Adam: 00:01:37

Hi, everyone, this is Adam Butler. I'm the Chief Investment Officer of Resolve Asset Management Global and you're listening to Gestalt University podcast. Today's podcast is with a very special guest. We have Dr. Antti Ilmanen who is the Principal and Global Co-head of the Portfolio Solutions Group at AQR Capital Management. Many of you will also know Antti as the author of one of a handful of core investment bibles called *Expected Returns*, which was written about a decade ago. And Antti has just completed and brought to publication a new book called *Investing Amid Low Expected Returns: Making the Most When Markets Offer the Least.*

So, this book covers current equity valuations and what they imply for future equity returns, both domestic and international and emerging. We cover bond returns, we cover commodities and other inflation assets, which I think obviously are very relevant for the current environment. And then we dig into some of the intricate details of Antti's main focus, which is alt style premia. So, we dig into Value, Momentum versus Trend, spend a lot of time on Trend and its role in an inflationary environment. Carry, we spend a lot of time on Carry, because it's one of my favorite and I think most overlooked, global diversified strategies. And of course, Defensives. So, low risk type strategies.

And then we spend some time figuring out how to put it all together, and investigating ways to put it together with approaches that institutions and individuals can manage, because sometimes the optimal way to put things together just aren't possible, based on constraints or other preferences, and so we try to make it practical and implementable. Anyway, without further ado, I want to bring you this interview. But I will note that Antti's book is currently available on Amazon. Again, it's called *Investing Amid Low Expected Returns: Making the Most When Markets Offer the Least.* And there is a dedicated website for the book on AQR's website at aqr.com/serenity. So, let's have the interview with Antti. Thanks for listening. I want to welcome Antti Ilmanen to Gestalt U. Antti, it's really exciting to have you here. Thanks so much for making the time for us today.

Antti: 00:04:12

Sure. Thanks for inviting me, Adam.

Backgrounder

Adam: 00:04:16

You know, I say this a lot on our podcasts that for those who don't know, and I'm sure you know, unless you've been living under a rock, you'll know Antti Ilmanen, but we should probably give you a formal introduction. So, Antti is a Principal and Global Co-head of the Portfolio Solutions Group at AQR Capital Management. In this role, he manages the team responsible for advising institutional investors and sovereign wealth funds and develops the firm's broad investment ideas. Prior to joining AQR, Antti spent seven years as a Senior Portfolio Manager at Brevan

Howard and a decade in a variety of roles at Salomon Brothers/Citigroup. And we could go on and on because your resume goes back a long way, and is jam packed with lots of extremely interesting roles. But I want to talk about …

Antti: 00:05:09 Chicago students, with Fama and French with Cliff and John and others.

Motivations

Adam: 00:05:17 That's good and that's important for us to mention, given the context for today's discussion. So, thank you, I'm glad that you reminded us of that. So, we're here to talk about your new book. And I know it's a follow on to your book, *Expected Returns*, which was a seminal work for me and inspired about a decade of investigation and research and writing for me, and I know there's a broad diaspora of devotees of your work from *Expected Returns*, many of which I know personally, and we go back and forth pretty regularly about many of these concepts. So, this new book is called *Investing Amid Low Expected Returns*, and I was lucky enough to get an advance copy, so, thank you very much for that. And so I'm excited to dig into this new content. So, maybe before we get going, just a brief synopsis about what motivated you to write this follow on piece?

Antti: 00:06:28 Yeah. Well, I've always had a preacher's passion and I thought I sort of scratched that itch or so with the first book. But a few years into my AQR time, I felt that I had learned enough new stuff that I wanted to sometimes share it. And so I was sort of waiting for the opportunity and the opportunity came somehow with the lockdowns and so on. And I wanted to see what I've been able to learn and also sort of miss in that first book, because it was about all the building blocks in investments. But it didn't put too much of the low expected return context, which wasn't so obvious in late 2009-10 when I was writing it. So, the context of low expected returns, I wanted to put that, and I wanted to also include what I learned a lot in AQR, the other parts of investment process; how to put everything together. So, those were the additional pieces that I really wanted to get, besides updating things after 10 years.

Adam: 00:07:42 Yeah, that makes sense. And the book is called *Investing Amid Low Expected Returns,* and you make a very comprehensive case for low returns to most popular investment categories over the next decade, or perhaps longer. And what I find fascinating is that many empiricists, including me, have been calling for low returns to, especially US equities and perhaps global equities and bonds for, going on maybe over 10 years, at least. And somehow, global cap weighted indices, and especially US indices have delivered substantially above average returns over most of that horizon. And so I think it's really timely for you to revisit these topics now that we've gone through this decade, and many of us have sort of been a little bit on our backfoot in terms of our analytical cases and our analytical models. And I'm just wondering, what happened, do you think over the

last decade that was so different and rendered the models that we were used to using and that were reliable historically, just more off than usual?

Antti: 00:09:03 Yeah. Yeah. I think that's such an important question because those high realized returns over the past decade, they make any reasonable observer wonder whether these Cassandra's are like the boy who cried wolf, and we shouldn't listen to them anymore. And I do think and I do make a strong case that this is a dangerous time to become complacent, and it's likely a wrong lesson at this point. So, I do deal with it in the book and actually in something we have written more recently, just as a sort of 10 year retrospective, how did these forecasts in general get it so wrong? And we can look at realized returns and see why.

And S&P 500 is a really good case in point because that's really at the heart of this strong success even more than bonds actually. So, the main answer is that rich assets get even richer. So, if you think of the CAPE or cyclical price earnings ratio of S&P 500, it went in the last 10 years from mildly above average 20-ish, to wildly above average 40-ish. And that kind of doubling of valuations, you can calculate how much that means prorated for every year, and it's almost 7% per year. And so that, yeah, if you could foresee that, like, I'm grateful that we were calling for mean reversion like some others were, but just sort of thinking of that starting yields are a good anchor. That didn't turn out to be good anchor when you get that type of repricing that also was benign growth and low inflation. So, I do think that it's important to hit on, sort of explain why the forecast was wrong.

But also then, if you sort of buy the argument that okay, so that's water under the bridge, then the question is, what about now? So, now they're starting yields are even lower. So, the picture in some sense is even bleaker. So, one simple way of thinking was if this CAPE is 40, and it's not quite 40 now, but that would mean two and a half percent. So, one over 40 is the yield. So, one over price is the yield so two and a half percent expected real return proxy. And a decade ago, it was about 5% so that was, sorry, 20 CAPE was about 5%. So, we really have with this much more challenging situation. And I think, for the coming decade, we would need really more richening, another growth surprise, and actually probably disinflation to make things work and to get another positive returns of price. More likely we'll get the opposite.

Adam: 00:11:58 Yeah. I mean, I'm certainly in that camp as well. And in the book, you talk a little bit about these windfall gains and how investors are able to observe and understand and internalize the idea of the fact that falling bond yields were responsible for a large part of the rise in global bond portfolios over this period. But somehow, they're not able to connect the same dots for equity valuations. But in fact, equities and bonds were both impacted by this discount rate effect, which provided a very substantial tailwind not just, of course, over the past decade, but over the last 30 to 40 years. So, how, I mean, you mentioned this,

right, going from sort of a lower CAPE to -- or a high CAPE to an even higher CAPE over the last decade, which implies going from a low earnings yield to an even lower earnings yield. Right? So, what does that imply, do you think for US equities and perhaps for global equities over the next 10 to 20 years?

Antti: 00:13:11 Yeah, yeah. I think, so I do have an advantage in being an old bond guy. Because in bond markets, it is so obvious that when yields are falling, the prospects for the future you should be looking at those starting yields. And for the past, those following years probably meant that you get some what I call windfall, in, so the discount rate effect. Basically, you earned more than you were expecting, because of this sort of unexpected yield decline. And something similar happens for equities, actually, for our various illiquid assets, as well, real estate, etc. And that has influenced all these other asset classes. It's not so transparent when the yield isn't staring you at the face, and there are some other moving parts in the pricing.

But it really would serve well any equity and illiquid investor to think of the same logic. And that logic then says that when you interpret past returns, you sort of try to adjust for the windfall gains that you got from some within sample repricing. Also … has written nicely about it in past … in a blog. So, I think that helps you somewhat immunized against what I call rearview mirror expectations, and the complacency that you get from those high returns and specifically now on equities you are asking. So, equities are even more long-lived asset than bonds. So, there are different ways of measuring duration like… so, for bonds duration is your average cash flow length or the sensitivity to your own discount rate. For equity, sometimes people talk of equity duration as sensitivity to bond yields, but that confuses things, I think, with the stock/bond correlation. It's better to talk about equity duration in terms of sensitivity to do its own discount rate.

And when I estimate that, I get something like let's say duration of 15, which is more than for most bonds. So, any 1% move in equity discount rate gives 15% repricing of equities. And there are, by the way, other models where some simple models where you would assume that cash flows are totally constant, you would get even bigger numbers 30, 40, 50 year type of ratio for equities. Anyway, so equities, really long duration and that means that they have benefited a lot. Actually, like I calculate in recent decades, there's been maybe 3% type of annual repricing of equities. Even over the last 100 years more than 100 basis points of average returns has come from repricing. Anyway, so that's something to look back and go in your head. It again, I think, makes me more cautious, even taking, assuming that yields are where they are, if one thinks that there will be some correction towards higher yields, that's really scary scenario.

Adam: 00:16:24 Yeah, I was struck by the fact that you clearly have been doing this for a long time, because you brought substantial humility to your modeling process. And for example, you didn't assume any sort of mean reversion in margins in discount rates or in the earnings yield for equities, in your models. And so even if you don't assume that margins will revert somewhat toward the mean, or that yields will normalize, or that earnings yields will normalize it, or PE ratios will normalize, you still end up with fairly low expected returns for global equities. What about relative expectancy for, for example, US versus international versus emerging? Is there anything to take away from that?

Antti: 00:17:14 Oh. Yeah. So, US equities have for many years now looked like the most expensive one, and they have kept outperforming. So, I think it's just one more case of how contrarian strategies, whether you think of market direction, country allocation, stock selection, contrarian strategies had a pretty sad decade. Which, by the way, makes me think that it's again, dangerous to extrapolate that lesson, looking for the next 10 years, because if anything after that fight, that period, things can go the other way. Anyway. So, very extreme relative valuation between US and the rest of the world right now. But that story could have been told a few years ago, and you would have sort of drawn the wrong lessons.

I think there are good stories of why US should outperform. So, like, intuitively, there's this idea of US exceptionalism or so, and that would be -- you have got the rule of law, you have got the entrepreneurial spirit, tolerance of failure, they're all business friendly policies. I think they all are helpful, but they also are features that arguably should make sort of US equities, maybe less risky, and less risky investments will give you lower expected returns. And maybe we've had that repricing from cheaper US equities to richer. But again, US has been a leader for such a long time that I don't think it's -- I do think that the main story why US has outperformed in the last 10 plus years is just repricing. One can actually, like see, that mechanically same type of story that I was saying. It has been most pronounced in US. And so it's that type of edge that has given the US outperformance in the last 10 or 15 years.

There have earlier been decades where US has underperformed for a decade or longer. So, it's certainly not guaranteed in any way. But it is maybe worth -- last thing I say here is they said that there is this great … history of 120 years of equity returns. And in that one, they compare different countries they find that US outperformed non-US world by 2% over this long, per annum, over this long history. And pretty much all of that 2% for that long history came from faster dividend growth in US. So, for that history it wasn't repricing. So, I think there has been really good, something strong, maybe it can be a success bias that US was the country of the 20th century. But that was the main edge for the long history.

But more recently, it hasn't been that type of edge. It has been tested. It has repricing to more expensive levels, which I think that's -- store some trouble for the future.

Adam: 00:20:25 Right. So, doubling down on this theme, I do see it argued quite frequently, that because US companies derive such a high proportion of their revenues from international operations, that an investor can get enough international exposure by owning, for example, the S&P 500 that they may not need to diversify directly internationally. How do you hold on that view?

Antti: 00:20:55 Yeah, yeah. Actually, that reminds me something I've always been curious about that, Mr. Passive, Jack Bogle and Mr. Active, Warren Buffett, both shared this view, US portfolio sort of, should be favored. And I think it's a very active decision. I do think the broad point you make is, it's fair that you get some revenues from abroad. There's another logic that US equity market is anyway 50-60%, maybe on global equities nowadays. So, home bias is so much, I don't know, bigger scene for somebody from a small country. And it's not too much of a scene for a US person. But I do think that it's still the story -- why this story is so popular now is again, a return chasing logic that it's, you know, US equities outperformed for a long time. We want to ride that, we want to continue with that many investors think and they want to think of reasons why that would be the right thing to do, also for the future, and not just for the past. And I do think that there's a danger in that.

Adam: 00:22:15 Right. Notwithstanding currency effects as well, which can have very large impacts on portfolio performance, especially in this sort of intermediate term. Yeah. Another common challenge to the idea that stocks are expensive, and this again, pertains particularly to the US is the idea that buybacks have been a feature of US equity markets over the last couple of decades. And that this may, or the typical sort of Gordon Growth Model based estimates may not effectively account for this. And you do go through the … and Ibbetson study in your book. Maybe just briefly summarize how they modified their model to account for buybacks, and maybe what that implies for equity returns.

Antti: 00:23:10 Yeah. So, that's the best study on this question that if buybacks are now sort of challenging dividends, so dividends have been replaced or augmented as a payout; how should we adjust the dividend discount model? Should it be something else than dividend yield, and dividend or earnings growth or so? And so and they add buybacks, they create very long histories. And it really starts to matter only from 1980s onwards. But then it is also fair to say that if you include buybacks, you should sort of include the flip side of it, which is companies issuing equity. And when you think of the net of those two, it turns out that it doesn't matter nowadays so much.

So, the big picture today is not too important. Historically, there is, I mean, this is related to the … concept of 2% dilution, that equity market, sort of like the persistent issuance into equity market created sort of 2% dilution. But nowadays, buybacks are so much bigger that there is pretty much sort of, I don't know, zero dilution. So, I would say that, right now, it doesn't matter too much. But any historical analysis needs to recognize that there has been this transition towards other ways of giving payouts to investors and you have to interpret your data much more carefully. I confess that, like I studied this a few years ago with my team, quite a bit we. Wrote about it.

Ultimately, I felt that yeah, we get lots of, I don't know, headache inducing topics from that, and not too much more, I don't know true wisdom out of it. So, it's something I do cover in the book, but I don't really encourage anybody to spend huge, huge resources on it. I do think that relatively straightforward models still be broadly the same story, whether you look at sort of dividend yield type of approaches, again, maybe keep them a little higher with these net buyback effects. And the other possibilities, look at earnings yield based approaches.

Adam: 00:25:36 Yep. No, I like that. I do sympathize with some of the papers that talk about the elasticity of equity pricing. And sort of in the context of the fact that issuance, typically or often, high proportion of issuance is in the form of stock-based compensation. And the owners of that are either forbidden to sell that immediately into the market, or they often just hoard that for ownership sake in the company, whereas buybacks have a direct impact on flows. And they're this sort of consistent buyer of equities in the public market. And there may just be some impact based on the fact that there's not perfect elasticity of supply/demand within the pricing model at the market level. And that just may, at the margin, cause prices just to sort of systematically rise. But yeah, there hasn't been a lot written on that. But I think that's …

Antti: 00:26:37 Yeah. And it is, there are just so many angles to that. Like, again, like one intuition is, dividends are still more, I don't know, they're more sticky. Like, it's easier to do buybacks, because you don't commit as much to doing them all the time. And then, again, these are not the only things like some say that, okay, you should really think about the cash that's given back through acquisitions, and you should think about the debt part. So, again, I mentioned that this is sort of headache, raises lots of headache inducing questions, and yeah, I think I'll stop there.

Adam: 00:27:11 Yeah. Well, we'll put a pin in equities, maybe for a moment, and maybe talk a little bit about bonds. And so I'm wondering given, I mean and a month ago, we actually would have had a slightly different conversation about bonds, because, of course, bond yields have jumped so substantially, especially at the short end over the last six or eight weeks. But they're still low historically. And I'm just wondering, I think a lot of people are wondering whether bonds still have a place

in a long term strategic asset allocation? And if so, how should investors think about bonds right now?

Antti: 00:27:55

Yeah. Okay. So, first, I do think they have a role. And obviously, for somebody who has got liabilities like this, liability matching, there's also the diversification argument, which … correlation has been very helpful. We'll soon write about something whether that's likely to continue. But in general, if you think of sort of macro diversification, there's really nothing else that helps if you get the scenario of deflationary recession. And or 2008 repeat or something like that, I think it's pretty, highly unlikely in the current situation that we'd get that. But in an uncertain world, I'd like to have something for that particular scenario in the portfolio. So, I do think that even with the expensiveness of …, it's there. And obviously … a lot and so I'll get to that in a moment.

But in general bond yields, so think of the cash part, and then there -- or expected cash return and then there's required term premium. And I've written about both and I think like, all of these have led to these very low yields that we have seen in recent years, even negative in many, many countries. So, there are savings glut type of explanations, why real cash rates are so low. And central banks have, I would say, they have inflated that they have accommodated to that reality. And then when you think of term premium, like in my mind, it's sort of driven mainly by inflation risk premium, the safe haven premium due to negative … correlation and supply demand factors like a QE, and all of those pushed yields low. And now all of those might be pushing yields higher and so it's an interesting situation and, and it is not relevant only for bond investors. It's relevant for everybody.

So, in some ways, the key theme there is why is everything expensive in this world? It is because all long only assets, also equities, illiquid and so on, they are priced as if by looking at expected cash flows divided by discount rate with context risk less part and some diverse risk premia. And when that common part of the discount rate is so low as it has been, that makes everything expensive. That's the big background story there. So, that has justified the expensive valuations for everything. Meaning that basically, equities have their starting yields as low as we've seen, in real estate as well, and so on. So, that justification, (A), it's fair, but it sort of means that we should really expect those lower expected returns in the future. But it also says if bond yields and especially if real yields, more real yields than inflation, if real yields start to rise from here, that's going to hurt so many assets. And that it may be that it's going to prevent real yields from pricing too much, because again, that would be too painful.

Anyway, so my main point, it's not only about bonds, and what happens to bonds doesn't stay with bonds only. Actually, in the last few weeks, equity markets seem to act as if they could ignore it. But this is a very short term and not related to my

book's long horizon and …. I really think that that's an unreasonably optimistic stance that equity markets were taking in recent weeks.

Adam: 00:31:29

Yeah, I think we're on the same page there. Credit, you took a bit of a different take on Credit in this book. And just sort of, again, linking it back to what we're seeing in markets right now, you know, Andrew Lo, *Adaptive Market Hypothesis,* markets are clearly adapting to a fairly rapid shift in global monetary policy, and obviously, contemporaneous inflation dynamics. And we've seen market participants flip from pursuing the duration premium to the credit premium, right? So, we've seen OAS spreads, they haven't really budged. If anything, they've tightened, especially in "high yield land" since the beginning of the year, while investors have sort of been fleeing duration into credit.

I've always been of the opinion and my analysis sort of suggests that the Credit premium is a bit of a myth, right? That when I've regressed the Credit premium on for example, risk balanced portfolio of equities and appropriate duration treasuries over the long term, and then I look for an intercept for the Credit and I don't see one. But I know there has been some recent research that suggests that, in fact, there is a Credit premium independent of rates and equity risk. So, maybe just talk for a second about why you kind of shifted your views on the Credit premium in this book, and what is the role of Credit maybe going forward?

Antti: 00:33:12

Yeah, yeah. I do think that the very, very fair questions you have there, I do think that as a first order thing, Credit premium is closely related to equity. So, one would somehow think that premium doesn't have too much extra over equity premium. It could, like, there are some ideas that, like this, maybe some illiquidity premium, we will probably talk about that later. And we don't think there's too much of liquidity premium in general, so that's not too important. But another one is that there's two different types of nonlinearity equities are sort of long options, and Credits are short options. So, that could give you some advantages to Credit. So, I think there are some logical reasons.

Empirically, I think it does depend on the data, like some research my colleagues wrote, where they found that there is a role for Credit. I mean, it was a longer study, and it was maybe from some earlier decades that had more of that story. And again, I think, last decade, partly I'm more positive because basically, the last decade was better and the previous book ended when Credit spreads were still exceptionally wide and now they are on the narrow end. And I do think that it's always right to try to adjust any inferences you make on average returns … there are now some sample specific valuation changes, could we adjust for them and see somehow what people were really expecting and requiring more neutrally without that sort of surprise part? So, I think that's a good thing to do. So, I think I'm pretty open. I'm open to debating whether Credits add much extra beyond the equity premium angle there.

But one thing which I sort of highlighted in the first and again now is that there's this one weird result that we find that the average performance, average realized return on credits over governments, even for investment grade bonds, is a fraction of the average spread. And so sort of like, where did it disappear? And in my first book, I wrote that this is about 25% of the spread is realized. Now it has grown to something like 50% because we have had a nicer decade. I think that is -- so, the more interesting question is, so where did it go? What was the source of the leakage? And there are so many different reasons, but the most important one is the index investor's tendency.

And so this is an index calculator, tendency to sell so-called fallen angels. So, fallen angels are the bonds that are downgraded from triple B's to BB's. So, basically, to below investment grade, and many institutions have a rule, you have to sell them now. And then they are sold in a few weeks at fire sale prices. And it's weird, it's not a big part of the market, but it's big enough. In fact, that's taken something like 30 basis points or something of the overall index returns in the long run, and supposedly also in the last decade. So, I guess I would say then that if anybody does sort of the, I don't know, the reasonable thing and tries to promise, commit to not selling the fallen angels, do the right thing here and basically, maybe change some organizational rules there, then we'll have 30 basis points more. And I think there's going to be a little bit better case for saying that Credits deserve their role in the portfolio.

Adam: 00:37:03 Yeah, that's a really strong potential source of alpha for organizations. Absolutely. And I first learned about the fallen angels' premium, I don't know if you read the book, The Missing Risk Premium by Eric Falkenstein?

Antti: 00:37:18 Oh, Falkenstein. Yeah, he's great.

The Inflationary Side

Adam: 00:37:21 Yeah, absolutely. And he was the one that brought this fallen angels' premium to my attention. I've always thought that of all the reasons to invest in Credit, that's the most interesting because there's a structural reason for it to exist. And that organizational structure for big insurance companies and many large pensions, for example, is unlikely to change going forward. So, this premium is likely to persist. So, yeah, I've always found that that's really interesting.

So, we're talking about bonds, we talked about equities, you mentioned that bonds still play a role in portfolios, because they offer ballast to equities during disinflationary or lower growth shocks. And, of course, there's another side of that coin, and that is the inflationary side. And for the first time, arguably, in 30, or maybe even 40 years, we're seeing inflation rear its ugly head at the moment. And so I think it is timely to focus some time on what is missing from many portfolios, which is assets that are not -- don't have positive betas to inflation

shocks. So, I know you've touched on commodities in this book. Maybe first of all, more generally, what are some asset classes or instruments that investors should contemplate to help to balance their portfolios against inflation risk? And then maybe specifically, we could talk about the role of commodities and their investibility?

Antti: 00:39:04 Sure. Yeah, I think it is really important, the point you made that investors really don't have much in their portfolio that benefits from rising inflation. And in 2010, they could count their and, and anybody who had commodities, actually like you can see pension allocations to … commodity allocations were sort of taken down then during the decade because it didn't work. And again, we may return to the investor patience is a tough one as certainly like commodities. Commodity allocations didn't survive the bad decade, in most cases. So, basically, both stocks and bonds dislike higher inflation, and there are very few things, commodities and lots of different commodities depending on what kind of inflation so that's why we tend to like broad commodities because we don't know what kind of inflation is going to sort of hit us.

So, commodities are, I don't know, best of a bad luck in some sense of breakeven inflation and some real assets, but I would be warning that I really like some algorithms and language sometime it said that there can be inflation protection from premium, for example, equities or maybe for from some private assets. But it doesn't mean that it's inflation hedging in the sense of correlation, doing well when inflation is rising, there are very few things that do that. Then commodities and breakeven inflation is pretty much the only things that -- so breakeven or inflation swaps or difference between nominal and real bonds. Anyway, so I think commodities are great for this diversification aspect, inflation hedging aspect, which is really rare.

But in addition, so our research, I want to highlight this, our research, our colleagues of mine, has highlighted with more than 100 years of data, that commodities actually also offer a positive, long run reward, commodity futures portfolios. And I think like there's a lot of inflation … commodities tend to sort of cheap and overtime, but again, not just my colleague's study, but some other studies that have looked at last 70 or 100, 140 years, do find that there's a positive premium on such a commodity futures portfolio. And I do want to, I thought that when I talked with you, I want to highlight this because the way this long run commodity premium works out is very much in your wheelhouse. It came from diversification and rebalancing. Okay.

So, in fact, I used in my, I don't know whether you've seen it, but I use in my book, the quote of yours that *well executed diversification is indistinguishable from magic*. I loved it and so I use it in the context of this example of, which I've used in my books originally Herb and Harvey, how, when you look at the commodity

portfolio, the compound average return can be 3-4%, even though the single constituent commodity there may be earning zero. And that's actually what 100 plus years of data tells. And it really comes from this, basically, when you diversify, and I'm really sorry for some audience … talking of variance … geometric mean, but basically, when you reduce -- when you diversify, you reduce the portfolio variance from 30% to 18% or something. And that improves the compound return because of something called variance … geometric means. So, that's how commodities get 3% more than intuition warrants. Anyway. So, I sort of love it because it's really a minority intuition, but totally works.

Adam: 00:43:10 Yeah. I mean, what's important, I think, also, and you highlight this in the book is the fact that there's such a diversity of commodities, and you want to hold all of them and you want to rebalance. And it's this rebalancing among such diverse instruments that also have high ambient volatility that produces a substantial portion of this premium, which is tied into this sort of reducing variance drag. And yeah, the premium produced from just this rebalancing effect on uncorrelated assets with high volatility is astonishingly large. And …

Antti: 00:43:50 You said, right, because equities are also high volatility, but they are correlated, when you look at them in a portfolio, don't get as much effect. And then with bonds tend to get correlation and lower volatility. And again, it doesn't matter too much. So, it's really commodities are the best example in asset classes. And then I'm sure we'll talk later about long/short strategies where this may help as well.

Commodities

Adam: 00:44:13 Definitely, yeah. I thought it was really interesting, you investigated the source of commodity returns at the individual market level, and you broke it down between the appreciation of spot commodity prices, and then the roll yield. And of course, if the way that the vast majority of investors are going to get access to commodities, as you say, is through commodity futures, and so there's always this roll effect. And historically, so until maybe the last 20 years or so, commodities have had a positive roll effect, but over the last 20 years, that effect has turned negative so the vast majority of the returns come from spot.

And of course, most investors acquire commodity exposure by holding a diverse basket of long only commodities. But many commodities spend much of their trading time in -- with a slope of the futures curve that would suggest that the Carry you're going to earn is better earned by being short that commodity. And so I thought it was, well, first of all, we're going to talk a little bit about the Carry premium, we may spend quite a bit of time actually on the Carry premium a little later. But I think there's some merit to focusing on commodity indices that explicitly seek to optimize exposure to commodities at some points on the futures curve that either maximize or minimize the negative roll yield. And there are

some commodity indices out there that explicitly do that. And they do have a history of outperforming both as indices and in live trading. So, I thought that was useful to highlight.

Antti: 00:46:13 Yeah. And I buy that, but then I would maybe say that, so yes, commodity exposure helps some activities around it, such as a roll. Carry roll helps, but maybe don't stop there. There are a couple of other things that you could then do to improve those portfolios.

Adam: 00:46:34 Yeah, absolutely. Okay, you mentioned illiquid assets, illiquidity premium a little earlier in our conversation, you have a chapter on it in the book. I want to focus if you don't mind on, specifically private equity, because well, aside from private real estate, private equity has the largest historical set of data for us to draw some conclusions. So, I have long felt, and also I think this is supported by the data, and you do a great job of highlighting this in the book, that the private equity premium, so to speak, is overstated for a variety of ways. Maybe walk us through some of the literature on that, your interpretation of that. And then why, in fact, illiquidity may not even be a risk factor, but that actually maybe flipped around for many investors.

Antti: 00:47:36 Yeah, yeah. But let's start with first applauding that private equity or … industry, because they charge high fees, and they have somehow managed to add positive returns over the last 30 years beyond those fees. And I think the average fees may be of the ballpark, when you take all in 5%, and you add couple of percent for that we have talking on big money. So, somehow they've done extremely well, in that sense. But what that leaves for end investors after fees, and in the future is the bigger question. And there are issues then on, and by the way that this was for the whole … industry, then when you are thinking top quartile managers, you get even better but that's always so that's such a dangerous path to have to take.

I just wanted to start with sort of the positive -- the questions that are often raised in the literature, are where do you compare it to, and that, depending on the data set you look at, comparing it to levered equities or small cap value or so on, that may be a tougher benchmark. Or then the other thing is that maybe the world was different until about 15 years ago when this, I will say Yale Model made this private equity investing so popular. And since then there's been much less evidence of outperformance over public equity. So, I would say that's, to me, raises the puzzle. So, why don't we get an illiquidity premium for something where you lock your money for such a long time, if -- or why it's so modest? And by the way, it's also supported by looking at real estate markets, where more liquid rates tend to outperform less liquid direct real estate as well.

Anyway. So, if you buy the argument, which I think is not widely appreciated, that there is actually scant illiquidity premium in those markets, then the question is why? And the answer, then is for any amount of fair illiquidity premium that we

might be demanding, we might offset that by our collective love affair on smooth returns, like mark to market in private assets, not just private equity. And so this feature of smooth returns is something which I think it is a useful feature, but investors shouldn't think that it comes without the cost, because investors then can accept basically lower or maybe even no illiquidity premium. And let me just make it tangible with one example. So, if you look at Cambridge buyout index over -- well, if you look at it over the GFC, 2007-09 period, it had a 25% drawdown. If you look at the public proxy for it, it could be small cap value or something like that, 60% drawdown. So, when investors sort of look at the data, they much prefer this.

And then we got the COVID crisis, which was even shorter and didn't make much of a dent to private equity returns. So, I think many investors and then say that, oh, I can sleep so much better with those private assets without mark to market. Even if they give me no illiquidity premium, I'll still sort of be happy to hold them instead of that damn volatile public equity. So, I think that's -- and by the way Cliff is taking it even further, saying, there may even be a net illiquidity discount as opposed to a required illiquidity premium. Could be again, we have too little data in that area to say it conclusively.

Adam: 00:51:37 Yeah, I really like Cliff's take on this. And he proposed that public equity managers should have the option of pricing their portfolios every month, based on a three month delay, or some average rolling average of underlying prices to be competitive with the private equity industry.

Antti: 00:52:01 We want more than three months to be competitive with … They get longer potential lags, anyway. Yep.

Adam: 00:52:11 For sure. I also really like how you highlight in the book that many investors categorize and perhaps even perceive private equity to be an alternative asset class, or private credit to be an alternative asset class, rather than lumping it in with the equity sleeve. But let's all be clear that private equity is Equity and private credit is Credit. And we should recognize that explicitly in terms of our asset allocation and recognize that the private nature of it hides a lot of the underlying risk that the public equity version of it exposes.

Antti: 00:52:54 There's a flip side to that, that some investors may have limits on how much they can hold privates or illiquid assets. And by focusing on all what you just said, would allow them to bypass that consideration. So, I think there might be takers to this proposal.

Atypical Sources of Return

Adam: 00:53:14 That's right. That's a good point. Okay. Now, let's turn to the subject that my sense is you're most passionate about, which is the sources of return that are not

dependent on typical risk premia on returns of stocks or bonds or credit, etc. And I think the team at AQR perhaps even you yourself are responsible for naming these sources of return style premia. And, yeah, so that's great, and sort of differentiating from the kind of Fama/French factor terminology. Actually, I'm a little curious, why did you choose, I have an intuition, but maybe help me out. Why did you choose to sort of differentiate this concept of style premia from the idea of factors which was a little bit more familiar in the literature?

Antti: 00:54:19 Well, actually, like one observation at AQR started before we started to do then style premia language which like when I came I really pushed for that. We had already had another type of alternative risk premia, hedge fund premia, you know, that was the hedge fund beta. So, that's yet another way you're thinking about it. I think factors and styles to me are like sort of almost synonymous except that factors can be also market premia. And you get to this, are you looking at asset class exposures. I like the clarity that okay, there are asset class premia and then there are style premia whereas factors can be both. You know, when I was studying equities, bonds and … Fama/French language, market, term and dif are factors and then you add it to that things like value and size, which are also factors. So, again, I like the clarity of saying that styles are a different thing than market based factors.

Adam: 00:55:36 Got it. My intuition was also that by calling them style premia, it allowed a little bit more latitude to include persistent sources of return with strong economic rationale, but that were rooted in behavioral or structural causes, as opposed to being explicitly related to risk. I know that under the Fama/French framework, he was extremely insistent that everything had a risk explanation. But I think style premia allows you to sort of relax that definitional constraint.

Antti: 00:56:15 Yeah. So, we are much more open-minded, whether the source of this, let's not talk of style premia, whether they are risk-based or behavioral and … my way of like, I think something I say in the book is there are so many explanations already in the literature that you can sort of think of theory mining as much as data mining. So, more of that, then I think you can't really criticize these styles for that they are due to data mining. Because when you study them in, over time, in different asset classes in different regions and so on, the evidence is so persistent, pervasive and robust, that it just can't be that. So, there are lots of different stories, some rational risk-based, some behavioral, and we are okay. We are okay with both. We do think that also behaviorally motivated factors can sustain. Because they also get their by the types, and they still seem awfully like risk when the bad types are pretty long. And so –

Adam: 00:57:25 Yeah, and … Go ahead. Yeah.

Antti: 00:57:29 Yeah, so maybe we should, like describe some of the key factors … do you think?

Adam: 00:57:35

Yes, please. Yeah, you highlight four in the book and spend some time on them. So, yeah, what are they?

Antti: 00:57:41

Yeah, just so again, somebody might have a different list. But I think consensus has been closer to our way of thinking. Roughly speaking, Value, Momentum, Carry and Defensive. And I sort of stereotypically and glibly say it's like buying cheap, buying last year's winners, buying high yielders, buying the boring stuff, selling the other side, if you can do long/short and then ideally with style premium and do it in many different places, different asset classes, as I want to get maximum diversification. So, that's sort of the broad idea. In practice, you can have many ways of doing Value, many ways of doing Momentum and you can broaden the Momentum again. It can be just cross-sectional Momentum between different stocks for example, or it can be Trend following, which is more a directional strategy.

So, each of these can be broadened and you can use many different metrics. There are many design decisions. In general, I say that, yeah, you want to try to harvest many of these rewards, but then you want to also hedge away something like, if you can do the long/short, you get much better diversification. And so hedging some unrewarded or undesired risks is good. But again, that this gets to very geeky stuff then on how to design these things better. But something that I mentioned that I want to emphasize is when you can do this, because in many different asset classes, and historical evidence supports that you can, (A), I don't know, well, it certainly makes me more confident that there's something real in there that they just -- anywhere we study, they seem to have worked in the long run. And second, when you do them in many different places, you get that extra diversification dimension, which is great.

Adam: 00:59:40

Yeah, I agree. So, *Expected Returns*, spent, I want to say the bulk of the book, exploring these style premia. And for me, that was my first in depth exposure to a lot of these concepts. I'm just wondering, did you want to bring anything new to the understanding of these style premia in this book?

Antti: 01:00:11

Yeah. So, partly it is an update extension there. We have over 10 years more data and actually some pretty good years and bad years. And I'll get to that because that matters. And there have been long new histories because people have basically extended this. Like we have a study of -- a century of style premia. Others have taken some of these premia where possible back 200 years. So, you can say that that's irrelevant, world has changed, but I do think that it is very nice if you find that these things are just robust, that just wherever you look at but however far back, you look at then that's roughly the case. So, I think that's good.

Another thing that we studied quite a bit in 2010. So, I wanted to share this sort of macro sensitivity analysis. So, in general, we find that these long/short premia don't have much macro sensitivity. And I think that makes them even better

diversifiers. And the whole theme of their diversification benefits, I of course, mentioned in the first book, but I didn't talk too much on portfolio construction. So, I didn't highlight it as much. I do think that it's very important to -- like that's really maybe the beauty of them that you get really many sources of long run rewards by looking at both *style dimension* and *asset class dimension*. So, that's a big plus. But then there are minuses, there are challenges. Lots of leverage required. I didn't quite get it done, highlight it as well in I think the first book.

And unconventionality another one is, something which I cheekily say, that you are *short stories*. So, the basic idea is that superior diversification often means that you are lacking narrative ascent. And we have sort of greedily looking at some great storytellers and, and it's sort of, I think, part of the package that you just can't have as good stories here. Anyway, so those were some things that I brought in.

The last thing I do want to emphasize is that because there were also well, it's not only because of those. I mean, we started to write about the importance of investor patience already, like I don't know, 2013-14, and so on. But I think that that has come home even more strongly that it is important for any investor, not just in risk premia, but any investment, as how can I sustain my patience in whatever investments I'm making through there by the time, which are typically longer than people have patience for. And there is this what Cliff has talked about this sticky, importance of stickiness. And I highlighted throughout, I tell that, I believe in style premia.

But you have to figure out whether they or something else is things where you can have patience, and you can stick with. I give as much evidence as I can to make it encourage that belief and patience. Also, the stories, why these things work; also addressing questions like, could there be a data mining problem? Has the world changed? Who is on the other side? All kinds of questions that sort of come up in bad times more than in good times. And I provide some, I think, ideas how in general organizations can cultivate better patience, because again, I think it's not just for this, for any investment that is crucial. So, those were things that I hadn't covered so well and I wanted to bring new emphasis in this new book.

Adam: 01:04:12 There's this potential sort of reflexive nature in helping investors to become more patient and take longer term views. Because I mean, well, maybe you would disagree, I don't know. But how do you think about the view that at least part of the premia that patient investors earn from these strategies comes from the fact that there is a large segment of investors that don't have the patience and end up selling these strategies at a discount to investors with longer time horizons and more conviction.

Antti: 01:04:55 I think that's very fair. And again, I think any -- it's not only here, it's really in any investment. I think investors have in general, most patience with equities. Well,

we'll probably come back to this later. And I think somehow it's fair. I'm more sort of laughing about the linkage people make with the private assets and patience because again, the smoothing feature, I think it's sort of, I don't know, it solves the patience for you. I mean, you can't pride in your patience when you are hiding the mark to market volatility. And in some sense, I think that true test comes with this mark to market challenges that you get. But I totally agree with your point. That's part of the way you earn risk premia through being able to stick with them.

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Macro Sensitivities

Adam: 01:05:47 Yeah. So, you mentioned that in this book, you investigated the macro sensitivity of these factors. Any more important than other conclusions that you drew from this analysis?

Antti: 01:06:03 Yeah. So, basically, when you look at stock selection strategies, there's very modest or non-robust macro sensitivities, especially when you do things industry neutral and market neutral, then these styles suddenly, they take away much of the market risk. And those market and maybe industry exposures, they gave you the macro sensitivity. So, we find very modest macro sensitivities. Though some people highlight that value strategies, sort of anti-bond and defensive is bond like. But again, we find that it's not that strong, and especially when you do these things industry neutral, this is not … To me, the most interesting macro sensitivities come with that explicitly directional strategies like trend following and macro momentum, which is sort of similar strength following, but chasing past macro trends, chasing some -- buying some asset classes based on favorable or unfavorable macro trends.

And basically, there's this nice smiley feature that these strategies tend to do well, whether, let's say, whether equity markets are having up or down moves, as long as they are big, or rates, or inflation. So, in all of these cases, you basically benefit from large moves in their strategies. And typically, those are situations where other asset classes are, especially equities, are put if anything, sort of frowned patterned rather than smile. So, they are wonderful diversifiers in that sense, from this macro perspective.

Adam: 01:07:44 Right. Yeah. And I wanted to touch on because I think a lot of people have inflation on their mind right now. And I think you did just touch on it. But I want to make it explicit if there is an explicit point here, but are any particular factors particularly positively related to inflationary periods?

Antti: 01:08:11 Yeah. So, I partly poo-pooed that by saying that with stock selection value and defensive, there could be people say that value might benefit from that there are

some pictures that show but those pictures, I don't know, when you try to translate those into some correlations, look at what kind of long run correlation there has been, or what kind of rolling correlation there has been, or how much of value or strategy performance inflation … have explained over time, tiny non-robust and so on. So, it's very, I would say, anecdotal there. So, in general, I don't find with styles much there. And the best and most robust patterns are just that, with big moves.

Either direction, Trend following, macro Momentum, tend to have those favorable outcomes. And by the way, there is this intuition that often, let's say inflation used to be somewhat gradual. And when we think of what's, I don't know, behind, let's say, trend following strategies, part of the explanation often is sort of under reaction to sustained moves and so on. Well, it should fit well with these types of, I don't know, inflation types of problems, which again, we didn't have for a while, and now we are having and that seems to be, I don't know, working in the favor of these strategies.

Adam: 01:09:44

Yeah. To give investors their due, I think there's a lot of acrimony around Trend managers because they did have a more challenging decade. If anything, I think it was the 2010s were the most challenging decade going back 100 years for or Trend following strategies. Obviously, it was an environment that was particularly fruitful for Trends. And you do go into the book a little bit on what might explain the modest performance of Trend following over the 2010s. And I think it's maybe worth discussing some of those factors because it may provide that extra level of comfort that would allow people to take, to dip their foot into Trend, as one of the core style premia that are worth exploring.

Antti: 01:10:38

Yeah. So, my colleagues, yeah, they looked at really long histories and asked what was different about 2010s. And in some way, the bottom line first is -- the mechanical bottom line this sounds trivial, but they were short Trends, and macro Trends as well, but there were other possibilities, there could have been bad diversification and less efficient use of the existing Trends. But it really couldn't be explained by exceptionally modest Trends. And I think when you sort of try to make economic sense of that, it seems best explained by central banks trying to curtail Trends. You know, they didn't want things too hot or too cold. And so when they could, and they, and in 2010, they were sort of preventing markets from getting to risk on and then fair to put worse there certainly when the risk of scenario happened.

And so now, I think, it's an interesting situation when central banks may be in a situation where they can't do this sort of easing, they have to face some hard choices. And I mentioned it in a couple of places in the book, because I've been sort of waiting for that, I mean, not for the sake of Trend following, but it's just that it has been such a nice time for central bankers not having to face hard

choices. Now you are getting to a situation where they are endangering their credibility by being too soft on inflation. And if that means now that they have to tighten a policy aggressively, say, and we can debate whether its current plans are aggressive. But if they have to do that, and sort of hurt financial markets, and maybe create a recession with that possibility is also there, to contain inflation to get taken back. That's the kind of hard choice that I think it puts, I don't know, give us now in the context of Trend following strategies and macro Momentum, it gives a more open environment than 2010 when central banks could be curtailing market movement, it moves either direction.

Adam: 01:13:06 Let's talk about Carry, because ever since Koijen wrote that just extraordinarily comprehensive paper, I have felt, and this has been backed up over and over by our own research and by subsequent papers, but I think diversified Carry along the lines of what Koijen proposed, and there are other ways to interpret that and structure it, as there are for virtually every style premium. But I think it's perhaps the most underappreciated of all of the diversified global risk premia strategies. I mean, I might go so far as to say that every major asset class premia is in fact a Carry premia, right? The Equity premium is de facto a Carry premium. The Duration premium, the Carry premium, sorry, the Credit premium. Okay. So, let's spend a little time on Carry. If you don't mind, maybe start with the basics, because I like to say that sort of Carry is what you earn, when price doesn't change. How would you add to that? And how would you sort of describe this idea of Carry in general?

Antti: 01:14:25 Almost what you said but if you think of Commodity Carry, it's a roll down. So, I would say Carry and roll down so therefore -- so it's predictable Carry and the way Koijen and others in that paper, they basically say that it's an unchanged capital market environment or unchanged price structure. So, that includes the roll down when the first futures, first future, drifts towards the spot price or same thing with the term structure. So, when a bond rolls down, so you are earning some yield advantage where nothing happens, but you are actually, when nothing happens to the yield curve, then there is a predictable aging effect for them. So, that would be the very geeky edition. So, I started like, what you earn if nothing happens, and by the way that would make, nothing happens to make any vol selling strategy is pretty wonderful. If nothing happens, then again, depending on the structure, how it is.

So, we should recognize that, that also then means that when something happens that often sort of goes against you. And so, but to your -- It sounds like yeah, this is your favorite, I sometimes joke that I love all my children equally, and all these styles also, like, I don't want to play favorites. But if I did play favorites, it would be rather maybe then for Trend and Defensive, which have this feature of doing well in bad times. Tending to do well, not always. And Carry and Value may have, and especially Carry - Carry has got a reputation of doing badly in bad times,

which there's this funny thing that some investors like it, because that gives you a reason why you should expect it to continue. It's a risk based explanation.

But often it's a sort of, it's too much of a good reason, because it's such a bad, such an ugly thing that then they may not like it and that may be a reason why many of them say no thank you to Carry strategies. I think sort of this caution that it compounds the core equity type of risks that I have. But then the last thing I say and I'm sure you know this, that Koijen's paper has got this nice feature or nice result that it says that actually broad Carry doesn't have this ugly behavior or this behavior of picking up pennies in front of a steamroller or whatever. There are many nice terms for this type of dangerous behavior. Some of them do Credit Carry. That's vol selling -- Currency Carry. Yeah, certainly last 20 years has had that. But then you think of dividend yields strategy, stock selection, favoring current bond markets with steep yield curves, commodities with backwardation, those don't. So, then when you put them together, you get something which has got very mild beta. So, that's sort of nice then and that supports, I think, your point that that's a good addition. But again, I'd say I wouldn't want to put just one in, I'd want to also put the other ones in.

Adam: 01:18:01 Yeah, I mean, I certainly agree. And Trend is, if I had to choose a favorite child, Trend would be my favorite child too. But what's so interesting about Carry, is that it can at the individual asset level, it can, I think, be explained through a risk-based explanation. But that -- and I guess, going back to the core fundamentals, maybe the idea is that buying any risky asset is explicitly selling volatility on that asset. But the volatility, does it manifest across assets at the same time. And so you are in the same direction. And so, by combining this vol selling across bonds, and stocks and commodities, and currencies, etc, that you diversify away a lot of that sort of systematic, short, what people normally think of as short vol. And you end up being able to collect a fairly substantial risk adjusted premium mostly because of the diversity that you get from these different markets.

Antti: 01:19:18 And then you have, again, less good risk based explanation, both from the things which didn't have the beta and the diversification. It's that now you're back to this that okay, starting to sound like a behavioral …

Adam: 01:19:33 From a macro consistency perspective, yeah. Totally. Yeah. So, let's talk about then the maybe marrying Trend and Carry. I often call these sort of kissing cousins because… And I think you talked about how most traditional premia have sort of an inverted smile and Trend has kind of a positive smile. Wouldn't you say that those sort of fit together hand in glove pretty perfectly?

Antti: 01:20:07 Yeah. Well, they do for the asset manager. So, my point is that we saw lots of Trend following asset managers sort of follow that point. They wanted to diversify and get some good rewards in bad times. And then if you are the end investor, who already has a portfolio, which has got lots of equity beta, and you want

something that helps in those tail events, then you can think of those Carry additions as sort of, I don't know, polluting the good safe haven characteristics of the Trend. So, to the extent that Trend has got that feature, I don't want that pollution from Carry or anything else, but certainly not from Carry strategies that have got equity beta, which is exactly the problem I want to solve. So, yes, good diversification, but it really matters at what level you do it, and can be good, but it should be done with very open Kneisel.

Adam: 01:21:21 Right. And in the perception that many investors have that Carry does have this procyclicality to it, despite the fact that Koijen's paper demonstrates that it really doesn't have any real procyclicality or much in the way of long term equity beta. So, maybe there's both sides of that, there's a little learning to do, and there's some maybe rationale behind it.

Antti: 01:21:48 And maybe design, again, one way -- don't make your Carry strategy just a combination of the ones with positive beta, but include other things. For example, again, dividend yield strategy. So, basically, that's something which is not always included in Carry composites, and that tends to have a defensive characteristic favoring high dividend yields.

Adam: 01:22:18 Love it, love it. Defensive, I mean, Defensive has to be the most counterintuitive style premium of them all, right? I mean, how could it be true that investors should expect to earn a higher or compound returns by taking less risk? And yet, this seems to be one of the most pervasive and economically and statistically significant effects in markets. So, help close the gap, what's going on here?

Antti: 01:22:46 Sure. And it is really, the risk/reward, we learn risk/reward trading from theory, and then you look at equities versus bonds or cash. And that trade-off is alive and well. And then you look at within equities, goes away, like there isn't, basically … so, empirical evidence, especially in equities, and it does extend to some extent elsewhere. But it is that the boring stocks have similar long run returns, or perhaps even a little better long run returns than their more speculative brethren. And this is true, whether we look at sort of this defensive, using the statistical low and high beta, low and high volatility, those types of metrics, or we look at fundamental metrics, like quality, favoring the boring, quality stocks using lots of metrics, and it works across the whole market or within industries and in many different countries and so on. And again, you can take it, to some extent, to fixed income and to -- even outside that.

I think, Falcon Stylebook was the first place where I saw this huge list. I don't know, obviously, it's like sports betting is long-short bias is something related to this, but it just has lots of places in the world where this idea works. Anyway, so, why do we find this that the boring stuff has got better Sharpe ratios as they do? Why do we have this opportunity to either maybe -- and so, the implication of course is you can take more risk. So, you can take more risk or you can take lower

-- earn the same return with lower risk or you can monetize it through some strategies like my colleague's beta-based strategy where you use leverage to basically create positive returns. But then you are no longer really getting the defensive nature. You are taking market type risk but you are making more money than by favoring the boring stocks with the higher Sharpe ratios.

Okay, so why? So, CAPM because CAPM says that beta explains everything and … beta doesn't explain anything. The two favorite explanations, I think, in the literature are leverage aversion, leverage constraints and lottery preferences. And the intuition here is that if you think of those very speculative stocks, they already contain embedded leverage, bang for the buck, that's very convenient for investors. Investors may accept some lower Sharpe ratio for that convenience. Likewise, though, stocks are sort of the proverbial lottery tickets in financial markets, and you get the entertainment part of it. The flip side then is needs that boring, low beta stocks, they need to be juiced up with leverage to make them really matter. And so they need the higher Sharpe ratio to attract investor demand.

So, both of these explanations have been pursued with even more detail. And it seems that both really matter. And they are, I think, good complementary investors that we don't really have to care too much, which of them is more important. But so I think together, they are pretty compelling. And when I think logically, when I think is either of those features going away anytime soon, they just seem leverage aversion and leverage constraints certainly are there and lottery preferences also, from lots of literature, seem to be there. So, I think this opportunity will be there for a long time.

Adam: 01:26:33

I mean, if my Twitter feed is at all representative, the leverage aversion and lottery preferences are alive and well, I can tell you. That really hasn't changed at all through time. Are you moved at all by Eric Falkenstein's thesis that the low beta, low vol defensive effect is motivated by investor preferences that skew towards relative status? Or maybe we can describe it as tracking error aversion as sort of a risk-based explanation?

Antti: 01:27:09

Yeah. I mean, there are variants of that, like one logic is again, like this tracking error or logic that that from a delegated manager perspective, whether you are deviating from beta one towards beta point seven or beta 1.3, they are both adding to your risk. And from that perspective, again, that story could if -- I do think that that's sort of, if I had given you a third one, it would be that and Eric takes it very broadly then like there is the whole status role in financial markets. I think it is interesting then and you can think it, especially in the context of delegated managers. So, I think it would be my third one on the list. But I do think if I have to make choices, I was able to go with these first two.

Adam: 01:28:04 Yeah, fair. Okay, so we covered the classic risk premia, Equities, Duration, Credit, Commodities, we covered four core style premia. If you want to say Trend is a little different, maybe there's five. And so now I want to talk about how to put all of these pieces together. And I think, although you don't use this term, very often, in your writing to my observation, would you describe your overall framework about how to maybe start thinking about putting these things together as leaning in the direction of risk parity?

Antti: 01:28:47 Yes, yes, I would. I think when I've looked at your things, I think like we have singing from the same songbook here. I have sometimes said that like, so my unconstrained ideal is this that, okay, figure out the things you believe in, and it will be this new asset class premia, a few style premia, and maybe I would some illiquid, I mean, it could be you look around my real estate here. So, something like that. So, finish things that I really believe in the long run, and then sort of equal risk is a great starting point, and you can maybe fine tune it, but it really, so that's sort of the risk parity. And it turns out that actually, it does resemble sort of, scarily, well, my portfolio and I haven't really designed it quite like that, but it sort of converges to that direction. Anyway, yet, and yet, that's me with my portfolio.

I think realistically, only a small number of investors can execute it and can stick with it. And so, there are several reasons why it's difficult to do this and why especially it's difficult to stick with it. Just as a starting point, the leverage. You need a decent amount of leverage and shorting to make these other things matter as much as equity. Equities have got this nice embedded leverage. And so they already have got lots of volatility in them. To make all these other things matter, as much as the equity component requires plenty of leverage and shorting. And they can be done, I think, smartly and so on. But it's still, it would be, I think, too much for most investors.

Adam: 01:30:38 Well, so I want to touch on that a little bit, because I've always found it odd. You've got this, this comes straight from the top, the SEC, the prudent investor rule, the ultimate consideration in portfolios, aside from client risk tolerance and preferences, is diversification. And yet, the vast majority of even institutional portfolios which are overseen by boards with governance objectives that should adhere to the prudent investor rule, all of these huge institutions with these ultra-long time horizons, objectively, lots of access to extremely inexpensive leverage, yet, they are overwhelmingly dominated by global equity risk. And so I hear you say that this is your portfolio, it's also my portfolio. But why is it that even huge institutions that have you think all of the tools, resources, and governance structures to be able to allocate in the most efficient way possible for their stakeholders still can't wrap their head around the concept of diversification?

Antti: 01:32:03

Yeah. So, first -- a little lightly, you know this and some in the audience know this. Cliff's three dirty words in finance, *leverage, shorting and derivatives*, LSD. So, that concept of 3 dirty words, I think it is important. We talked earlier about private equity. Buyouts, used to be leveraged buyouts, was the term. And I heard, I think, in the *Capitalism* podcast a while ago, this that, their admiration to the marketing genius of getting rid of that LBO term and talking about private equity instead. That has been very valuable for the investor. Anyway. So, certainly, I think there is a stigma aspect, which, however, you can help portfolio diversification with that greater leverage, it's hard to do with that stigma. And again, leverage has got its challenges. And again we all know, you have to then manage it very carefully, prudently, and so on. So, there are methods for doing that. So I would just say that it's a very difficult starting point. There's also -- and it doesn't -- that's an advantage for equities.

Another one is unconventionality. Another one is, well, or related to this unconventionality, which is, I think, quite important is this sort of everybody doing it, and I say, only equities are forgiven a bad decade. Everything else gets sort of bailed out on that. And that's important, because it means that there is this stickiness. I was thinking actually, of this the other day that there is, maybe there is a diversification versus stickiness trade off that that equities, we know there shouldn't be as big equity allocation, but the stickiness sort of supports that. And so therefore, I don't know, my conclusion would be that we share the right, the same ideal, whether any, or every investor or not, every investor certainly cannot move there. But whether any investor can move that direction, depends partly on their beliefs and constraints and so on, but in most cases, they will end up having something much more equity concentrated. But I think it's right that we are preaching the direction and then we evade how far any investor can go on that path.

Adam: 01:34:35

Yeah. And to be fair, from a macro consistency standpoint, not every investor can hold cold the diversified style premium portfolio, so we have to acknowledge that. Many investors try to sort of nudge in that direction by using, for example, smart beta type indices that kind of conflate equity beta with tilts, like long-only tilts, in the direction of Value or the direction of Momentum, etc. How much marginal benefit would these investors get, do you think, from explicitly separating these different betas from -- so, for example, a few different companies have made available these slightly leveraged core beta ETFs. So, for example, to approximate a 60/40 portfolio, you hold 90% in equities, and with the 10% leftover, you collateralize a 60% bond position, right? So, you've got a 90/60 portfolio instead of a 60/40 portfolio.

So, if you just allocate, say, two thirds of your portfolio capital to this type of portfolio, which effectively gives you a 100% exposure to a 60/40 portfolio, and now you've got kind of 1/3 of the portfolio real estate that's free to allocate to

alternatives. Well, now you can explicitly allocate to a diversified market-neutral style premia strategy and/or Trend strategies, that sort of thing. So, how would you guide investors in terms of the marginal benefit of maybe trying to nudge them in that direction versus trying to conflate their equity exposure with some of the factor exposures through long only tilts?

Antti: 01:36:46 So, first, if you do long only, you do get similar exposures, you just get them somewhat less efficiently. And you don't get almost any diversification, of course, that like, because, again, the long only, the equity direction of risk dominates a portfolio, you're just getting something. And it's certainly true that if you allow some amount of shorting and even -- the first effects are always most powerful. So, a little bit of shorting possible, a little bit of leverage possible, that will be especially helpful. And that can be now, I've seen those results more in the context of stock selection strategies. Now you are describing more, sort of, I don't know, maybe stock/bond, stock thing. There, I confess that I quickly get -- come to think then, hey, we are just talking about two things that don't -- neither of which likes inflation. So, among the considerations I would have one, the next diversification would be to get something that benefits from higher inflation. So, it's interesting that I guess I would still favor the various alternative risk premia. But I would also want to, I don't know, maybe have a tilt among them for things that can benefit from inflation related to your earlier question. So, again, Trends and macro moves may be especially useful there.

Adam: 01:38:08 Got it. So, if you're going to move in this direction, still work to prioritize diversification but acknowledge the overwhelming amount of risk in the portfolio that is still invested in assets that do not respond very favorably to inflationary environments, and therefore, maybe emphasize Trend strategies and macro Momentum or macro trading type strategies in the other sleeve because they're most likely to help provide ballast in an inflationary environment?

Antti: 01:38:43 Yep.

Adam: 01:38:45 Got it. Great. Well, I have to say that the new book, I personally as a fellow nerd, really enjoyed *Expected Returns* and continue to enjoy it. I refer to it often. But I do think that this new book, which to my observation is more approachable, a little bit more practitioner oriented, is a great addition to the repertoire. And it is very engaging and approachable and has some very actionable ideas that institutions, advisors and individual investors can take away. And I've really enjoyed the opportunity to chat with you today about some of the concepts that were of particular note to me, and I just wanted to thank you so much for your time and generosity and sharing your wisdom.

Antti: 01:39:47 Thanks, Adam. No, I really enjoyed it. And yeah, hope also we'll get to see live sometime now in the coming year as the world is normalizing in some ways anyway.

Adam: 01:40:00 Absolutely.