax efficiency, Credit & Cash Flow Goals

[00:00:00] Adam Butler:

We've got a real *Masterclass* for you today, guys with none other than Roni Israelov. But before we get started, our esteemed chief compliance officer's gonna say a few words about why you shouldn't take anything we say today. Seriously,

[00:00:13] Mike Philbrick:

Surprise. Yes. As always, please consult a financial professional. You should not get your investment advice at four o'clock in the afternoon on YouTube. With that, I think we can set the stage for having a wide ranging informational-purposes only discussion, not advice.

[00:00:34] Adam Butler:

All right. So kick us off. Roni, super excited to have you on. We've been trying to get this together for several months, actually. You've had some papers you were working on and then some other, I think, company-building distractions that have caused us to push this off, but we're finally getting it on the books. So this is great.

Backgrounder

Before we get going, maybe kick off with your background, which I think super interesting, and definitely want to dig into some of your prior experiences and what you're doing now at Endeavor.

[00:01:04] Roni Israelov:

Yeah, thanks. I'm excited to be here. I think we're gonna have a really fun discussion. So, I am the Chief Investment Officer and President of Endeavor. I thought I'd start just by introducing Endeavor to everyone who's is tuning in today. So we are a wealth optimization firm who serves affluent and high net worth individuals and families, and we specialize in creating and managing custom, lifestyle-protected growth portfolios, which are designed to optimize the balance of providing cash flow security while targeting portfolio growth. Now in terms of my own background, I joined Endeavor three years ago. So just before Covid actually, February, 2020. And prior to Endeavor, I spent about 11 years at AQR Capital Management, large quant asset manager who,

yeah, have you heard of them? AQR, out of Greenwich, Connecticut, and I worked on a wide range of projects and activities and strategies while I was at AQR. So I joined in 2008. I had been at Lehman Brothers for a little over a year before joining and I was fortunate in terms of my timing. I left Lehman and joined AQR September, 2008, a week before Lehman collapsed, so, I was very happy to find my way to AQR.

[00:01:41] Adam:

Nice path, Roni.

[00:01:44] Roni:

I know. I got I got lucky. And I started, when I started at AQR, I joined the Global Asset Allocation Team and I was overseeing equity country selection strategies in the macro space, systematic and worked on a number of projects related to that, on the factors side, on the portfolio construction side, on the risk modeling side. So I was working on rebuilding and recalibrating the risk models that were applied to equity country indices that then expanded into the entire asset allocation universe.

Spent some time, as I said on factors, and most of the factors that would be in that type of portfolio are long term in nature. But we found some shorter term factors and I ended up launching and overseeing a *short-term stat arb fund*, which was in the macro space. So futures and some ETFs when appropriate. And then an opportunity arose to oversee the options involved teams. So I spent about the last half of my time at AQR building, managing and overseeing option strategies, primarily in the harvesting of volatility risk premium arena.

And the last year at AQR, while I was doing that, I also had the opportunity to oversee the portfolio implementation research team. So it was really thinking a lot about portfolio construction for stock selection strategies. We weren't building factors or the like, but essentially we were consuming factors, consuming a risk model. Consuming a trading cost model and then optimizing individual funds. You are really thinking about the research around how to best optimize individual funds using those inputs. So that, that was my time at AQR. Before AQR, as I said, I was at Lehman Brothers for about a year. I was in a sell side role, so quant equity strategies, and we were really focused on stock selection strategies.

Long only, long short, relaxed constraint. It was a team that was led by Matthew Rothman, who had spent some time before Lehman Brothers at a number of quant equity funds. So even though it was a sell side team, he really managed it as though it were a buy side team. It was a nice intro into quant joining that team.

And I had joined that team from Carnegie Mellon. I had just finished my PhD in finance, so that is my background. I had a great opportunity to work on, pretty broad range of strategies and portfolios and research, which I think has given me the perspective to do what I do now at Endeavor

[00:04:44] Adam Butler:

Carnegie Mellon. I thought AQR only hired out of University of Chicago by, by policy. What happened there?

[00:04:51] Roni Israelov:

I know. Somehow I snuck in. I think it's because I came from Lehman, I had a path through another organization.

[00:04:57] Adam Butler:

I gotcha. One of the things I've always wondered cuz I spent many years earlier in the decade soaking up all of the papers that, that you and Toby and Ante and Cliff and Ralph and all your whole team at AQR published. I was just wondering to what extent the published research at AQR informs the actual strategies that are implemented on the ground there. Like you've got, there's a ton of strategies on trend, are papers on trend strategies or value, momentum. Value, momentum everywhere, carry, transaction optimizations, like there's every conceivable angle on markets you could think of. And I think it's a, I'm not the only one that sort of wonders how far does AQR implementation team wander from the published papers, In implementing those strategies?

[00:05:53] Roni Israelov:

I think a lot of the published papers give you a taste, a taste for the underlying investment philosophy or theme, but the implementation beyond that can be pretty complicated. As an example, I had published a paper called *Which Index Options Should You Sell?* And as I said, I was overseeing the options effort, which was largely volatility risk, premium harvesting in nature. And it gave a description of returns and risk across the option surface, which, which might be informative, but that's really just a starting point, right? That only takes you, one or two steps down the process of building a portfolio. And I think if you look at most of the papers, they indicate a philosophy, a way of thinking about things. I think they offer some guidance, but, but the devil's in the details, and you can have 50 people reading the same paper, constructing pretty different portfolios and strategies.

Maybe they're capturing the same theme but, but the implementation can be pretty challenging. And I have always really been a fan of implementation. It's interesting to me that when you're in research and when people are joining an organization, a research organization out of school, I think pretty much everybody wants to work on factor research. That is, that is where everybody's heart is. And that's interesting and important. If you're, especially if you're a hedge fund and your goal is to provide alpha, factors underlie that. But, the extent to which you can effectively capture that alpha or the damage you might do to the alpha in a portfolio construction process is really guided by the efforts made in terms of portfolio construction. So for some reason it's a little less sexy, but I think it can be as or more impactful than the other areas of research.

So I don't think too many of AQR papers are actually written on portfolio construction itself. Maybe there are a couple of counter examples where some guidance is given, but I think that's an, a very important aspect of research.

[00:07:58] Rodrigo Gordillo:

We were talking about this today . We're just talking about how difficult it is. There's, we knew a trade,. we still know a trader that always said, look, there's every, there's many people that have models that are significantly better than mine, but I happen to be significantly better at putting that money in my pocket. I just, my, the execution in prop trading is everything. This is a prop trader, and the modeling is like an interesting initial point of discovery, but the, what it takes to actually make alpha out of it is a totally different thing. And it is what consumes most of our research as well.

So it's not surprising and I think it's an important key to success here. Few people see that, especially on the Twitter sphere and the blogs. Yeah,

[00:08:37] Roni Israelov:

I was just gonna say, I think once you start going down the rabbit hole, I think it's no less intellectually stimulating than the alpha, than the alpha research. It's a different, it's a different part of the research process, but it is intellectually stimulating, as challenging. There are many degrees of freedom, many paths you can go down. And I know we're gonna talk a little bit about how we think about portfolio construction and whatnot at Endeavor, but a lot of the work that we're doing actually is about portfolio construction and, how do you make it scale across, to hundreds, thousands, tens of thousands of portfolios and whatnot. So I think it's a very important and interesting part.

[00:09:12] Rodrigo Gordillo:

Another side story, I was speaking to somebody from Bridgewater and they were discussing how they had come up with a new model that they'd never seen before. And he'd come back with some interesting results, high Sharpe ratio independently, and it took months and months of working with them, and finally they came back to them after months, when the portfolio construction team tested it out and said, listen, yeah, this is good. You've added, let's say the independent Sharpe was one, you've added an extra two basis points in Sharpe. Implementing your thing. There's overlap with a lot of stuff we do. It hasn't hurt our portfolio construction and our Sharpe, in fact, you've added two basis points. Just an interesting, like eye-opening, ah-huh.

[00:09:54] Adam Butler:

150 billion is a lot of, is a lot of dollars in your pocket. But for smaller shops, it may not be as may not be as interesting.

[00:10:01] Roni Israelov:

Yeah. I think that's actually, that's funny because there's so much truth to that. If you are working, as I said, I started in in the equity index country selection models, but I worked in different parts of the organization as well.

And when you have a very well developed mature model, that has however many factors it has in it, and somebody's working on an independent factor and they think they found something, they have found something, it's statistically significant. It, show it's efficacious. It's maybe efficacious across different markets. So you have, out of sample evidence, like it, it meets all the criteria that you would look for in a factor. And then you start to try to incorporate it into the model and see how much impact it has. I think it's always less than people expect until they've done this a few times, and that can be a little bit disappointing, but to your point, two basis points is two basis points and on in large portfolios that that is meaningful.

[00:10:51] Rodrigo Gordillo:

And the flip side of that is also model, sorry, just the flip side of that is models that when you test 'em, initially you get a result, then you put transaction costs through, and it's a negative Sharpe, and a lot of times you abandon it, right? But all of a sudden, if you think about it from a portfolio construction perspective, what if we added to a model that is going to be, those trades that made after transaction costs and lower Sharpe, after netting out with your existing portfolio, it actually adds, is accretive, right? So a lot of things are thrown into the trash bin and after transaction costs, independently, that

might be accretive as a group, right? So another kind of important aspect of portfolio construction when thinking about models,

[00:11:36] Roni Israelov:

Yeah, I think I think it's always hard to add factors that have a different decay profile, together within a model.

And that's actually something that, that was one of my earlier projects and I collaborated with another researcher at AQR, Michael Katz on this. But the basic idea was that you can build a long-term model, you can build a short-term model and then use the short-term model to adjust how you trade the overall model. And then we looked at that in different contexts, and what you found is, you could improve the expected performance of the model and actually provide exposure to that short-term signal and without hurting the long-term signal in the process, which is pretty interesting.

[00:12:13] Adam Butler:

Yeah, DFA gets a lot of mileage out of that idea where, we don't believe in momentum, but, we will use momentum to affect when we trade our value portfolios, right? So we won't sell a value holding that falls out of the top decile by value if it has positive momentum. We'll wait till it has negative momentum and then we'll sell it and vice versa, right? We won't add it until it has positive momentum. So you're not actually trading the momentum factor so much as you're allowing it to creep into your, the way you transact on your slower moving models. And I think there's merit in that.

I think that's a good dovetail. So let me see if I can remember.

Custom Lifestyle-Protected Growth Portfolios

[00:12:51] Adam Butler

Custom lifestyle specific portfolios, right? Endeavor?

[00:12:56] Roni Israelov:

Yeah. Lifestyle-protected growth. That's the tagline that we have right now that are highly customized. In order to do, in order to provide that lifestyle protection, they have to be custom because everybody has different and unique goals in the portfolios that

they want to construct. So I think that is what distinguishes what we do from many others. I think our innovation is the idea that that for most people who have their own unique objectives, in order to best satisfy those objectives, it does require a custom portfolio and the methods for analysing and constructing those portfolios. Happy to talk about, a number of aspects related to that.

[00:13:33] Adam Butler:

I've always wondered about the sort of mean, I'm gonna say the mean variance utility of that, or let me actually frame it a different way. Just how varied are people's utility functions.

[00:13:47] Roni Israelov:

I think, I think quite varied. We spent a lot of time as we were building the optimization, what we call our optimization engine, trying to think about how to character, how to characterize different people's utility functions. And I think it's a very complex problem, even if you simplify it to a traditional mean variance utility function, right? You want positive return, right? That, that provides positive utility. You don't like variance. So variance provides negative utility. Trying to characterize, even if you believe in that that kind of functional form of utility, trying to ascertain an individual's person, an individual's risk aversion can be very difficult.

But I would argue that mean variance is incomplete for individuals, because variance is not the only risk consideration that people have to contend with. Certainly, people are concerned about variance, they're concerned about the risk to their capital, right? They bring 2 million to the table and they want growth, but they don't wanna lose too much of the \$2 million, in, in the process, or risk losing too much of that. But oftentimes the wealth serves a purpose. It's not just about trying to take the 2 million and turn it into 4 million, but at some point people are gonna retire and they're going to need their portfolio to provide cash flows in their retirement and they have cash flow goals. And each person's cash flow goals might be unique.

And one of the risks that people worry about is whether they're going to be able to satisfy those cash flow goals, and the drawdowns that you might bear, between now and when you retire, that's a risk, but that is a very different risk than the risk to satisfying your retirement cash flow goals.

And I think people's utility functions incorporate both of those. And sometimes in order to best serve one objective, you have to take risk in the other. If you want to improve your odds of meeting your cashflow goals, you might need to take more drawdown risk

or vice versa. And I think everybody's preference is likely to be unique. Some people are gonna be more concerned about risk to capital. Others are gonna be more concerned about meeting their cash flow goals. And I think it's very hard to specify an optimization, a universal optimization function that that meets everybody's objective. So our thought in this is that information is very helpful. If we can inform, if we can, if we can have an analysis tool, a financial planning tool that is able to understand, ingest individual clients' or prospects' goals, and then as accurate as we know how, analyse different portfolios' potential in helping to satisfy those goals and characterize the return possibilities and the risk across two dimensions, risk to capital and risk to satisfying those cash flow goals, and provide that information to clients, to users with the help of an advisor, then they are able to, helps, they're able to select a portfolio that is most aligned with their own utility function, which I think, they would have a hard time maybe specifying their utility function, but they may be better able to understand which portfolios are better aligned with what their individual goals are.

[00:17:12] Rodrigo Gordillo:

So what variables do you use in order to define that, right? You got return expectations, you got risk draw down. What else are you guys pulling in order to come up with ideal portfolios?

[00:17:24] Roni Israelov:

Yeah, so we ended up narrowing it down to three hero metrics. We've considered so many in the process, but you don't want to overwhelm. Information is helpful, but you don't wanna overwhelm people, right?

So we narrowed it down to three, one being terminal wealth. If somebody is looking at a 30 year forecast or a 30 year analysis, what is the median end wealth? And for that we're taking into account taxes, fees, transactions costs, we're trying to be as, as precise as possible. So we look at terminal wealth, we look at typical maximum or peak-to-trough drawdowns. We run a number of scenarios and each scenario we look at a peak-to-trough drawdown and look across those so that we can characterize the risk to capital.

And then the last one, and this took some work, we developed our own measure of, that characterizes the risk to satisfying one's cash flow goals. We call it a *plan security score*, but essentially it is a statistic that is intended to convey the risk that an individual has to their future cash flow goals taking into account two things, the probability of not meeting those goals and the magnitude of the shortfall. At some point we were communicating those separately. You have a 70% chance of meeting your cash flow

goals. And when you fail, here's how much you fail. When as we were talking to people, that just seemed like too much information. So essentially we took both of those pieces of information and collapsed them into a single measure of plan security.

So when we look at a number of different portfolios, we show additional information to that, but I think the three key criteria that we suggest people focus on is the median end wealth, which is a characterization of growth, and peak-to-trough drawdown, which is a characterization of risk to capital, and then this plan security score which is a characterization of the risk that they have in terms of meeting their cash flow goals.

[00:19:17] Rodrigo Gordillo:

Roni, just a terminal wealth would be not terminal, as in when you retire, when you stop, when you start digging out, but rather what you wanna leave as a legacy.

[00:19:26] Roni Israelov:

Yeah, at the at the end of the forecast. So right now our forecasting engine allows people to forecast anywhere from 10 years to 50 years out. So you can decide how long you want to consider, 30 years, 40 years, 50 years, whatever that might be. And then we simulate a thousand paths across, across time, and then calculate statistics along the way, and then, the terminal wealth in this case would be at the end of the, at the end of the forecast period.

[00:19:52] Rodrigo Gordillo:

I imagine you've taken into account, sorry, Mike, just quickly, I imagine you're taking into account inflation and lifespan in those calculations.

[00:20:02] Roni Israelov:

So we take into account inflation. Inflation is something where, when somebody enters their plan, and there's a lot of customization in the plan. So somebody can specify cash flows in any number of ways, and you could have multiple cash flows that are specified. We allow for inflation adjusting any of those cash flows, and we rely on the BLS data for that. It can be just a general inflation adjustment at CPI, or it can be a healthcare expense, which would have its own inflation rate, or travel, which would have its own inflation rate. Those are all provided for convenience. Anybody can adjust that if they want, so we're providing the numbers that reflect very long-term historical averages in terms of inflation.

So that allows someone to kind of inflation adjust a cash flow stream. In terms of in terms of lifespan, so we have, at this point, we have built in internal mortality model. We have not yet integrated that into the forecasting engine, but it is something that we are planning to incorporate.

So as it stands right now, it is a fixed forecast term, like I said, measured in however many decades are specified. But at some point what we expect is that somebody can give us information about their, age and gender. Our internal mortality model actually adjusts for affluence or wealth.

[00:21:22] Mike Philbrick:

Selection bias of the affluent?

[00:21:23] Roni Israelov:

Yeah. It turns out there's little

[00:21:24] Rodrigo Gordillo:

23andme in there and got their genetic background.

[00:21:28] Roni Israelov:

There was a research paper, I can't remember who wrote, there was a recently released research paper a few years ago that actually showed mortality curves by income level. So if we have access to that information and we can provide a more accurate mortality, lifespan estimate based off of it, we might as well do so. As I said, we've developed that internally. We have not yet incorporated that into the portfolio lab or the forecasting environment. Where that'll really start to play a role is when we enhance our lab to include multi-generational forecasts where you're not just forecasting what happens over your life, but then you can have the wealth, that you have at death go into to the next generation

[00:22:08] Rodrigo Gordillo:

To maintain your children and their grandchildren and how do you maintain a family wealth from multi-generations?

[00:22:14] Roni Israelov:

And our intent is to enable a number of trusts within the lab. So you can imagine like a graph which has a certain purpose in terms of estate planning, a *slat*, a spousal lifetime annuity trust, and so on and so forth. We have a pretty ambitious agenda in terms of continuing to enhance the lab so that we can help people provide more insights to people in terms of their own financial plans.

And one thing I should just say is we operate under a freemium model. So the basic lab experience, like anybody who's listening today, they can go on our website request access, we'll give them a login and you can play with this and see how it behaves.

[00:22:52] Adam Butler:

Well stop being such a tease. Ronnie, Show your, show the tool.

[00:22:55] Mike Philbrick:

Wait. Hold on. I gotta go back to, I want to add a question. There was three basic premises you were forecasting, right? Which it was, what was number three?

[00:23:03] Adam Butler:

Drawdown, terminal wealth and a probability score, which is a combination of probability of meeting cash flows, and if you do miss, the magnitude of the miss.

[00:23:14] Roni Israelov:

And that last score is calibrated to be a measure of zero to a hundred. So a hundred basically means you're good to go. We will never report a hundred because, perfection. I think that's a hard thing to, that's a hard thing to say. But our score grows from zero to 99. So a 90, you can think about it as roughly, you're gonna meet 90% of your goals on average, penalizing large misses more, in terms of the measure.

[00:23:41] Mike Philbrick:

And so the, that, what's the math behind that? Is it the variance of the model, the distance, the timeframe to the end? What are the kind of the, what's going on in that? That's what I was curious about.

[00:23:55] Roni Israelov:

Sure. So it's very much like a *root mean-squared error* type of type of function. So basically we look at each desired cash flow, over the, whatever it might be, 360 months, 600 months and look at the squared shortfall, average, that square rooted, a couple of adjustments, so that it'll scale from zero to a hundred. But think about it like a root mean-squared error where if you got 90% of your desired cash flows over the whole simulation in a level way, your score would be 90. But if you got half the time, a hundred percent and a half the time, 80%. Your score would be less than 90 because that is worse, because you have some bigger shortfalls.

[00:24:36] Mike Philbrick:

So, it contemplates a variance around the mean that, and then it incorporates that into the scoring system.

[00:24:41] Roni Israelov:

Exactly.

[00:24:43] Adam Butler:

Is it a bootstrap or is it a Monte Carlo? Are you imposing distribution and if so, are you imposing more complex distributions or like how is that working?

[00:24:53] Roni Israelov:

It's a Monte Carlo. We had contemplated the bootstrap, but we felt like we couldn't actually achieve the richness of what we needed in a bootstrap framework. But we were very careful that the Monte Carlo distributions looked like they might have come from a bootstrap. As an example our, when we look at equities, it's a geometric Brownian motion, but with heteroskedasticity involved with heteroskedasticity.

And that model, the stochastic volatility model was very careful, very carefully calibrated. And if you look at the return distribution that comes out of that, It has roughly the right kurtosis and skewness in terms of characterizing the distribution of equity returns.

We also look at US markets versus global markets. We're capturing an appropriate correlation structure, internationally, but we have correlation in the heteroskedasticity process. So if volatility is increasing in the US, it's reasonable that it's increasing in developed markets as well. We're characterizing that.

On the bond side, and I think this is a real innovation in terms of what we're doing, relative to what you would normally see in these types of simulations, but we're not simulating bond returns, we are simulating yield curves. Because it was really important, and we haven't spoken yet about the liability driven investing, that's part of what we do. But for us to appropriately capture the properties of the LDI related portfolios, it was important that we were really accurately simulating bond prices. So we are actually simulating a three factor yield curve that models level, slope and curvature, with appropriate mean reversion on the slope and the curvature, appropriate correlation of those three factors to equities. There's heteroskedasticity and the yield curve that is correlated to the vol process and the equities capturing what we've seen historically.

If you look at the bond returns that come out of this and, we start the simulation with kind of real bonds that exist and then we move to hypothetical bonds that would be issued in the future, because this is a future simulation, so those hypothetical bonds are priced off of the yield curve. And if you look at the properties of those hypothetical bonds, they're quite realistic, relative to history.

And let me just speak about that. So if you look at historical bond returns, you see that the volatility is related to the duration of bond, right? Longer duration bonds tend to be more volatile. Longer duration bonds tend to have a higher average return, but the Sharpe ratio tends to decline in duration. And AQR has a paper on this where they just, they relate it to the leverage effect, or leverage aversion. That because of leverage aversion, you would expect to see a higher Sharpe ratio in lower maturity bonds. Demand for longer duration instruments from insurance companies and the like, can also push down prices. So I think I think there is a lot of reasons to believe, that those historical properties are real and should persist.

We have calibrated our yield curve, our sarcastic yield curve model in a way that it actually does capture those properties. So when we look at the simulated bond returns we see in the Monte Carlo engine the correlation matrix across bonds by maturity is closely matching the historical correlation in the return vol volatility and Sharpe ratios are realistic. And when I say the returns are realistic, I say that in comparison to historical returns, adjusting for the fact that yields have been declining for a long period of time. So it's not realistic under the assumption that yields will decline in the future the way they had in the past. But if you assume that we will not see declining yields, in, in the next few decades as we have historically, the returns are realistic. So in that case, I think that they're, I think they're conservative and that is, that was really important in terms of how we simulate, because when we build portfolios that are intended to protect future cash flows, and they're intended to mimic holding zero coupon bonds, it is important that you're modeling the yield curve dynamics appropriately. And because our portfolios include that while including bonds that might be held for other purposes,

for growth purposes, it's important that we're capturing the correlation of those two each other appropriately. So a lot of effort went into this.

And on the equity side, one thing that we enable is personalized indexing and multifactor portfolios. So when you when you build an overall portfolio, you can choose to be passive or you can have a value tilt or momentum tilt, or low volatility tilt, and the properties of those are different from each other, right? A low volatility portfolio does not have the same properties as a passive US equity portfolio. So we have modeled all of that as well into our simulation. So when you go through an analysis and you're selecting your factors and looking at different portfolios, everything is adjusted for those selections so that we can try to appropriately assess the performance of the portfolio.

And one other thing I'd say about the way the simulations operate is I think in under the traditional Monte Carlo model that you'd see used in other wealth management firms, if you ask, some people will ask like, how often do you update your assumptions? And it might be every six months or every year. And those assumptions are just, mean volatility and so on and so forth. And, if you look at them, if you look at the numbers, sometimes they're pretty liberal, maybe somewhat optimistic. But in our framework, because we're simulating yield curves and if we're gonna simulate a yield curve, you need to have a starting yield curve, we're actually recalibrating the yield curve every day, and because we have heteroskedastic volatility, we need a starting point for that as well. So we're calculating the initial conditions every single day. Our assumptions for all intents and purposes are kind of auto-updating daily based off of the current market conditions.

[00:30:36] Mike Philbrick:

That's a significant, yeah, I was just gonna say that significant improvement on the bond side and the predictability that can come with that is more known and reliable.

[00:30:44] Adam Butler:

No, that's huge. What about the bond side? I completely agree, it's a major differentiator.

[00:30:48] Mike Philbrick:

It's actually, I think we should pause and just recognize that is a massive advancement and kudos to you.

Yep. I'm like, that's tremendous. That is spectacular.

[00:30:59] Rodrigo Gordillo:

I've just, ask for access by the way. Yeah.

[00:31:01] Mike Philbrick:

As you say, right? So you hear about these, oh, I've got a, we've had a large correction in Covid, so I'm gonna update my future returns and my financial planning models, and you'll hear that type of talk and it's yeah, I'm not sure that's, I guess that's what you have to do, but in, in that type of responsive environment where you're simulating the yield curve, wow. That's, so you're just people in the plan, people coming to the plan, people who have been through the plan for a number of years are getting that real-time updating.

[00:31:28] Roni Israelov:

Yeah. So you can build a plan and, you can build a plan, look at it, and then in the future, you can re-look at, re-look at things. And our intents right now, it's not there yet that this is coming soon, is that, once somebody builds a plan and is invested, that we will, with some regular frequency, monthly or whatever the case may be, essentially re-automatically re-run an analysis.

So we can give them kind of a check-in because, just because today your plan security score might be 90, if you see positive performance, you should expect to see that improve. If you see negative performance, you should, see that go down. **And if it goes down, maybe you wanna adjust.**

[00:32:05] Rodrigo Gordillo:

That's it, it adjusts the iterative process of a financial planner. That's super important here cuz it's not just how did your portfolio do, but it's also what are your income needs, right? It could be lower, it could be higher. And I imagine those are inputs. I know now, that those are inputs that you can modify to see where you're at, right?

So if you happen to get unlucky and you're in the 10th percentile positive outcome, then you have some levers to pull. But you need to up, you need to check up on that every year. You can't just assume that it is gonna keep going. You took a bad path of the Monte

Carlo. And I think that's one of the toughest things to explore with clients is understanding what 80% success means today, versus what it may mean in a year.

[00:32:47] Roni Israelov:

I agree. I agree. And I think under the normal model, I think other wealth management firms and advisors, they will all have access to some sort of Monte Carlo engine. I would personally put ours up against any, but another kind of interesting element is that we actually make ours accessible. As I said, it's freemium. Like you can request access and play with it, where in the traditional, in the traditional formula, if you will you have to meet with an advisor. You tell them about yourself and your plan. They go back, do some work and then set up a meeting, maybe a few weeks later.

So I think an important part of wealth optimization, I said we're a wealth optimization firm, part of that is convenience, that you have answers as soon as you want them. And then if you need help in terms of help interpreting and making decisions off of that, then we have advisors available to, to assist with that.

[00:33:34] Roni Israelov:

I think you had a question about how we simulate the equity side.

[00:33:39] Adam Butler:

Yeah, it's actually the same for bonds and equities cuz, obviously the most important determinant of bond returns is gonna be what happens to the level right? Over time. And it, I guess that just is exacerbated on the equity side. So yeah, just wondering how you set basic sort of capital market expectations.

[00:33:58] Roni Israelov:

Yeah. So let's start with bonds. So when you look at bonds, it's easier to characterize the distribution or kind of the time series properties of slope and curvature because those tend to be mean reverting, right? Slope is, I know we're inverted right now, the expectation is that's gonna mean revert to a, to a certain level. And the same is true for curvature. And if you have enough of a history, you can really ascertain those properties and capture them. Level is a whole different beast, because we saw level trend down for some period of time. Do you want to project that forward? I don't want to project that forward. That doesn't sound right. Would we assume that they mean revert to the

average level over the past hundred years? I think that's a hard assumption to make too.

The decision we made. I think it's a sensible one. I've always asked people what they think, because I think this is the hardest one to make a call on. But the decision that we have made essentially is to assume that the forward level, the forward expected level or average level is what it is today. We've essentially just characterized the distribution such that it's not expected to trend up or down and that there wouldn't be any like positive or negative return coming from changes in the level.

[00:35:05] Mike Philbrick:

So, is there a connection there? Is there a connection there to the inflation assumption that you would make? Because they are somewhat related. You're making an inflation assumption somewhere on the other side of the cash flows.

[00:35:19] Roni Israelov:

Yeah, so right now we do not and we've thought about this, I'm not there yet. I don't know if we're gonna go in this direction. So we don't we don't simulate inflation as a random variable. We could simulate inflation and then have that connected to level, and have that connected to equity returns as well. The inflation adjustment that we have is really just a fixed adjustment to somebody's plan. So if somebody says, you know what, I want \$10,000 a month and inflation adjusts that by 3% a year or whatever, then you know, it'll start at \$10,000 a month, a year later, 10,300, and, it'll just grow from there. So essentially everything is, the plan is developed in nominal terms and the simulations occur, nominal. And we allow someone to take a view or inflation, adjust their plan. Accordingly.

[00:36:06] Adam Butler:

I guess you could just fit a maximum likelihood on the real rates, right, and the real yield curve and the real, the real slope and curvature and the real levels, and then simulate real rates and then, tack on inflation for, to get a nominal expectation. But yeah, I mean it's all hard. On the equity side. Yeah. Just generally, how are you setting the long-term expected mean?

[00:36:32] Roni Israelov:

Yeah, so on the equity side, what we have right now, and I think it works fine, but I think we're also gonna revisit this and see if, there's maybe a version 2.0 on how we do equities. But on the equity side right now, essentially what we have is equity returns are equal to the risk free rate, plus an assumed Sharpe ratio, which is around like 0.35, or something in that neighborhood, times volatility where the volatility is stochastic, where the long term volatility is, somewhere between 16 and 17%, which is, pretty consistent with historical assumption.

The property of that is that, in a higher risk-free rate environment, it assumes a higher equity return. And that's something that we're researching to look at and see, is that kind of the best property or are there some adjustments that we could make, to make that more realistic.

But essentially the simulations assume a Sharpe ratio which is consistent with, if you look at like the last a hundred years of data and then simulate around that, using the time series risk free rate that comes out of the simulation.

[00:37:37] Mike Philbrick:

Is that global stocks? Is that US stocks? How did you approach that? Which stocks were used to...

[00:37:44] Roni Israelov:

Yeah, so what we did is, we, so we simulate essentially like the, so we simulate a single process, if you will, and then we use like an inverse mean variance optimization to convert, let's say a total global portfolio to the individual regions where what we're simulating is US equity market, developed equity market, emerging market. So essentially, we have a co-variance matrix for these three regions and then we do an inverse mean variance optimization to get an appropriate expected return for each of the three countries.

[00:38:44] Adam Butler:

Is that a Black-Litterman implied return? Is that...

[00:38:48] Roni Israelov:

It's something like Yeah, something like that, essentially. And then, we add noise around that. So that we're getting the right co-variance matrix, right? So you have some

idiosyncratic return by country. So essentially that's the approach. So what we really specify is a global Sharpe ratio, not like individual Sharpe ratios for each region. Use this in inverse mean variance to convert that to the regional Sharpe ratios and then simulate from there. And essentially after we do that, we have simulated returns for the US market. And then we use that to build simulated returns for each of the potential factor combinations that are under consideration. So, for each factor, type of factor portfolio, we have an assumed beta, we have an assumed alpha, we have an assumed tracking error. So we can essentially take excess of cash, risk free returns for US equities, and then use that as a starting point to get the returns for each of the factors that are being considered.

[00:39:21] Adam Butler:

Now are you using the, some sort of back propagation to allow the results of the Monte Carlo to inform a portfolio optimization, like the, what is the optimal portfolio in order to maximize that Pareto frontier of objectives. Like, I don't want to go below a certain maximum drawdown. I want a certain score reflecting probability of meeting my cash flow needs and magnitude of loss below my expect, meeting my cash flow needs. And then, targeted terminal wealth. Like how are you linking those two things together?

[00:39:58] Roni Israelov:

Yeah, so that's a great question. So, first I would say and I think I alluded to this earlier, so we believe that portfolio should be built around a financial plan and not the other way around. The norm I think, in the industry right now is, if you're a client of a traditional advisor, you're gonna go through some sort of risk questionnaire, right? And you'll answer a battery of questions and you'll get scored, and most people are gonna be scored in the middle, no surprise. And then if you're scored in the middle, voila, you're gonna be recommended a 60/40 portfolio, right? And after you determine the portfolio, then you build a plan, and then they tell you something about how that portfolio behaves on the plan.

We think that's backwards. Like we think you should start with a plan, tell us about yourself, and then, maybe this is the right time to take a little detour and talk a little bit about the cash flow protection that we're doing, because that comes immediately out of the plan. So, if somebody tells us they want the \$10,000 inflation adjusted, for 20 years. One component of a portfolio is a custom bond ladder that is constructed to duration-match those cash flows and immunize against changes and yield curve. And this is very, similar to *liability driven investing programs* that are done by insurance companies and pension funds who have, who face a similar problem, essentially. And the idea there is if you tell us your cash flows, that is very useful information. We can

use that information to actually try to build a portfolio that will improve your plan security score.

Rather than just taking different portfolios and asking, how, what is the, what is the plan security score they're able to, provide, we can actually use that information to literally build a portfolio designed to improve the plan security score by reducing the risk of missing those cash flows. So we have that information. We can build these custom bond ladders. That took a little bit of innovation as well because, if you're a pension or an insurance company, you don't have to worry about taxes. Everything is tax exempt. So the immunization problem was a little bit easier.

It's not so easy for us, because our clients are taxable. We have had to develop an immunization algorithm that's taking into consideration their tax profile. And when someone enters our lab, one of the first pieces of information they give us is their tax profile so that we can use that information. We take their cashflow goals, we take their tax profile, we use that to build an immunizing bond ladder. And that is a strategy that can make up the overall portfolio.

So when we construct different portfolios that are under consideration for our client, it's a combinatorial problem. We have different levels of protection, so you can choose to protect, 10%, 20, 50, 75, 100 percent of your future cash flows. And of course, that'll consume some of your initial investment. So that'll be allocated to that custom bond ladder. And of course, that's something that has to be managed over time. It's not a, you buy, X bonds and you just hold them until maturity. If you wanna maintain the duration matching over time, that's something that has to be rebalanced and, controlled. So that occurs in the forecast engine. And then we're considering, the tax implications of those traits.

It also, of course occurs in our actual live portfolios that we manage. But that is a sub-strategy in the overall portfolio. And then we have a collection of growth strategies that have different risk levels associated with them. We have an aggressive growth strategy, which mirrors risk parity and has some leverage that is protected with some options. But and we can talk more about that in a little bit, but, we have aggressive growth strategies. We have conservative growth strategies because not everybody has an aggressive risk profile. And essentially we look at a wide combination of growth strategies with different LDI portfolios, lifestyle protection portfolios, and then that gives us a frontier of portfolio options that someone has.

Now, not all of the portfolios we look at would be on the efficient frontier. Some are dominated, right? If we look at our three measures that we think are important, end wealth, peak-to-trough drawdown, plan security score, some of those portfolios are

gonna score worse on all of those measures. And we, find those, we label those as suboptimal. But other portfolios score better and essentially you get a frontier. There's no portfolio generally, that scores the best on all measures. So you're always gonna end up with a trade off. Do I care more about end wealth?

Do I care more about peak-to-trough drawdown? Do I, care more about plan security score? But essentially there's gonna be some set of the portfolios that are investigated that are on an efficient frontier, and then those are presented and we allow somebody to tell us a little bit about their own preference. So do they care more about growth? Do they care more about plan security? Do they care more about wealth preservation? And based off of that, we can make a recommendation, which we do, but we also show the other option so that, they can look at the properties of those and make a selection.

So this is where I think what we do is really differentiated because portfolio construction and planning are an integrated process. It's all part of the same software and lab experience. It's not, you pick a portfolio in one place and then analyze it and ask if it's any good in another place. It's all part of an integrated process. And I think our ability to assess how the portfolios behave is enhanced by the fact that we know how we're constructing portfolios, right? It's not taking a Monte Carlo simulation tool that's created by a third party and trying to find a way to describe what we're doing, within the parameters that they have.

We know how we rebalance equities versus bonds and, we, the way we rebalance them is cognizant to turnover, so that we're not over trading the portfolio and over realizing capital gains. So we do that and we know we do that, so our simulation engine behaves in a way that's consistent with how the portfolios are actually managed. And for that reason, I think, they give they give better estimates. There's, there's the expression, like not, every model is wrong, but some models are useful, and I think, I that's where we're at. No model's perfect. But we've tried to make this model as useful as it can be.

I notice on Twitter, I'm not super active on Twitter. I know you guys are. But when some people are talking about Monte Carlo engines, there is an incredible amount of skepticism out there. A lot of people view even any discussion of a Monte Carlo engine as a red flag even, or take 'em with a grain of salt.

And I think skepticism is always warranted. I would use the information that you get from our lab or any, any engine as some amount of guidance, but you want to consider other things. But I think if you look at the universe of engines that exist, they are pretty basic and nature, simplistic assumptions that aren't updated that frequently. Our intent was to develop an engine that could be taken more seriously.

[00:47:03] Adam Butler:

Well, mission accomplished. I'll tell you a funny story when, because in another life all three of us were advisors. And I remember back in 2007, I think Mike, you'll remember this, we were at a wealth firm and we had come up with our own simulation engine. We had a bunch, some were Monte Carlo slash bootstrap based, others were based on Milevsky's work optimization without simulation with the inverse gamma distribution.

And it took advantage of the stochastic nature of both the return process and the mortality process. And we didn't rely on that to build out a full plan, a full estate plan. We had some clients who wanted a full retirement plan/estate plan, and we had a, I think a fairly competent retirement estate planner dedicated to that at the company. And he had a fairly comprehensive Monte Carlo tool that he was able to use to produce reports like this. It was nowhere near as sophisticated as the one that you're describing, but to your point about, some models are useful, it was more useful than the alternative, which was, linear assumption. Linear, linear growth assumption, which is what many firms still produce for clients today.

And we started seeing him produce examples of these kind of 40 page proformas of expected wealth and expected income adjusted for inflation out 30 years. So no stochastic mortality at all, forecasting out 30 years. And we were like, you have at your disposal the ability to make this probabilistic, make it a little bit more realistic. Why don't you do that? He said I used to do that, but to an advisor, they all pushed back and said no, I don't want those, they want the linear versions because they give the client much better, more optimistic results.

And I'm out competing with other advisors from the major banks that are using linear assumptions and therefore giving clients much more optimistic results. They're out there telling clients you can take out five, 6% a year based on...

[00:49:15] Mike Philbrick:

More optimistic projections,

[00:49:16] Adam Butler:

Projections, more optimistic projections.

[00:49:18] Mike Philbrick:

You mentioned this earlier and I wanted to circle back to this too, because now we're in a competitive environment and three outta four are using linear assumptions. You're the fourth one that comes in with the very thoughtful approach but you are, you're not gonna get the business, because it tells 'em they have to save more or they can, they can't spend as much, or their terminal wealth is not as much.

[00:49:37] Rodrigo Gordillo:

Look, I also remember the big, we can talk about that as being the major driver, but another major driver was the fact that, that 54 page report was bounded. It had a beautiful design on the front. It looked like work was done. It was a heavy lift

[00:49:51] Adam Butler:

On expensive leaf with a gold spiral binding

[00:49:55] Rodrigo Gordillo:

Yeah. Signed off by the CIO, whatever. Yeah. And we were providing a single page report that needed to be iterated every year. Every year you need to update your assumptions. That wasn't, that's just not gonna get the business. Oh,

[00:50:08] Mike Philbrick:

Ronnie's coming for these people, boys.

[00:50:10] Adam Butler:

That's right. We sincerely wish you luck. Like obviously this is the way to do it. I just, I share this as a, it's frustrating because many potential clients don't recognize the value of this, and they see, you're telling me, you're telling me my spending rate is three and a half, 4%, at an 80, 80% chance of success. And this guy's giving me a 45 page proforma that says I can spend 5% a year for 30 years with a hundred percent success. So why would I go with you?

[00:50:44] Roni Israelov:

And you hope you don't have to... yeah. Those are harder questions to ask and that's unfortunate. Because that's a funny, it is a funny way for someone to compare, compare advisors. I think I think what we were hoping, aside from providing hopefully better

analysis and more accurate insights, is the convenience of being able to get it quickly. The idea that you can get on a call, with Zoom with someone, you can do it yourself, if you want the help of an advisor, you get on a Zoom, you work on it in real time, you get answers, in real time and a few minutes later...

[00:51:00] Adam Butler:

Are they allowed to set their own return expectations?

[00:51:07] Roni Israelov:

We don't offer that. Yeah. Good, good. Yeah. So those are set by us. Yeah, so you can go on, so you can do the Zoom and in real time, adjust the plan, look at the portfolios, answer questions, and, half an hour later, for all intents and purposes, you've designed a custom optimized portfolio that could then be implemented rather than having to describe a plan, wait two weeks or a month to get this binder, as you said, and then, if you need adjustments, then you know, you wait another few weeks to get another binder. We just think the delight and efficiency of this is...

[00:51:46] Rodrigo Gordillo:

I think for what it's worth, the story that we told was, it feels like a lifetime ago. Technology, the technology both from what you're developing on the forecasting side, but also on the ETFs that are available and mutual funds that are available to create more optimal portfolios, it's a different world. I think you're right. There's more acceptance today of using an advisor via Zoom that'll walk you through the reasons and actually it is logging in, rerun my assumptions, get used to it, and then hopefully move forward with a thoughtful advisor. A massive difference than when we were looking at all this stuff.

[00:52:24] Mike Philbrick:

The clients want it, when they want it. They don't want it on the schedule. Hey, it's January 2024, we're ready. Like we're gonna do your And he's no, I'm skiing an Aspen. When I'm worried about it will be in July when I'm sitting on my deck on the 24th and I'm gonna call you and I want the discussion then. They want it when they want it, is I guess my, that's been my experience with lots of years of dealing with this process is the client wants it when they want it, not when 18 people will drop in to try and give you a 40 page report.

[00:52:56] Roni Israelov:

And we've gotten used to getting that in every other aspect of our life. Yes. It just hasn't, for some reason, yet made it to...

[00:53:02] Mike Philbrick:

It's the *Amazonification* of the world. So we want these things when we care about them and it doesn't make sense in the technological evolution of the world in financial planning, that this should be any different. It really, I guess that's what you're doing. You're bringing that to the, to the forefront for people to utilize.

[00:53:19] Roni Israelov:

Yeah. And we are very much a FinTech firm. It's, this is investing meets technologists to make this happen. And I should say, simulating these portfolios is computationally taxing. So if you have a basic, geometric Brownian motion or even a bootstrap, those can operate pretty quickly. And you can get answers basically instantly. If you're actually modeling the transactions cost of individual trades, and including those costs, transactions and trades and the taxes and everything that results, and we hadn't talked about this, but some of our strategies includes futures contracts.

We're also simulating the futures contracts prices, right? Yeah, exactly. And then you have 60/40 tax treatment on the futures, versus tax treatment on other stuff. If you're capturing all of that information and trying to do it accurately, requires a lot of computation. And we actually, whenever somebody does a, an optimization and we look at, 30 or 40 potential portfolios as part of that process, in order to get the results back, we launch thousands of servers in the cloud for that one optimization. And they're running, and then we're able to get results back in about 30 seconds, so we're not talking about one or two seconds on a MacBook Pro. It's taking, 30, 20, 30 seconds of thousands of servers time to to answer these questions.

[00:54:34] Rodrigo Gordillo:

Okay? So that's what I wanted to get clarity on. When you are talking about your portfolios, you're not, you haven't created six of them and you answer the closest one you get to, you get that one. You're literally one, one of the things we're discussing is direct indexing, custom indexing, custom equity portfolios, personalized indexing. That's what you actually are legitimately, here's your benchmark. This is your personal unique portfolio based on all these factors, and it's gonna be like no other, likely.

[00:55:01] Roni Israelov:

Yeah. So on the simulation side, we will simulate, let's say it's a momentum portfolio. We will simulate that as like a momentum portfolio index and not simulate thousands of stocks, but when you go to implement it and you specify it, there is a lot of control. I think this is also, there's so much surface area to what we do. I think you could take individual pieces of our product and that could be an entire company, but then we have a lot of those.

On the equity side, so we do personalized indexing and just to bring everybody in the same, up to speed on this. You can imagine you can buy an ETF, or you can implement direct indexing. And direct indexing is essentially replicating the ETF, but with individual holdings, right? So if it's an S&P 500 direct index, somebody will go and buy appropriately weighted 500 stocks within a portfolio.

And then you have custom indexing. And the idea behind custom indexing is, you can customize that. So you can say, you know what, I want not S&P 500, but maybe S&P 500 with some ESG restriction or, with some value tilt. And then a custom index will be created. And then you do the same thing,. Like you have the index, it has a weight vector associated with that, that changes over time. And then you buy a basket of stocks that are connected to that, connected to that index, and the traditional implementation of this is, you might have RIAs or whoever's constructing a custom index, and the advisor will construct an index that they believe in, that they believe reflects the preferences of their set of clientele.

And maybe they'll create several of them. So they'll have five or 10 options, so they might have five or 10 custom indices, and then they make those available to their clients. But anybody who selects the same custom index gets the same portfolio essentially. What we have done instead is, and we're calling it *personalized indexing*, but basically it's bottom up portfolio construction for every single client.

So we're not running one portfolio optimization engine and then doing a bunch of trades and, and dividing them up, divvying them up across all of the clients who selected that portfolio. We allow every individual account to select the parameters of that portfolio. And then it's a bottom up portfolio construction for that client.

So that allows us to provide a lot of degrees of freedom. We try to keep it, we try to provide degrees of freedom, but make it palatable. Something that individuals can consume. But what we allow for is individual stock restrictions. If you don't want a certain meme stock or whatever, you can say, okay, don't make this part of the portfolio. You can select from a small set of factors. You can have value, momentum,

quality, low volatility, which would be like betting against beta or our version of that. And then something that is a tilt towards size, so that it tilts towards small caps. And then we use that information. You can turn on tax loss harvesting if it's in a taxable account.

And then we use all that information to build a custom portfolio. And then, and this is really pretty cool, but we also allow for socially responsible investing. So you can go in and select certain categories, I don't want gun manufacturers or whatever. And then essentially you get a custom portfolio built off of that selection of criteria.

[00:58:13] Mike Philbrick:

That's individual stocks and how do we approach the global side of that?

It sounds like it's individual securities, cuz we're saying I don't want, gun manufacturers, whatever, but then we've got European stocks, emerging stocks, are we going directly to those exchanges to harness those or...

[00:58:29] Roni Israelov:

Yes. Great question. So right now, our direct indexing, or our personalized indexing is just within the US.

So outside of the US we're using cheap ET, like very low fee ETFs for developed and emerging markets. We allow people to select, our recommendation is generally global diversification, but it's a degree of freedom. So you can select whether you want global diversification or not within the platform. If you select global diversification, you're gonna get the developed market ETF and the emerging market ETF. If you, coupled with a personalized index portfolio. If you want a US only portfolio, then you're just getting the US stocks based off of the selection criteria.

[00:59:08] Mike Philbrick:

Do you, is it, so then it's largely market cap then, or do you use some of the ETFs that might harness the different factors some might want from the emerging markets or, min-vol, something like that in those markets? Would that factor into it, or is that sort of a preference that you could make if you wanted to, but you go with market cap?

[00:59:26] Roni Israelov:

We've kept those passive for now, but it's something we've talked about. I think we're gonna wait and see on whether we allow additional choices, in the non-US market.

[00:59:36] Rodrigo Gordillo:

You know too much, too much about proper implementation of factors, to just give it away, right?

Yeah. It's just so funny, right? The labels all seem like they're all value or they're all momentum. You look under the hood and it's very, very different.

[00:59:48] Roni Israelov:

Yeah. And then you have the rebalancing. You wouldn't want to rebalance that every six months or every, once every six months or once every year. And some of those are pretty infrequent. Given all of that, at least for now we're keeping that, we're keeping that passive. The other thing that I would say, so ...

[01:00:01] Rodrigo Gordillo:

Can I just when I, so in, in reality when we talk about tax loss harvesting, you're doing it on a per individual level. You're not tax loss harvesting with an exchange traded fund that where everybody may or may not benefit from it, depending on when they bought it through, throughout the year. You're optimizing every year on that personalized level.

[01:00:20] Roni Israelov:

Exactly. And I think there, there's actually a tremendous benefit to owning individual stocks if you want to, if you want to tax loss harvest.

So we released a paper not too many months ago on this exactly, which is a horse race of tax loss harvesting individual stocks versus the ETF. And I think once you sit down and think about it, it becomes obvious that the opportunity set is, yeah, so much larger when you're tax loss harvesting individual stocks because you can have an index that's up 10% while, maybe 30% of the names are down within the index, and present opportunities. And the differences are actually pretty stark. What you see is something along the lines of the average loss harvested when you do this in individual stocks is better than like the 95th percentile of outcomes if you do it at the index level. It's, like over time the differences are...

[01:01:07] Mike Philbrick:

Yeah, the granularity has to be there. Like when you actually, anyway, the conclusion to me is a bit obvious, but not obvious. It's obvious when you say it, right? Because you're I have 500 constituents to choose from, or I have the S&P 500.

[01:01:20] Roni Israelov:

Exactly. And another question that we had, and this was I think, this was actually fascinating and maybe this is unintuitive. This, I don't know that this is immediately obvious until you start to work through it, but the question is, **how important is the frequency of tax loss harvesting?** You can harvest daily or you can harvest weekly or monthly or, quarterly. Our process is monthly, so we tend to rebalance or at least evaluate whether rebalances make sense on a monthly basis. But that was driven by research. It didn't, it wasn't like, let's rebalance monthly and then see what the research says. We did the research, came to the conclusion to rebalance monthly.

But in the research side, if you think about tax loss harvesting and I hadn't seen any work done on this, one question that comes up is, when should you harvest? What's the threshold for harvesting a loss? Is it when a stock is down a basis point, or do you need something more meaningful than that? And essentially, like pretty much everything else in finance, there's a trade off, and the trade off comes at least one of the trade-offs comes from the *wash sale rules*.

So when you sell a stock, you can't buy it back for 30 days. And under the presumption that you're selling a stock that you would wanna own otherwise for the purpose of harvesting a loss. Because if you were gonna sell it anyway, tax loss harvesting isn't the consideration, so this is a stock you would've wanted to own otherwise, but it has a loss, and you'd like to harvest it. The trade off is you're not owning a stock you want to own, right? That you're taking active weight or tracking your relative to the position you want to have. So the question is like, what is the benefit of harvesting a loss versus taking this active weight? So you can look at different thresholds.

You can ask what if I harvest a loss, when it's down 1% or 5% or 20%. And what is the typical yield you get? If you set the threshold at 20%, a lot of stocks may never hit that, so you, the opportunity set has been diminished, right? So you can look at the benefit on one axis and the cost is the active, active weight that you're taking relative to the desired position on the other axis. And you, and then you can use that to try to figure out a utility function for when you'd like to harvest a loss. So that was Act One. **Let's just describe these frontiers.**

And then the second question, Act Two was, how does that depend on harvest frequency? Let's say I do this monthly, or I do this daily. And I think what people would generally say is, if you harvest losses daily, you can achieve a higher tax loss harvesting yield. True. If I set my threshold at 10% and I say I will harvest losses when a stock is down more than 10%. If I look every day, I will harvest more losses than if I look once a month.

But you will have a higher tracking error. So it's not an apples to apples comparison. It's not fair to just say, I got a harvesting yield that's 20% higher if you got an active weight that's also 20% higher, I could have achieved that by changing my threshold. So I think what's important is how different are the frontiers? Do you actually move the frontier by changing the frequency with which you look at this? And the answer to that is actually pretty much no. You move it a little bit, but it's so small, in terms of the improvement that you get by going from monthly to daily. The frontiers are basically on top of each other.

And what that tells me is it's really not that helpful. It doesn't hurt things, but it's, it's not necessarily that helpful to harvest daily. You just have to figure out how much active weight are you comfortable with, and then that tells you a threshold that's appropriate. And, that threshold depends on whether you're looking at this on a daily basis or on a monthly basis. That's something. And when it comes to harvesting losses, and I think that's an important part of tax efficiency, these portfolios, I think those are the two questions.

Are you looking at this at ETFs or are you looking at individual stocks? And then, how often are you looking and how do you calibrate.

[01:05:09] Adam Butler:

How are you forming portfolios in the first place? Is it you've got a set of portfolio characteristics that you're targeting and you're finding the mean variance, optimal portfolios subject to those constraints.

Are you doing more of a ranking, multiple ranking kind of, and then holding them in equal weight or inverse vol, or what does, because I feel like that would also inform how effective tax loss harvesting is at different frequencies.

[01:05:39] Roni Israelov:

And you, on this question, you mean specifically the equity portfolios?

[01:05:44] Adam Butler:

Yeah, the equity portfolio.

[01:05:48] Roni Israelov:

Yeah. Yeah. Our portfolio construction on the equity side is really designed to try to maximize our, simultaneously maximize diversification and exposure to the desired characteristics, while reducing trading, because we don't wanna just over-trade these portfolios. So essentially we rank stocks based off of the factors that have been selected. And that depends on which factors you selected, if, you could have a value ranking or a ranking across multiple factors. So we rank stocks based off of the factors.

We have a notion of a benchmark, and the benchmark, the basic benchmark is cap weighted. But, if you want a size tilt, essentially we have a modified benchmark which is a weighted average of cap weights and equal weights, to reduce the exposure to large cap and shift that across the board. So we have a notion of a benchmark.

And then, when you're implementing the portfolio, at least at, when you're first implementing the portfolio, you are getting positive active weight relative to that benchmark. And that's where the dollars start. And for an active portfolio, you're likely to hold 150 to 250 names if you do this, and then that gets you the portfolio on day one. Now time passes and the rankings have changed and there are harvesting opportunities. You might have to sell, not for those reasons, but to rebalance the weight of equity relative to the bonds.

There are any number of reasons why. Maybe there's a withdrawal or a contribution. But essentially we have the scores and we have the existing portfolio that we have going into the next rebalance. And either we have to raise capital or we have to allocate capital, or we're just rebalancing. And we would liquidate those stocks that no longer score well. But the threshold is pretty liberal because we don't wanna liquidate a stock just because it's not in the top decile. The turnover would be, would be enormous if we did that, but, if it's starting to actually look like a stock that has negative alpha in the portfolio, it would get liquidated. If there's a harvesting opportunity beyond a specified threshold, a stock would get liquidated. If it's too overweight, because its returns have been really strong and we have too much exposure to a stock, then it might not get liquidated, it would be sold down. And then, after you do all those transactions, that gives you capital to invest. And if you are underweight stocks relative to the overall portfolio, then that capital would get reinvested in stocks and it would seek out to buy the best stocks that you would want to own. If you're not underweight stocks, if you're

underweight bonds, then the capital would go to bond holdings. So can we go to bond holdings.

[01:08:21] Rodrigo Gordillo:

So, can we go back and can we go up a level then on portfolio construction? So you mentioned that you have a bunch of viable models that some include risk parity with leverage and some don't. So some of the characteristics that you can choose, some of the levers you can pull is what type of factor tilts you want in your equity portfolio. That's just a small portion, right? At the end of the day, asset allocation ends up being more powerful. So how do you think about that, that the allocation across equities, bonds, commodities, gold alternatives?

[01:08:52] Roni Israelov:

Yeah, so our fundamental philosophy is diversification across the risk vector. Not dollar diversification, but risk diversification across asset classes. And our portfolios are primarily equity and bond portfolios. We select portfolio weights to try to bring things closer to balance, balanced risk. Certainly a lot closer to balanced risk than a 60/40 would be, which is extremely unbalanced. And we have different portfolios at different risk targets, if you will, or risk levels.

And essentially, we've split it into two categories where we have, one type of portfolio that includes leverage for those who are comfortable with that. And that would be for someone who is an aggressive, has an aggressive growth posture. And then we have the remaining portfolios that are unlevered portfolios, that have a weight to equities, which are, implemented as we just described, and then have a weight to bonds.

Now, those portfolios, let's talk about the unlevered portfolios for a second. Those portfolios are picking the bond maturity and the bond weight to try to bring things into balance. I think, when I look at like the typical model portfolio, the bonds tend to be similar across the different risk profiles. It's just like it's 95% equity, 5% the same bond portfolio, or 20% equity and 80% the same bond portfolio. But what, if leverage is the constraint, if we, if in this case we're always a hundred percent invested, essentially we use the duration of bonds as an additional degree of freedom to try to help keep these things diversified.

So if you're a very conservative investor, you might have 20% equity and 80% five year bonds. If you're a more aggressive investor, it might be 60% equity and 40% 30 year bonds, because extending the duration is a way of bringing the portfolio balance. Maintaining balance. Yeah. And you do that because you're constrained on leverage.

We believe the five year bond has a higher Sharpe ratio than the 30 year bond, but you're not willing to lever the five year bond, so that constraint is binding and we try to build the portfolio that achieves the diversification objective and the return objective under that constraint.

But then if you free us of that constraint and allow for leverage, then we have a balanced portfolio that is using a slightly shorter duration bond. So our leverage portfolio is, and we call it a *protected levered portfolio* because it does include some options for protection, but it's basically 75% equity. Again, that can be US equity, or it can be a global equity portfolio. And then it is 125% what we call *hedged enhanced treasury*. So it's a synthetic corporate bond alternative. So it's using bond futures coupled with a modest short volatility overlay, such that the combination of those two is intended to serve as an investment grade substitute, but with what we expect to have better expected returns and a better drawdown profile. But it's 75% equity, 125% exposure to that with a relatively deep out of the money put option to protect against potentially catastrophic bond moves.

[01:12:13] Rodrigo Gordillo:

So that's gotta be, there's gotta be a minimum account size for something like that, given that it's a futures contract, no?

[01:12:20] Roni Israelov:

Yes. There is basically one bond for futures contract, notional value of around 120 plus or minus, depending on, what's going on, and yields about \$120,000. But then on the short volatility overlay, essentially we need about a million dollars of bond exposure to be able to implement one contract, because it's not very aggressive. It's intended to be not a high yield or a super high yield substitute but an investment grade and...

[01:12:46] Rodrigo Gordillo:

And that bond exposure is what duration?

[01:12:48] Roni Israelov:

So it's 10-year treasury, so that's gonna be closer to, given current yield curves, the six and a half year maturity bond, which is probably like a five and a half, duration.

[01:12:57] Rodrigo Gordillo:

I think we spoke about this about a year ago, the role that, when we think about risk parity, you're coming from AQR, it includes inflation protection assets. It could be through TIPS, it could be through commodities, gold. And then there's, we, I think we did talk about managed futures as an option. There's, I can't remember what the limitations were of not including those in models. Is it more of a kind of optimizing for behavior for the typical retail investor, or is it more of a regulatory restriction?

[01:13:29] Roni Israelov:

It's not regulatory. So everything we do is in an SMA and it's all integrated, right? So we build like these individual portfolios that include, in the same account, the equities, the bonds, the futures, the options. So you start to get into, as you said, what's the size you need given futures contracts, and if you wanna have diversified commodity exposure, that starts to get, a little bit, a little bit challenging. On the inflation side, fortunately there isn't like a treasury, a treasury inflation protected futures contract, right? If you want to provide exposure to that, you're financing that, but you're financing that at retail financing rates. And some broker dealers are better than others, but that's expensive. You get very kind of capital efficient financing rates and futures contracts just by their very nature.

So there are some challenges there. And then, but and this is interesting and this is something we're looking at and we've been looking at it for a while, and we're gonna continue looking at it. On the TIPS versus treasuries, because, I just talked about the complexity within the levered portfolio, because of the need for leverage. But then you can say what about the unlevered portfolio? You could have, you could buy TIPS instead of treasuries, or mix them. And it's something that we're looking at.

I have a couple of biases that pull me in opposite direction. So on the one hand, if you care about real returns and, people should care about real returns, TIPS are *the asset*, at least on the bond side, that that are providing real return protection, if you will. But I think, everybody should care essentially about real returns. And I think there's reason to believe that there's an inflation risk premium, and that that would be embedded in the differential returns between TIPS and treasuries. And I think that's something that, you see if you look, if you compare, let's say over the last 10 or 15 years, the returns of duration matched TIPS to duration matched treasuries, what is up until about a year and a half or two years ago, the TIPS were underperforming by a reasonable margin, which I think you would expect.

And then they just had a phenomenal, by no surprise, a phenomenal one or two year period. And interestingly, I think right now, it depends on your starting point in this analysis, but, if you look at it back to when the history of the TIPS ETF starts, they're

pretty much neck and neck with each other. They, the TIPS have caught up. So I guess the question is, do you believe, what we just saw, over the last year and a half, is that underrepresented or overrepresented, relative to the 15 historical years on a forward-looking basis? That's one question in terms of, which do you think has the higher or lower expected return?

I think my underlying assumption is there should be an inflation risk premium. And, at least on the expected return side, over a long enough period, treasuries should outperform TIPS by a little bit. That doesn't mean it's not worthwhile, to allocate TIPS. There is some value, obviously in having the protection against inflation.

So that's actually like a, an active area of research where we're trying to fine tune our view a bit on this trade-off between the differences in expected return and the benefits that you might get by hedging some of the inflation through that security. Yeah.

[01:16:44] Adam Butler:

Gold? Commodities? Trend?

[01:16:47] Roni Israelov:

Yeah. So gold, commodities, trend? Probably a little bit, all of these things are on the stack of, on the stack of things we're gonna look at. So it all comes down to shot selection and, what comes first. On trend, one thing we're looking at, it's, there are a couple of ways to do it, right? We could allocate to a fund because that can be done at smaller size or we could try to do it within the SMA, but that's really hard. I think if you're trying to have diversified trend with, I don't know, a dozen, two dozen, three dozen or more contracts, you need a pretty large account size to make that happen.

[01:17:17] Adam Butler:

Yeah. You need 20, 25 million to make it work with along, especially alongside all of the other assets you wanna hold for...

[01:17:23] Roni Israelov:

Yeah. And especially if that's gonna be a smaller allocation. When you're not talking about a pure trend fund, you're talking about, a trend allocation within an SMA. So the allocation should be smaller. So I think that's challenging. One thing we're looking at is incorporating essentially trend alongside the bond exposure itself. So taking the bond

exposure and making it tactical, but that's a single asset trend. At least trying to be tactical within that.

And then the other stuff, I think we're, I think that's just something we're gonna look at and see, what's the, what approach might we take if we take an approach at all? I think, our intent was to really capture the foundation of the portfolio, and I think by including lifestyle protection through LDI which is pretty unique, and coupling that with the other elements of the portfolio, I think we've really nailed the foundational elements and then we'll see what we might be able to add around that.

And one thing I didn't mention actually is when we talk about protecting, I don't know, 25, 50% of the cash flow goal, that's an initial protection level. So we actually have a glide path that takes place over time where, as the cash flows are getting nearer the goal, the objective of the portfolio is to increase the protection level. And if you see gains in the growth part of the portfolio, the goal is to also increase the protection level. So it's not that you choose to protect 25% of your cash flows and it just remains at 25% over the life of the portfolio. It's gonna look for kind of tactical opportunities, to monetize some of the gains seen in the growth portfolio to increase that protection over time. But that's intended to be a ratchet, so...

[01:18:57] Rodrigo Gordillo:

You're locking it in over time as you get lucky and get closer to retirement. Yeah.

[01:19:01] Roni Israelov:

Yeah. And we see that as a pretty nice enhancement to a target date fund. If you think about a target date fund, they have these glide paths and it's easy to be critical, but I don't know if I had to create a target date fund that, without additional information and breaking the commingled vehicle, it's not obvious you could do better. They have to create one fund that works for everybody. And what did they know? What's that?

[01:19:15] Rodrigo Gordillo:

I have, I got a lot to say about that. You can do. Yeah. You can do...

[01:19:21] Roni Israelov:

I'm trying to be, a little...

[01:19:24] Rodrigo Gordillo:

Once you get rid of that leverage restriction. You can do a lot better. You can do one shot goal, you can do a lot better. You can be seven funds and I and access to leverage, which yes, we can certainly improve on those target date funds easily, but I agree that like the way you're doing it is much more targeted and important, so...

[01:19:43] Roni Israelov:

Yeah. And the thing I would say is that, like they just don't know how much wealth somebody has and what their cash flow goals are, right? So if I, if someone is extremely wealthy and they're somewhat frugal, it doesn't, why are they de-risking as they're nearing retirement? They don't need to de-risk. Everything really depends on the person's individual circumstance. If the portfolio does really well, maybe when they started the cash flow goals were aggressive, but, for whatever reason, equities rallied, bonds rallied, whatever happened, it could be that those cash flow goals are no longer aggressive and the portfolio could be more growth tilted, but, the target...

[01:20:19] Rodrigo Gordillo:

Roni, if you do twist my arm to replace the Vanguard/BlackRock glide path I think we can do a good job. Yeah. You and me. You and me, Roni. Look, we've done, honestly, the foundation that you've created is amazing. I think it's a massive step forward for private wealth. I think anybody listening here needs to actually explore your website.

[01:20:39] Mike Philbrick:

I feel like you're wrapping up. I have another question. Are REIT's a good investment? It seemed like you might have a thought on that. I wanted to make sure we covered that cuz I was curious and I don't want to not, I want, don't wanna have the answer later. I want it now.

[01:20:52] Roni Israelov:

Okay. I do have a thought on that. It's so interesting to me because I think when people look at REITs, they always kind of state two facts and then draw a conclusion on those facts. And, fact one is they've had strong realized returns, in line with equities. And then fact two is that their correlation to equities is, medium, which says diversification, right? You can, it's not a super highly correlated assets, equities, and it's had good returns.

And they conclude from that, that it's diversifying. But I think that's the wrong conclusion. I think there are other facts to consider, and correlation doesn't tell you everything. The appropriate approach one should take is more of a regression. What is its exposure? What is its beta to equities, what is its beta maybe to other, to other assets or factors and what is its alpha and what is its, tracking error? If you're actually making an allocation decision, that's what you want to consider.

And if you run the regression and it, the other coefficient depends on time period and whatnot, but if you run the regression, what you tend to find is that REITs have a beta to equities that's greater than one. 1.2, 1.3, 1.4, depending on the period, and a beta to treasuries of 0.2 or 0.3.

So REITs are exposed to two risk premia. That's great. Both of those are compensated risk premia. But if REITs are only giving you the same return as equity, while having 130% exposure to equity and, 10, 20, 30% exposure to bonds, which also had positive risk premium returns over that period, they're coming up short, by several percent a year.

And their negative alpha and the tracking error is actually pretty high. And that's why you have a correlation that's modest, right? Because it has a lot of tracking error. So you get exposure to equities, you get exposure to bonds, you don't need REITs to get exposure to equities and bonds. You can get that by buying equities and bonds.

So what REITs give you is equity exposure and bond exposure that you can get elsewhere. A lot of tracking error and negative alpha, and that just doesn't sound so compelling.

[01:22:53] Rodrigo Gordillo:

So isn't that a lot, isn't that credit as well? That's always been a thing. Like credit is the same thing.

[01:22:59] Roni Israelov:

Credit is the same thing, yes. Yeah. And if you look at credit, it's equity bonds and short volatility. And that's the idea behind the synthetic corporate bond is that if, it's a Merton model, right? Merton says corporate bond is a government bond plus a short put option. Long bond, long equity, short vol, and once you do a full accounting of those exposures, corporate bonds also have negative alpha, which is not so appealing.

[01:23:24] Mike Philbrick:

Everybody loves that income though. Give me the income.

[01:23:27] Roni Israelov:

Right?.

[01:23:28] Adam Butler:

It's kind of surprising actually, that REIT's are only have a beta .2, .3 to rates given the 75% loan to value that typically finances them. I would've expected a higher beta to rates. But maybe I just get, that's probably just attributable to the equity beta.

[01:23:47] Rodrigo Gordillo:

And also in terms of everybody loves the yield. I guess I have to now I'm stuck, Roni, with your research, the shareholder yield versus dividend yield, right? I think you wrote about that as well. So just give us a, an overview on that.

[01:24:00] Roni Israelov:

Yeah, that was more about, it's interesting how people have a strong view about, about buybacks and I guess, part of that has become political, and I'm not gonna navigate into the political waters of the whole thing, but you basically have two ways of returning cash to investors, right? You can, a company can issue a dividend, a company can buy back their own shares. And what I wanted to explore in this piece was the impact of the buyback tax. I first wrote it when the 1% buyback tax was proposed. And then of course, it, it passed into law and recently there was a proposal to increase that to 4%.

And what I wanted to see is like how impact, is that impactful? Should companies stop issuing buybacks because of the tax and move more to dividends. And it just turns out that that the overall impact of that is pretty modest. It's hard to imagine, unless there's something optical about having paid the tax, it's hard to imagine a company shifting from buybacks to dividends because of that tax, because dividends are still less tax efficient.

The two things that are interesting to me is that I, unless I'm misunderstanding how the buyback tax is applied, it does introduce taxation within retirement accounts because you're paying, the company's paying tax on on on shares that are being bought back. So

it does change things for investors, that's, it's a tax. Yeah. Yeah. So that was, that's interesting. And then the other thing is, I think in part what makes dividends less tax efficient is one, you've lost the optionality on when you realize the tax, right?

With a buyback, you only realize the tax if you've actually chosen to sell your shares, except for the fact that there's now this buyback tax.

With dividends, you're realizing taxes if a company chooses to issue a dividend. But I think what's, what makes dividends in particular less tax efficient, beyond that, is that you could end up having a tax liability even if you've lost money on the trade, right? So if you buy a stock for a hundred bucks, it declines to 90 and it's issuing dividends, your total return might be down 8%, but you owe taxes on the dividend. And, if you simulate that over time, what that means is that the effective tax rate of dividends is higher than the tax rate of dividends, because sometimes you're paying taxes on losses for all intents and purposes. And that doesn't exist with buybacks because with buybacks, absent this buyback tax, from the perspective of the taxes paid directly by the investor, that only occurs if there's actually a capital gain.

[01:26:29] Adam Butler:

I can't resist weighing in on this because I kind I feel what's missed in the whole Modigliani-Miller argument is, that dividends and buybacks are equivalent from a cap structure standpoint is that dividends are typically on average withdrawn from the market and then used for spending purposes or whatever. They're considered income by investors.

Whereas buybacks are typically not, so there's a, you know that money is reinvested in the company, and there's a, there's not in, in the absence of liquidity constraints, then yeah, there would be no difference. But because when you add buying pressure to a stock, there's, there is not infinite liquidity. You're also, at the margin, you are providing a boost to the price of that stock over time. So at the margin buybacks are a, bolster the level of the stock market over time in the presence, in the presence of liquidity constraints in the way that dividends do not,

[01:27:42] Roni Israelov:

I am curious about temporary versus permanent price impact on that. Yes, if you buy back shares, there's certainly, there's price impact on any purchase, right? So I guess...

[01:27:50] Adam Butler:

Well the Kojien literature is pretty clear that there is a strong permanent price impact on the buyback, yeah. On buybacks. It's, I don't...

[01:28:00] Mike Philbrick:

It's strong and permanent and persistent above what would be the accumulation of equity by the share, underlying shares.

[01:28:05] Adam Butler:

Yeah. In the absence of buybacks. Yeah.

[01:28:08] Mike Philbrick:

Okay. That's interesting. Yeah.

[01:28:11] Roni Israelov:

No, but given that, so does that mean, so if you assume that to be, if you accept that as given that you know there's a permanent price impact then I guess what follows then is valuation ratios are maybe higher than they would be otherwise. And expected returns will be lower and expected. Returns are lower than they would be otherwise. Yeah. And then, and for that reason then you're opposed to them or it's just this is just the ...

[01:28:33] Adam Butler:

It advantages those who already had equity over those who will accumulate equity in the future.

[01:28:38] Roni Israelov:

Yeah. Yeah.

[01:28:39] Mike Philbrick:

Did you Roni, did you do a break even on where you thought the tax should be in order to make it equivalent? How high does it have to be?

[01:28:47] Roni Israelov:

I didn't do that. I guess I could have, but I, I don't know that I'm necessarily, I wouldn't necessarily,

[01:28:51] **Mike Philbrick:**

Oh no, I don't want you to share it with the government.

[01:28:55] **Adam Butler:**

I promise I won't share it.

[01:28:57] **Roni Israelov:**

Yeah, I think, it was less, it was interesting to me about how impactful is the tax, and I don't think it's super impactful. I do think there's something more interesting about the fact that it does introduce implicit taxation and not in tax exempt accounts, which I don't know if, people are thinking about

[01:29:12] **Mike Philbrick:**

Yeah. That, and when you were accounting for it, you were accounting for the deferred capital gain, obviously, that the client or the individual owner would pay at some point on liquidation. So you got all those factors in there. And yeah it's interesting.

[01:29:24] **Adam Butler:**

My dog is objecting to the fact that this has gone over an hour, 30 minutes. There's about 15 other threads that I wanted to pull Roni, as you can imagine. But we managed to cover a huge amount of ground, so, can't complain.

[01:29:35] **Roni Israelov:**

Thanks for having me on. This was fun. I'll be back for sure. Yeah,

[01:29:38] **Adam Butler:**

No, it was a lot of fun. So thank you so much. I'm so glad we finally managed to get you on the show. I think it was a super productive conversation and we still have lots to talk about next time, which is great.

[01:29:48] **Mike Philbrick:**

It's Ronnie where can every and yeah, where can everyone get to you?

[01:29:52] **Roni Israelov:**

Oh yeah. So it's Endeavor, but it's spelled NDVR. We're a de-vowelled firm. But NDVR.com and I'm also on Twitter. So can reach out to me.

[01:30:04] **Adam Butler:**

Not nearly often enough by might add. Not nearly enough. We need more Roni Israelov cowbell, in my opinion. Yeah, on Twitter.

[01:30:07] **Mike Philbrick:**

You absolutely do. Cuz I'm tired of fighting with these people on the 4% rule.

[01:30:10] **Roni Israelov:**

I hear ya. I hear ya.

[01:30:14] **Mike Philbrick:**

I need some help, Roni. Anyway, thank you so much.

[01:30:16] **Roni Israelov:**

Have a great weekend.