Rodrigo: **00:00:01** All right, and we're live. We're live with the Master of Behavioral Finance.

Mike: **00:00:09** The shrink of shrinks.

Rodrigo: **00:00:10** Dan Egan, the shrink of shrinks. Mr. Dan Egan, for those of you who don't know Dan, you should definitely listen to the podcast that Adam did with him a couple of weeks ago, maybe a couple months ago. But then why don't you for those who don't know a lot about your background, why don't you give us a little bit of what you've done in the past and –

Mike: **00:00:31** I think let's first of all, gentlemen, it's a Friday afternoon, the markets are closed. I'm having a Cayman light, as a nice brewski, look at the brews across the table here. Excellent. Cheers.

Rodrigo: **00:00:41** Corona action on Corona time.

Mike: **00:00:47** Yeah, today is, “Oh Behave You Dirty Rascal”. So just as a reminder, these riffs are a happy hour take, in these times of COVID where those of us in the finance industry can't necessarily get out and about and share some discussions and thoughts over a happy hour beverage. Today is a classic happy hour in that Adam has been held up a little bit, he's in traffic on the phone, you know. So he's going to be a little bit late to the happy hour but will be joining us. I'll also remind everybody, these are for entertainment purposes. The conversations will be wide ranging and wandering and will cover topics that we expect and don't expect. So, if you're looking for investment advice, maybe you shouldn't get it here, but get it from a professional in your jurisdiction. We're going to have some fun with our conversations. So please enjoy and without further ado, I think I'll let Dan introduce himself.

Backgrounder

Dan: **00:01:43** Sure. Thank you. I picked up in the beginning there's a little bit of Canada coming through in your” abouts”, so I was wondering, I haven’t heard that in a while

Mike: **00:01:51** Wait until you hear me say “process”.

Dan: **00:01:55** Say who? Well, why am I here? Go back to college days when you're trying to pick a major, I was interested in both psychology but not the abnormal or feelings stuff, just how do people make decisions and try and make good decisions? And where do they go awry? So lots of interesting stuff there. I also wanted to do it in a way that was going to give me a good career, good return on that college investment. So, I had to do economics as well, and I ended up not trying to make a choice between those two things, but combine them. I after undergrad went to London School of Economics where they had at that place, this was like 15 years ago, 18 years ago. I'm not sure how old I am. It was a long time ago. They had a decision science programme where you go in and you learn about how people make decisions but also how groups and organisations make decisions, how they make bad decisions and good decisions. It's an excellent, like one year's Master's programme, was very lucky there and that one of my classmates was doing it part time and he worked for a private equity firm. So he said do you want to come and work with us when you finish this, and I said, I have no idea about private equity at all, but I'll try it out. Did for a year and it was wonderful. It was a very rough and tumble, like you're in the trenches on everything. Introduction to finance and how things work.

After about a year, there was a job advert that went out, that Barclays in the UK wanted to open up an applied behavioural finance team. Applied for that, and against all odds and all good common sense they gave me a position there. We worked primarily with high net worth individuals, there's a lot that you can do, when somebody has a lot of money in terms of tailoring their portfolios, their investments, their tax planning. What we were trying to do is say, people are different psychologically, how can we incorporate that into the services, how we communicate with them and the investments that we offer them? Did that for about seven or eight years? It was wonderful. We had incredible build out both of technology but also trading with advisors and working with them and the investment product people, to understand how investments are going to feel, taste different to different people.

One of the things that I ended up feeling was lacking was, in a lot of cases, the technology that advisors have to use to report and interact with clients, you might sit down in a meeting and say, here's our financial plan, here are our priorities, here's why and how we're investing this way. Then they get non-differentiated quarterly performance reports that don't link back to the conversation you had, don't link back to the purposes or goals. Very hard to change performance reporting into a way that's going to dovetail with the way your client things. So it's at that point that I felt like actually the technology is a bit of a limitation here that we need to work on that. I went to Betterment mostly because there was an opportunity to say, what if we just changed the technology in the design directly? What could we do with that? It's less expensive, we can scale it out to more people, you can work across a wider range of people and work directly with software engineers. So I've been with them for about seven years now. I think I just had my seven year anniversary, and it's been everything that I thought it would be in terms of being able to work directly at a tech company. It's an interesting thing that it's a tech company that does finance rather than a finance company that has a tech call center.

Rodrigo:	**00:05:16**	Do you find that you have, it's got a little bit of a nice area to be able to do experiments with a lot of data that you might otherwise not have?
Dan:	**00:05:26**	Yes and no.
Rodrigo:	**00:05:28**	Are you constantly doing tests and AB testing or if you really wanted to spend your life doing white papers, could you churn them out on a monthly basis based on the type of stuff that's going on in there?
Dan:	**00:05:40**	Yeah, I think yes and no. There are some tests that are like that...for instance, when we started off, we have a feature called tax impact preview, where when a client goes to change an allocation or take money out, it calculates the tax impact that will be due ahead of time and shows it to them. That's something that people are doing all the time. They're going in and changing their allocation, withdrawing, that's just a normal course of business thing. We're able to get really high sample rates on it and learn very quickly from it. One of the funny things for me has been that trying to run interventions that are specifically about something that happens infrequently, like a big drawdown are much harder. Because you need to have set up the experiment and what you're going to change and how you're going to divide it amongst people and then wait, because I don't know when they're happening. So sometimes the most interesting experiments either don't get pulled off, or are done at the last minute halfway through a drawdown is sometimes what happens is that we can turn on content, communications, et cetera. But it happens after a drawdown has happened rather than in advance of it. Definitely in terms of the breadth of people that it hits, being able to look at how, for example, men and women interact differently with different designs and in different markets has been fantastic. So that said like that, yes in certain cases, you can glean insights very quickly. In other cases, you have to be really patient because the market doesn't do what you want, as quick as you want.
Mike:	**00:07:09**	Ever on it.
Rodrigo:	**00:07:10**	That's interesting.
Mike:	**00:07:11**	Going back to your journey through school, I sort of remember my behavioural finance journey, if you will. But what were some of the biggest surprises, revelations, things that stuck with you as you went through? Decision making and the oddities you're in these formative stages in your life. At least for me, you think things run very tidily, you think that things are quite sorted, if you will. Then you go through a behavioural finance course and you're left with your brain just on the ground and you have to scrape it all back in the bucket and start to

try and figure out okay, wait a second, nothing's real almost. You just kind of, I find myself in this cycle as the decades go by, and I don't know if it's gotten any better but for you, what were the highlight moments where you like, wow, okay, this is strange, the world is not as it would seem.

Highlights of Behavioral Finance

Dan: **00:08:08** Yeah, I think I love that aspect of it. Number one because I think it's accessible to everybody. If you're not amazing at math, you might not be able to get into some of the more quantitative stuff. But that idea of like I have to figure out how I make decisions and how I make mistakes that's accessible to everybody that ponder over. It also gives you that greater depth of experience like, okay, the world is a much richer, more interesting place than I thought. Two of them jump out at me, one of which was Dan Gilbert did a study about how good we are at predicting what's going to make us happy. So basically, everything you do comes down to I'm going to do something and it'll make me happy in the future. So I'm going to go and plan on that, might be short term, might be long term. Of course, all the time we do things where it doesn't make us happy, you end up drinking too much. It's a fun night, but it's a really bad day the next day.

Mike: **00:09:02** It's fun night and bad morning.

Dan: **00:09:04** Yeah, bad day like me I'm of an age where a hangover is not merely a morning phenomenon, it is an all-day phenomena.

Rodrigo: **00:09:10** Post riff, is like that for me all the time. It's one hours' worth of drinking is enough for me to just be gone for the rest of the day.

Dan: **00:09:18** I will point out, I'm drinking a non-alcoholic beer. Every behavioural person has a strong respect for placebos. I'm getting like 50 or 60% of the hit and none of the regrets.

Mike: **00:09:29** There you go. I'm drinking a light beer, but I'm going to drink them 20 to 30% faster. Much like the low fat sour cream, how you give yourself so much more that it doesn't help. It's the same thing.

Dan: **00:09:45** That was a big one was this like realising that we make decisions sometimes right now in a way that makes us unhappy in the future and we could have known that and avoided it. Dan Gilbert actually went through a divorce, I believe like a big part of the book was a very humane aspect of like, here's how to watch out for things that seem like they're really good and fun and pleasant in the moment, but are going to have longer term consequences that you can avoid if you're thoughtful about them. Another one, which still sticks with me today as being one of the real fundamental, philosophical questions of what makes us happier experiences is … had this thought experiment of, imagine I'm going to offer you this thing where I can send you the most amazing vacation, week long, exactly what you wanted, whatever it is, skydiving, tropical islands, buy yourself a yacht, whatever it is. The key is that I'm going to give you a pill and you'll enjoy all of it, be completely cognizant of it, and then you won't be able to remember any of it. You're just going to forget it. No pictures, you will not be able to bank that experience for the future. How much would you pay for that? A lot of people say like, pretty much nothing. What's the point of an amazing experience if you can't come back to it, remember it and relive it. So this idea of a point in time of pleasure or something, versus, like I've got things set up where it shows me pictures of past vacations with my kids and everything. And that's like the opposite, right? That's like this constant flow of positive experiences that makes you happy.

So those two things end up mingled throughout it as being like core questions about why are people doing certain things? Is that sort of like a misunderstanding of what's going to make them happy or like a great example, bringing it over to investing is this thing called the disposition effect where it feels good to have a position that's done really well. And so people tend to want to close it out and be like, I made a good decision, there we go. The flip side of it's really weird where if you've made a loss in a position, they just want it to break too even. So they will hold on to that position till it gets even, and then they sell it. It's bizarre because if you have something that you think is going to go up holding on to something that you have no reason to think is going to go up. It just makes no sense. But that sense of like something will feel bad right now if I do it and I'm going to therefore do something that doesn't make sense that keeps coming up over and over again. Doing something right now for immediate pleasure versus making a smart long term decision.

Mike: **00:12:16** The one marshmallow versus two marshmallows. I think that whole story reminded me of something my wife said to me. Anyway, do not have that discussion with my wife if you don't mind. Look at the background too-

Rodrigo: **00:12:34** That green screen you got going is terrible.

Mike: **00:12:37** Great green screen. Just thrown it in everybody's face.

Adam: **00:12:45** It's a little dark, I guess. Trying something new. I was having a Corona I thought I got to sit outside.

Rodrigo: **00:12:47** Absolutely.

Adam: **00:12:49** Okay, where are we guys?

Rodrigo: **00:12:51** I wanted to touch bit upon like you've done all this behavioural work in your academic life. You've done it throughout your professional career, you've acquired what I think a lot of people in the business that have been in portfolio management advisory, wealth and behavioural finance. It's a bit of a superpower to know what levers you can pull in order to get people to do the right thing. I guess the big question is, who is the arbiter of what the right thing is, right? This superpower can be for good and for bad and I wonder there tends to be when I think of robo advisors, oftentimes a tendency for possibly, a principle agency issue, where you have something that you know would increase the ROI of the organisation in the face of what is actually going to be best for the investment. How do you guys deal with that? I'm sure you've talked about it internally, but I'd be curious to know how you guys manage that principal-agency problem.

The Principal-Agency Problem

Dan: **00:14:01** First thing, you're absolutely right. It's something that we take very seriously. It's like a one of, you talked to a number of behavioural people across the board I believe Christine Benz at Morningstar or it might have been a Sarah Newcomb put out like an ethical guide to doing this sort of stuff for behavioural people because it can feel like a lot of power. But I think it's very important to understand the nature of that power, because it's not actually as powerful as you think. This is, I am not able to sort of Obi Wan Kenobi people into like, these are not the droids you're looking for. What you often see or where your power is, is when the client or the person doesn't have a strong point of view or desire to do something specific. They have an amorphous preference, they have like a motivation or desire, but not any clear this is what I want to do.

So, standard behavioural thing about defaults. If you default people into saving a certain amount and auto escalating it year after year, they'll usually go ahead with it, they'll save more. It's not something that they strictly object to. But you can't say that they're not allowed to do anything else. And if somebody comes in and says, actually, I want to save 1%, not 9% this year they're going to do it, they will find some way to do that thing that they view as being right. So, one thing is we're an advisor like anybody else, that means that clients can leave if they feel like they are not being served in a proper manner. So the defaults mostly exist when there isn't strong client views or preferences about something. Anytime you try and really constrain or restrict or like manipulate people, it doesn't work too well. What does work is saying, if you're coming in and you don't have strong views, and we have to remember, a lot of people don't really have strong views about what their asset allocation should be or what fund is best. They want it to be easy and simple. So, the power comes from saying to yourself, if I'm some kind of a like benevolent but like backseat dictator, what is the right thing for people who don't have strong views about something and what should I put them in? I think that is like an ethical and like a powerful thing. But it doesn't ever oppress people from doing what they wanted to do anyway. It's more a matter of what-

Rodrigo: **00:16:14** It's the whole idea of nudging and behavioral finance. Like that term, is you can nudge a broad audience to do better by using things like anchoring. I think we were going to have Emily Hazely on from BlackRock, sadly, she wasn't able to come on last minute, but one of the pieces that she had written was on how do you nudge somebody to save more, right, and they had a bunch of experiments. And basically, I think a good example was, you send a bunch of emails, some of them say, you know, you should try to save 15% more per year or 15% of your more than on your bonus, then other emails that would say 1%. And you could see that those emails, those people that receive the 15% email, were saving not 15% but 3% more than those that were sent the same 1% more, right so that that anchoring does work, you're, you're able to nudge people towards what you want them to do. And in that case, it's actually quite useful.

On the flip side of that, I found when I was an advisor, when it came to savings, to people in retirement that you wanted them...they needed to use their money, a lot of people are great at saving, putting money away makes sense, but taking money out. They're not so great, right? And so you have the opportunity to anchor them to take out more so they can actually live their life the way they should. They actually take advantage of the hard work they put into those savings and they're opposed to it. And of course, the advisor wants higher AUM and so those are the conflicts that I'm seeing, those nudging. It might not be the Obi Wan Kenobi you get to do 15% but it is, you do have power to nudge and a 3% difference is quite a bit

Mike: **00:18:08** I'm not sure...so give me an example of we think there could be a conflict of interest, like honestly I'm struggling with some behavioural aspect of behavioural finance from anyone from a robo or an advisor is, crosses the line in behavioural finance versus your right to sell, your right to market. And I'm not asking broad. So, so from the perspective of, of I, you know, with great power comes great responsibility to kind of like yeah, I mean, you're allowed to sell, you're allowed to market you're allowed to do what you're allowed to do as a business, an ongoing business. And I just don't see this conflict of interest on the behavioural side? I don't see it. I don't see how you're going to manipulate your clients. I just don't see that. I mean, I can see that around the edges, you might be able to educate me.

Rodrigo:	00:19:11	That's why Morningstar has that code of ethics.
Mike:	00:19:17	Sorry. I didn't hear you guys.
Adam:	00:19:19	Like, because the whole, the nature of this business is in large part sort of around persuasion, there's lots of ambiguity about what the actual right thing is, that any argument about these types of values is sort of definitely-
Dan:	00:19:44	I think one of the great examples. It's been through the literature a large number of times, is defaults. The original default paper showed that basically, if you flip it in terms of organ donation where you say, opt into an organ donor versus opt out to be an organ donor, it flipped everything in terms of who would sign up. Now, that didn't mean that those organ donations went through. What ended up happening was that families were after the fact, they're always … saying, the person didn't really sign up for this, it was simply a default on a form and the family could fight it and those organ donations didn't actually go through. So, this is now, come up with in the behavioral finance, literature, generally behavioral stuff. There are some cases where you have to use what they called prompted choice, where you have to say, listen, we can't use the default because it is so important that you choose here in some fashion. I think that's important. And that's something that we try and use quite a bit. Sometimes there aren't always cases you can use it. There is a firm who we all are aware of who, as another robo advisor ran an asset allocation, and at some point decided that a risk parity fund should be part of their allocation for their clients. It was higher fee than anything else in their portfolio, they were the ones managing it, and they defaulted the vast majority of their clients into that fund. I think they gave them some kind of an opt out period where they could choose to leave it but the default was you're going to be in after a month or two or something. That's where, you start to feel uncomfortable, right? Like, in the absence of you pay a lot of attention to them, we're going to put you into this thing that benefits us in some fashion. So I do think that's where trying to be a little bit cleaner about the lines of alignment and how you get paid in the service. If you're an advisor, should you really get paid for like the fund that you recommend? That's a little bit squiffy to me. But I think that the better aligned you are, the less you are prompted to make awkward decisions like that. We had the same thing where we're updating our allocation. We don't have a fund or anything, we were just changing the allocations. It possibly would incur taxes for some clients and so we said, you can opt out of this if you want to. We're not benefiting from it in any way. So it's the same thing to a client but there's not the conflict of interest aspect to it.

Mike: **00:22:03**

If you eliminate, so obviously a charge, an increase in fee is a conflict of interest that's well established. I'm still trying to think of, where does behavioral management end, and the responsibilities that come with that versus sales and marketing for the survival of the business or are they just the same thing?

Dan: **00:22:39**

From my point of view, I'm lucky a little bit in that, actually this is a kind of neat way of thinking about it. Oftentimes, when we write advice algorithms we write them in a way that's agnostic about who's getting what in terms of like the funds or something. So we were writing out advice algorithms that had to do with where you should put money for retirement. 401k versus IRA versus taxable account, you, your spouse, et cetera. One of the nice things was that we included like, what's the cost of the plan? What are the cost of the funds, et cetera? That like advice algorithm had no idea about who the provider was. If somebody had a lower cost 401k, the advice engine was going to be like, you should use that, that's the better thing. So, I do think there are ways like that was kind of like firewalled, ring fenced off from the rest of the business and we were told like, do this correctly and then it's our job to compete on those elements. So that we should be the best offering inside of there. But it is a nice way to blinding the advice to who's going to get paid for it.

Rodrigo: **00:23:39**

So you guys have been doing this for a while. I was thinking about when I first started hearing about using behavioural finance through the email blast that you give your clients in order to get them to save more in order to do the right thing when there's a big drawdown. I was thinking about it from the perspective of alpha creation. This is now, it's not in its infancy, you guys must have done many iterations. And I imagine that there's some evergreen content, some evergreen positioning of words and sentences in such a way that you can maximize the client tip, for the clients benefit that you then have to move on to the next best thing. Is that true? Like, do you guys now have like a stock of emails that you're done with and once you're done with them, it's become kind of standard. What do you do? Share it with the rest of the world, or is that your IP that you're not going to share with anybody?

Dan: **00:24:31**

Like my favourite example of this is Jason Zweig at the Wall Street Journal says, I am basically writing the same four columns, I just have to like figure out some way of doing it so that people don't realise that. We are now at the point where in terms of those emails, like we've learned really interesting things like how you have to target them by how often the client logs in, the tone and tenor of them. You want them to be actionable and positive and relative to them. People hate boilerplate and generic emails and so on. So the stage where we're at now that I'm most interested is thinking about individualization. Like, people who have different circumstances, new clients versus old clients, people who are up versus people who are down. Those are really different mindsets to be in and they should get different emails and maybe the people who haven't logged in and who are acting well, I'm like, I'm not going to disturb them. I'm not going to be the one to bring it up at this point. I think a lot of the learnings aren't necessarily about the content, but about the medium and how it's delivered and being very thoughtful about that.

Mike: **00:25:32** I love that. I think that is so really, there's a lot of behavioural finance that is related to marketing. That's just really good, targeted, thoughtful marketing, someone hasn't logged in, they are staying the course they are being disciplined along their path. Why would you need to bring the subject up?

Dan: **00:26:01** That sort of restraint is hard, though. There is a lot that we should do, we should be the goalie who ducks.

Mike: **00:26:07** Yeah. You should jump left or right. No, just stay in the middle. Again, the problem with markets is they're iterative. So if we know the goalie stays in the middle, we know where to roll the ball. To some extent some goalies have to jump, or the goalies that say in the middle are useless.

Rodrigo: **00:26:28** What's interesting is that when you look at these, when you read these papers, they talk about, you know, you got the control group, you got the AB group, and you get a result. That's the average of those groups. But where you're getting to now is, I think in the previous podcast, you said something that that was very interesting, that even though there are certain things that humans tend to react to, generally, that one of the things you were surprised by was how individual each person is. They are very much unique snowflakes, so I guess there's tonnes of opportunity to be able to figure out subgroups and sub-subgroups to continue to personalize to those clients. And there's a ton of work to do there.

Mike: **00:27:12** Have you employed machine learning and that affect, is that something that goes on where in order to sculpt the emails that you might send, or those types of things. Or how is that done? How do you ferret that data?

Machine Learning

Dan: **00:27:25** This is like, what's the definition of machine learning? I remember an old article, I think it's back from 2015. I was looking at how do I predict who is going to log in with what given frequency, right? Like, who's going to log in every day, who's going to log in once a week, once a month? Because that's an input into understanding the frame of mind that the client is in. Is like, how often are they looking at this and checking up on it. So, that element did look at over the course of a person's lifetime, we're going to divide them, some things are very obvious, young men login a lot more, if you have the mobile app, you're going to log in.

That was the biggest factor. Have you downloaded, installed the mobile app? Now it's accessible, it's easy, it's on the go. You're going to do that a lot. Jeremiah Lowen, who's another Twitter person who does...He did a whole podcast with Patrick on machine learning. He said, everything is just logistic regressions. It's a whole bunch of logistic regressions piled on top of each other, and I do a lot of logistic regressions trying to figure out how often you're going to log in and all that sort of stuff.

So yes, but there is nothing in production that is a machine running on its own without somebody having done a bit of research, looked at the algorithm, tweaked it, adjusted it and said, I take responsibility for this. I'm signing off on this algorithm that's going into production, and that's been very important that nothing gets through such that we'd be like, it's a black box. We're not sure about it. You need to be able to like go in, this is the input. This is the output. This is exactly what they did.

Mike: 00:28:54 Right. I guess machine learning is this trigger word that causes a lot of angst or causes some angst in some populations. But yeah, behind every machine learned algorithm is a person who designed it and has to interpret it. I think that should be something that's understood as part of the process. But in that regression analysis, there's a lot of knowledge there for the informed operator, if you will. And so then that operator takes that knowledge and can glean some insight from it. Do you find that that observation frequency, does it have that linkage to outcome that we've seen in some of these reports? I actually, I'm not sure if this is a real report now, because I've heard both sides of it. The whole Fidelity statements were analyzed, that were dead or didn't exist, like they had the best return parameters. Is there truth to that? Are you seeing that realized, is that a fallacy?

Dan: 00:30:03 I think there are other mediators. This is a kind of analysis that I'd love to have more time to really dig into.

Mike: 00:30:10 Well, I got a couple extra beers or so let's go. I got all day

Dan: 00:30:14 I need to do the research myself. I didn't have the time.

Mike: 00:30:18 Well, yeah. Do that. We'll have you back for sure.

Mediators

Dan: 00:30:19 Okay. Generally, yeah. I think one of the big mediators is that, the driver tends to be, young men both login more and are more likely to go ahead and do something. We have been able to find some personality constructs like

		neuroticism that seemed to mediate that. There's a paper I wrote with Svetlana … that looks at like anxious people are more likely to login on small days and then...No, sorry, it's opposite. They're more likely to log in on small days and avoid big days. Did I do that right? No, it’s the opposite. They're more likely to look on big days and not log in on small days because they want to see the news. They want to see it reflected in their portfolio. People who are not neurotic just have lower levels no matter what. One of the tough things is that whenever you're thinking about personalising and making advice, or designs a little bit more intelligent, you need to have access to whatever the underlying dimension is that people vary on. You can sometimes use rough proxies like age, or gender. But really, there's some underlying construct like neuroticism, which is a good actual input. Not many advisors are like, can I give you this personality construct to figure out how you're likely to interact with performance? It's a big ask for a client. But they are there. So I think that that's where it gets complicated is that you can do some really interesting things if you have clients who are willing to do unusual surveys, questionnaires, where aura rings or whatever it happens to be, to give you more of like that relevant information.
Mike:	**00:32:01**	… while they're checking their statement, we need to have your heart rate and your blood pressure.
Rodrigo:	**00:32:05**	Well, some of the work that Emily was supposed to be here was doing, I was reading up on that is using things like the aura ring or the blood pressure band on their portfolio management teams in order to understand their rhythms on a daily basis, and see when they're more susceptible to making bad decisions. One of the factors was that when they are in a high level of stress, they're likely to be more risk averse, which is not what they want. They want their PMs to be willing to take risks and correct risks. So, understanding what, everybody has their own rhythm, when they're likely to do good and bad decisions, and then letting them do it, when that's happening is some of the work that's coming out of the next level of behavioural finance, which is pretty interesting.
Dan:	**00:32:53**	I need elements of this. I think you'd have an aura ring on, is that right? So an interesting thing is too, number one these devices give us feedback about ourselves and actually changes our behaviour. So I have what? Some sort of watch.
Mike:	**00:33:06**	White coat syndrome.
Dan:	**00:33:10**	It went off because my heart rate was unusually high probably caffeine or something, which made me go, okay, hold on, I need to calm down. I need to go for a walk or something. Number one, the fact that we have technology that actually is going to improve our behaviour by centering us or helping us avoid

the more extremes is incredible. But they're also consumer devices. There is not a huge gap between the best iPhone and the one that's available to us. A lot of these are readily available soon, as people today.

Mike: <u>**00:33:41**</u> It reminds me of that story about one of our colleagues worked on a trading desk and they had employed a behavioural coach to observe the team and they would be able to identify through the behaviour of the individual when they were going to put a trade on. So you had a particular trade, I'm going to make up the facts to change that. But, natural gas trader, they would observe this individual, they would observe what their body language was, what their tics were, and they would say, okay, that person is going to put on a trade and that trade is has a high likelihood of being profitable.

Dan: <u>**00:34:25**</u> Really?

Mike: <u>**00:34:26**</u> Yeah.

Dan: <u>**00:34:27**</u> Wow.

Mike: <u>**00:34:28**</u> But then what they were trying to do is recreate the human, then going back and looking at the data that the human was seeing to see if there was any commonality with the data so they could recreate the human and put the trade on in the same way, which they could not do.

Rodrigo: <u>**00:34:47**</u> Yeah, they can tell when he's about to do something. They couldn't tell why and when or be able to replicate that.

Mike: <u>**00:34:53**</u> Or replicate it. So here's the string of data that happened right before that. Now find those strings of data and make that happen over and over again, because then we don't need the human anymore. And they did not have any success at that particular thing. But it was just interesting that I'm sure if you had a...and I'm not sure in this case if there was blood pressure monitoring, heart rate monitoring, I don't think there was. But it is just interesting that there's a lot of complexity in the human mind that is difficult to replicate when you're trying to replicate the human mind, I guess. Anyway, very interesting.

Dan: <u>**00:35:33**</u> That’s a neat point in that, I'm one of these people. There are people applying behavioral science in corners that you don't even know about and think about. I remember I think there is a little article a while ago about Uber employing behavioral scientists to figure out how to keep drivers driving longer and helping them to do better rides and so on. And so one of the things I think is, is if I'm public, I'm out there, I'm talking about this. But I think this is more widespread than most people realise just because some people aren't comfortable. It's not nefarious, some people aren't comfortable being public about it and talking about it.

Mike: **00:36:09** Well, we don't know that it's not nefarious, do we? I mean if I could programme some things to make my driver drive longer and have better rides, come on.

Rodrigo: **00:36:21** Yeah, it's all nuanced, right? I think in Canada, the government just sent out the COVID app for everybody to download so they can track what's going on and half of my friends are like there is no fucking way I'm giving the government my personal information of my whereabouts or what I'm going to do. There's a policy that they can't share private information and they're going to mask and whatnot, but there's just no trust on that whatsoever. I can imagine you as a behavioural scientist, can come up with amazing ideas to test out, that walk that fine line like okay, who's going to sign up for this? And then when I get that information, I imagine there's got to be some responsibility there as to what you can use, whether you need to scramble the data and the individual and a lot of limits because of that Privacy Act that I'm sure that exists in the US, like it does in Canada. So have you guys been able to say, hey, dear client, I want to identify how neurotic you actually are? Here are the five questions I need you to answer. Or have you shied away from that?

Dan: **00:37:29** Yeah, I think our product teams are very strong on the like, we're going to do the right thing for the client and not be intrusive. I think one of the things that's interesting about working in the app space is that people want convenience and quickness and ease and so on. So it's sort of an ethic or principle of ours that we don't ask a question that we're not sure we couldn't use to really do something in an immediate sense. So no, I thought about it, but we've never gone that route because the potential payoff isn't like immediate, and searching as we would want it to be.

Rodrigo: **00:38:03** So you haven't done it, but you wouldn't even do it if you asked for permission upfront, you're saying, look, we're trying to find, here's a paper, the neurosis is a key thing. Just so you know, this is what we're looking for. Are you in to try it out? Like you won't even go down that route of actually letting them know that you're looking for neurosis?

Dan: **00:38:22** No, if we did it, it would be transparent. It's more a matter of is that the most important thing for us to help them right now? Again, coming back to it. We often think that a lot of like the important behavior around advice is like during a downturn and trying to predict that and manage it. But to Mike's point or somebody's point earlier, just trying to get people to save a little bit more or use the right accounts to save into is more effective and important. You can do that every month.

Rodrigo: **00:38:50** So you're talking about or wrote something called "You've Got to Have Faith", recently. You didn't get into it in the last podcast and I was really intrigued to hear a bit more what it is and then what you're pulling out from it, from a practical point of view.

"You've Gotta Have Faith"

Dan: **00:39:04** I think for me, it's one of those things like money. Like, why does anybody believe that their money is worth anything? And it's kind of this, I'm not selling Bitcoin, don't worry. But it's just like a collective belief or narrative that becomes true because we act like it's true. When I was looking at why somebody would stick with an investment strategy, when it's risky or they're worried about it, or whatever it is, they need that kind of a narrative that says, even though this sucks, even though value is underperforming forever, or even though markets are going up, I should be a low risk person anyway, but I'm missing out. You need to have some consolation, some sort of faith that you believe in that gets you through that. That's more important. The narrative is more important than the experience. I think that sort of building of faith's, whatever it might be, might be market cap portfolio. It might be risk parity, smart beta, whatever it is, there needs to be enough coherence that people can identify with it that there's a social group around it, such that they can stick with it through the really rough times. I think it's kind of like that's when faith is tested is that this sucks, but I'm going to do it anyway.

Mike: **00:40:25** This delves into a really important point that I think Adam was alluding to earlier is that how do you know? How do you know that the market cap portfolio, like how do you know to have faith and how do you decide which way to tilt that faith? This is across so many domains, but let's, in the investing domain, someone comes in and signs into your portal and they're like, okay, is it market cap low fee? Is it a factor based? How does that decision getting made? Obviously, you want to try to guide towards better behaviour, but you want to be agnostic as to what belief system they might take on and then in defense of a competitor who says, hey, you should probably do risk parity. For us, we would say, well, yeah, that's probably the best no harm portfolio that you could do. But it's going to have tracking error to widely accepted benchmarks that are going to be difficult. So how do you deal with that very first principled type of paradigm before you can even...? I mean, I get it saving is good, blah, blah, blah. But then the other stuff like, how do you save ? That's where it gets confusing to me.

Dan: **00:41:51** I think the more you can make it be not about the performance, but what the performance implies in the real world, the better. The two things that I've seen have worked very well. Number one which is obvious is like, this is about your goal, you are saving for your daughter's college education. The performance may be great or maybe low but all we really care about is hitting this goal in 10 years and that's what we're focused on. Are we on track? All of a sudden performance goes from being about what happened last week and goes into what's going to happen over the next 10 years and how do we need to set ourselves up for it?

So there's an element of like, what are you focusing on? What is the lever, the conception they have? What kind of performance matters? Another angle of it that's new, but I think it's really interesting is when, there is something besides return that defines the benefit of the portfolio. So the easy case of this is stuff like SRI or ESG green investing, where somebody gets to say, I'm investing and my money's growing, and it has some other positive benefit in the world and therefore, even if I don't have the best performing portfolio, I feel good about it. That could be like religious, it could be a biblically adherent portfolio or a Sharia compliant portfolio, whatever it is. But there are other dimensions of the person saying I care about these and these performance, other than returns that I'm getting from it.

Mike: __00:43:11__ Excellent. I like that. But then how do you construct that? How? Let's say we have an ESG portfolio. I want to be in businesses that are doing ESG stuff, and I found the ESG. I've found a portfolio of ESG values that are congruent with mine and now I have to decide what's the allocation, like how much should I have in ESG versus just being in very safe assets? What about other types of assets that I might think about? How do you go down that decision tree for the average investor who may have very little concept as to what the decisions they're making might imply?

Dan: __00:44:00__ It's interesting because I think it is both. It is so much like other...I'm going to use this word not pejoratively, but just descriptively like fads that come along. So in the ETF world, you'll get these thematic ETFs that are like hack that are about info-security or robo or whatever else, gamer, et cetera. There are these periods of time where something becomes very interesting to people and the same thing sometimes happens in this values based world where, okay, right now I'm really focused on for profit prisons, or guns or something. You almost need to be able to flex and say, this is what the person is currently really concerned about.

I think it's equally hard. It's easier to figure out people's values on something like those things. They're more likely to know. I don't mind for profit prisons or I hate tobacco companies, than they are, how do you feel about like gaming stocks? So I think it's still hard. I think it's still very hard to match a person to portfolio in terms of values, but I think it's actually easier and more well defined than matching them to a personalised set of stocks or something like that.

Rodrigo: **00:45:12** So, have you put this to work? Like, is there a good fit like have you done surveys where you were able to match value investors very tightly, lead and then put them into value-based investments yet or no?

Dan: **00:45:25** Nothing. So this is the next challenge for me, is looking at that predictive element and saying how do we quickly say like, you obviously are like a value investor or market cap or an SRI. Right now we let clients pick so we effectively give them a menu they can take a look at and pick whatever burger they want off of it. What we do see is that the people who choose the non-core portfolio, so if you choose SRI, you are a very well behaved client. You're less likely to react to draw downs, you save more consistently. So, there is that evidence that there's a better alignment figuring out how do you figure out that alignment for more complicated things is really tough. So if somebody comes in and says, I want a smart beta portfolio, there's a question of, is that because you've heard a marketing spiel about it and you just want anything labelled smart beta, and that'll work, Or do you need something that's like, borderline long, short, smart beta, that you're going to be like, yeah, this is the serious heavy juice.

So nothing to that degree. I think I'm thinking like a doctor. It's both a matter of like, which antibiotic do you need and in what dosage and we're just beginning to be able to figure that out through a diagnostic.

Mike: **00:46:37** So what do you think the...One of the quotes that always got be with Konneman is, just because you're aware of the behavioral vulnerabilities does not mean you're immune to them? You're not. And so, in the context of that idea, how much can we really expect to manage, overcome, nudge the behavioral challenges that we have? What are your thoughts on that? How much can we do? How much … do we have?

Nudging and "The Push"

Dan: **00:47:11** Anytime it relies upon just knowing it, and some kind of willpower, I will short that all day long. I don't think just knowledge plus willpower gets you much of anywhere. I do this for a living like, every night when I'm going to bed, I'm like, wow, here are the five mistakes I made that I myself would have predicted I would make through the course of the day. The things that like work, so I'm sometimes thinking about it. Like if somebody is literally like myopic like short sighted, I needed glasses growing up. You could tell them to go around squinting all day, or you could make them a pair of glasses. So you have to say like, here's the problem. Here's how I'm going to create a solution outside of yourself in order to deal with it. Everything that I try and do, for me revolves around like,

		putting boundaries or automation or things around myself so that I'm set up either environmentally or like nudging to like habits myself.
Rodrigo:	**00:48:05**	Yeah, like when my sales guys come and say Adam didn't show up to the meeting again. I mean, what's wrong with him? I'm like, what's wrong with him? It's not what's wrong with him, It's what's wrong with you. You know your player? You know his bias is, it's you're the one who should have reminded him five minutes before and then 10 minutes before that to make sure that he's there on time. This is your fault. That's making the glasses for my team rather than expecting us all to change our behaviour. Have you guys seen the-
Dan:	**00:48:37**	Hold on one sec.
Rodrigo:	**00:48:37**	Yeah. Have you guys seen Darren Brown's, "The Push"?
Mike:	**00:48:41**	Yes, of course. That's good. That's great. Netflix, right? That's …
Rodrigo:	**00:48:48**	So Dan, have you seen Darren Brown's "The Push"?
Dan:	**00:48:51**	No.
Rodrigo:	**00:48:51**	Okay. You got to see it. So, this is a mentalist who did a whole show around...He was basically a set of actors, with the exception of a few individuals that didn't know they were part of this scheme, where throughout the episode and they nudge them towards compliance, right? They start asking them to break small little rules like, we got to put up the veggie platter but we don't have any veggie meals. Don't worry about it. Don't tell anybody, we'll just put them out and nobody will know otherwise. Small things like this. The end is whether they will...it takes them to such a point where the end they asked them to actually push somebody off a ledge, or else they're going to go to jail. Anyway, at the end of this, one thing that stuck with me is like, what did you learn from this? I'm like, what I learned from this is that I'm not going to become as compliant as I was before. I'm really gonna take this. No, you're not you're gonna kill the next guy.
Mike:	**00:49:49**	I learned from this. That would never happen to me.
Rodrigo:	**00:49:53**	You are never going to get over that.
Adam:	**00:49:56**	The ultimate lesson from that episode for me was the very first five minutes where they went through the process of screening eligible candidates, so they had a process where they brought...they planted people in a room and they rang a bell every minute. And when they rang a bell, the planted people would stand

and then the next bell, they would sit, and then the next bell, they would stand etc. So, they brought the actual contestants in and these plants would rise, stand and not, stand and not, and they would select contestants based on whether they would arbitrarily stand and sit with the bell because the more they were modelled by the plants-

Rodrigo:	00:50:47	Not only that. I was crazy about that, is that they would start with nine actors and put one non actor in, and so the nine actors who get up and sit down and get up and sit down and then eventually, if they didn't comply, they were asked to go, until they brought in the next person. Then that person got up and down. Then they took out an actor and brought in another regular person. So that it went on and on till the end, it was no actors. It was just these people getting up and down without anybody forcing them to do it. They had simply gotten into that rhythm. And that's how they were selected.
Adam:	00:51:25	But the best part of this is that of course, all of the nudges were necessary to coordinate the final objective, but none of them were possible if you didn't have a person who was already wired to do what they were told. Again, just emphasizing-
Mike:	00:51:45	It was just selection bias, for sure.
Adam:	00:51:46	Yeah. Again, there's no free will, there's just you're wired to be this way. We're going to find people that are wired to be this way and then we're going to programme them to do what they do, and I agree it was remarkable to see just how far you could nudge these people to be compliant. But to be all of the interesting takeaways from those episodes came in the selective criteria not in the actual emerging criteria, but they're absolutely fascinating. Definitely Dan, I think you're writing, you should watch it.
Rodrigo:	00:52:24	Yeah. Everything Darren Brown did, has done is amazing. He did another one with-
Mike:	00:52:28	With a few of them, actually just two or three.
Rodrigo:	00:52:31	Anyway, there's a few politically based ones that are good, but just look up Darren Brown on Netflix and watch them all. They're pretty fantastic.
Adam:	00:52:39	I did want to ask, though. Just to nudge the conversation in a slightly different direction. I'm just wondering because this is all too positive, and all the good we can do. Let's move it to-
Mike:	00:52:50	I tried to go negative early, they wouldn't go that way.

Adam: **00:52:51** I know you did and there's too much positivity that comes in. I'm just wondering, given all your observations, you've had what? Ten, 15 years of observing the interaction of humans in markets. I'm just wondering what that has done to your belief in the efficient market hypothesis?

Market Efficiency

Dan: **00:53:12** I think it's gotten to the point where I'm like, the least amount of time I can spend thinking about it is the most effective thing I can do. Just like I remember having this realisation years ago, it was like, I have a portfolio worth $100,000, me personally, my own money, right?

Mike: **00:53:30** You have $100,000?

Dan: **00:53:31** Can I sign up as a client?

Mike: **00:53:34** Can I borrow some money?

Dan: **00:53:39** I remember thinking like, what's like a really good alpha number that any manager would be super proud of and like let's just pick 2%, right? On my $100,000 portfolio, I can generate two grand a year. Like, come on dude. That is not a good use of your time, you have other skills and things that you need to be doing. So just there that like, stay focused on whatever differential skills you have, where you have an advantage, where you're actually going to get like a payback on an hour's worth of your time and do that and don't worry too much about the specifics of it. I care a lot that I'm in a relatively good low cost portfolio, but you could put me in a little bit of value, you could put me in like whatever and as long as it wasn't anything crazy, I'd probably be okay with it. Because I have other stuff to worry about. Because it's not really-

Adam: **00:54:29** No. You made a leap there that we didn't need. You made an extra leap that we didn't need to leap. What has your experience in observing investors led you to believe about whether or not markets are informed by rational expectations and profit seeking actors, who are constantly seeking an edge like all of the fundamental tenets of efficient markets? What has your experience in observing investors led you to conclude about that in general. Without whether or not it's meaningful for you to spend time thinking about deviations from efficient markets? Just in general, what have your observations informed.

Dan:	00:55:18	So, I'm going to use the Tesla example. Is Tesla like overvalued? I know nothing about the car market or like any of this stuff. I also don't know what the future is going to hold in terms of electricity and so on. But I know that my dog walker is buying Tesla on Robinhood. What this ends up making me think about is like, I don't even know that he's wrong. And if enough people like him think and act the way he does, then Tesla's going to continue to be overvalued for a very long time. I think one of the things that I've come to is, that I think it's called the weak form, the Grossman-Stiglitz form of like market efficiency, which is not that the market is right. It doesn't have like the right price. But that doesn't mean that you can do any better than it because if the market is consistently crazy and going all over the place, then you're trying to predict crazy people. So that's where-
Adam:	00:56:18	I'm not trying to trick you into suggesting that people should seek alpha. I know you're not going to say that. So that's not where I'm going. I literally I'm just genuinely curious. Because every year that goes by in my career, leads me further and further away from efficient markets just purely in terms of observing investor behaviour. And I agree, generating excess returns off this behaviour is a completely different question and it's hard. I'm just wondering, this castle is built on a swamp that assumes quasi - I agree, like weak form efficient markets and I'm just I'm wondering whether anything, are the errors random? So that they would cancel each other out, or are there other qualities of the systematic interactions that investors have, that lead you generally in the direction of efficient markets?
Dan:	00:57:28	I genuinely don't know. It's like big questions that...the one thing that I think of sometimes it's like, if people are all biased but in different ways at different times, a system that aggregates them up in some way is going to be, I don't even know if it's right, but it's going to be pretty random and noisy itself. So yeah.
Mike:	00:57:50	So, we probably agree that the market is efficient in that it clears trades in the moment. That efficiency we can probably agree on but that efficient, the inefficiency in that is that there is some hurting behaviour that there is a deviation from, again, what would be normal metrics which we don't know because they change through time. I agree this is hard. I'm obviously in the very weak camp is in, they clear trades, the market is efficient because it clears trades today. At whatever price it clears trades at, is that the long term value? …
Adam:	00:58:35	We don't need to invoke equilibrium. Literally is just, in order for markets to be efficient, it assumes you've got independent actors. So, if the error terms are uncorrelated, it means that all of the actors are acting, they all have error terms but the error terms are not manifesting in the same direction at the same time for the same reason. So it requires independence. As we move into an

increasingly connected and socially aware and nomadic society through social media and faster connections and 24 hour news, et cetera, is it even remotely reasonable to assume that investors are acting with independent error terms?

Dan: **00:59:26** Here's where I want to go with this. I love this. Ramp Capital on Twitter posted today. Imagine if you could see who you were trading with whenever you posted a trade. And I want to take this a step further and say, imagine if they had to write a little memo, Betterment customers do this, like when you go and you make withdrawal or you make an allocation change, you can have an investing journal on it. Like, you see stuff like I'm withdrawing $2,000 to fix my truck. Imagine if everybody in the market did that and we all saw who we just traded against and like what their purpose was or whatever it is to see these clearing trades. I would put money on, you would see like nine tenths of stuff being like, I need some money for my truck and the other guy is going to be like, over the next quarter the Fed is going to do this, which is going to push this in this direction and then compensate with that, and therefore I'm putting this trade on and taking your money, and I'm going to beat. Like just people playing two fundamentally different games where some of them are trying to look at that the information in the market, and other people are just like, I just invested in my retirement fund for 40 years and I'm taking money out. I have no view about markets, whatsoever. So that's like …

Adam: **01:00:32** … because price is set at the margin. If you've got a large number of investors that are trading randomly, so in other words, for reasons like I need money for my truck or whatever, they're purely idiosyncratic, they'll all cancel out and the only investors that affect price are those that are seeking an edge. So we can discount those random errors. The question then becomes, are the other investors that are actively seeking an edge, independent? Are they making independent decisions? Or are they influenced by, as Mike alluded to earlier, in general a herd mentality? If they're not independent actors and rather they're acting on feedback mechanisms and reinforcement, then the efficient market hypothesis is actually, again incoherent on its face. I just think we all sort of...increasingly it is true that we all operate on this idea that we should all invest passively and no market in history has validated that assumption more than what we've observed over the last six or eight weeks.

But, it gets to what Mike was asking earlier. We're trying to do the right thing, you're trying to nudge investors to do the right thing. What is the right thing? There's a fundamental question that nobody answered here. We all danced around and like try to speak about it. It's not your fault, that I'm not blaming, but it's true. This is something that we all end up having to answer as a question. It's easy to say assume efficient markets, therefore, passive portfolios, et cetera. But to dig into this is hard and its messy-

Rodrigo:	01:02:17	It's often not your role, like you're not a portfolio manager. So it's a tough thing to be asking Dan I think.
Adam:	01:02:24	Again, I'm not trying to put Dan in the corner, right?
Mike:	01:02:31	No, this is free form…
Rodrigo:	01:02:31	Are you asking me? Okay, here I go.
Dan:	01:02:36	I think it's also interesting that we should go down that route. What's a good way of putting this? How many dimensions do you guys think string theory needs in order to be true? Exactly. … you're very focused experts who really know about this stuff and study it and have strong opinions for one reason or another, the average person has no opinion about that stuff. And they also have no opinion whatsoever about if X is overvalued and Y is undervalued and they don't need to go out and have those opinions. It's good to have people who are focused on it and even better if their disagreement breeds trades and price discovery and everything. But for most of us that is such an esoteric question that doesn't...there's not a real return on having a strong answer to it for each individual. So it's like I don't know.
Mike:	01:03:33	This is the point though. I do think there is. This is the problem. At what point, is it 60 times future sales that the S&P has no future returns for your retirement fund? And do you have any implication or understanding of that for your savings? You have none.
Adam:	01:03:50	And what responsibility do we as advisors have in order to recommend things that are actually probabilistically reasonable to expect that they're going to meet financial objectives? It's easy, right? Because we can all sort of just assume the default option now. It didn't used to be this this way, by the way. Ten years ago, advisors actually had to make decisions because it wasn't just assumed that everyone was going to invest passively. It seems easy now, because everyone's adopted the passive framework, but there was a time when people had to think about it.
Mike:	01:04:22	It is not passive.
Adam:	01:04:24	Of course.
Mike:	01:04:26	So we have to think about what passive is. The fund flows are following performance, they're not following for passive, passive would be a global market portfolio and then you'd have to figure out some way to encompass private

equity in your portfolio which there are ways in which you can access that but again, that would be true passive, we have active-

Adam: **01:04:46** They're embracing, passive, because passive has done well recently. Like if we had just come out of 1989 Japan and we're Japanese, the market cap weighted TOPEX, over the next five years was not going to attract people into passive market cap weighted Japanese equities. Market cap weighted US equities have done very well recently and therefore passive is the only way to go. To kid ourselves into believing that we're moving in this direction because of some coherent, intellectual framework, and he's fine, it's a good narrative, but the reality is we're all return chasing?

Mike: **01:05:29** So let the data speak for itself. If we if we thought of a very large robo advisor who is advising a lot of portfolios in America and we're to ask that person, how many of those portfolios are truly globally positioned as in they are global without a US bias? What would percentage of those portfolios be?

Adam: **01:05:55** I did want to give Betterment a nod here because I think you and I chatted about this on our podcast Dan, and I know you guys do your best to try and actually get closer to a global market cap truly in a classical sense, passive portfolio which is admirable and maybe we can move off this topic and talk about-

Rodrigo: **01:06:14** No, because I think one of the key things is understanding what an investor, going back to the you got to have faith, right? What an investor is likely to stick to long term. I mean, this is a great idea that led back and forth green and between Ed Thorpe and Samuelson. Ed Thorpe was all about the Kelly criterion as being the best possible way that you can compound well. Kelly criterion the way he was applying it meant that at times you can have 95% drawdowns, but you would never lose all your money if you hadn't done right. Where Samuelson said, you're out of your mind. This is about utility curve, every investor has a different utility curve that you need to take into account and there is no way that a perfectly mathematical equation that has that type of drama is going to get you to the goals that these individual investors need.

So, it's certainly, there's a balance between these two things of whatever we think is mathematically optimal, versus what is behaviorally optimal. Home country bias is a very real one as well. And we've talked about this before, Mike. Where you have the … saying that the … point for investors is 60% Canada equities, and the rest is international, when you're in Windsor, Ontario, but then you cross that bridge over to Detroit, and all of a sudden the optimal portfolio is …60% US equity based portfolio. This is utility, this has got nothing to do with optimality.

Adam: **01:07:44** Well, I agree that is true.

Mike: **01:07:46** It's a cross between behavioural optimality.

Adam: **01:07:52** It's just that even home country bias is materially informed by recency bias. Like this is Watanabe phenomenon in Japan where 10 years after the peak in the Japanese bubble, the Japanese speculators or the Japanese investors at the margin didn't put $1 to work in Japanese equities. They were offshoring. If US equities were to underperform materially for 10 years, then it would completely undermine the domestic equity bias and the passive equity phenomenon. It is a phenomenon that is created by our experience, in a different experience and in a future that has a different trajectory. We will express different biases, and create completely new narratives to justify whatever default options we put in place at that time. And these will change over time. But to frame it as some universal truth or universal reality I think misses the point and also doesn't allow you to change your mind over time. So, you don't want to get too married in one paradigm.

Rodrigo: **01:09:10** Or you're just going railing against efficient markets and capital asset pricing model and saying that that is the truth. That is an academic axiom, which is not true. What is true and … the optimal mathematically, there is no truth that any one of us can come to terms with.

Mike: **01:09:31** I agree. So let's do the subject change. I think we do the subject change. Dan, from the perspective of individuals versus professionals, the mistakes they make, in your research and in your decision making history, is there some significant differences that those who are highly informed in certain areas make versus those who are uninformed? Is there anything that you can share in that regime? It goes beyond just our domain. But do professionals make a significantly different set of mistakes that individuals or non-informed, nonprofessionals make in the domain of investing?

The ”Informed and the “Uninformed”

Dan: **01:10:01** I think it's going to come down to things you already know from other professionals on practice, feedback loops, the fidelity of feedback loops, and them being committed to the idea of actually learning as opposed to enjoying. I think one of the big differences is that retail investors, so .... did or no, I think was just O'dean got data from day traders and said, let's look at whether or not they're successful and they're doing well. And how long does it take them to realise that they are a good day trader or a bad day traders? It took them about two years. Like they're trading a lot over this period. The issue is that I think most retail people don't have really good feedback loops about whether or not they're making good decisions, bad decisions, what their Sharpe ratio is, they don't have the kind of framework to view that as information feeding back to them about how they're doing. One is that I think professionals usually have intellectual tools, call it like metrics and everything. They're taking it seriously as a profession.

So it's not like a fun thing. They're like I have to do well, that involves being humble, and realising where and how and why I make mistakes and taking losses as an opportunity to grow, but also setting up these kinds of feedback loops that allow me to do that. Usually also working with other people. So very few retail investors have a very strong decision making group where they have to talk to other people about trades before they go through with them and explain it or justify it. So I don't think there's anything intrinsic, but I think there's a lot about how you go about it. That's a lot like the difference between a professional basketball player and an amateur basketball player.

Mike:	**01:11:52**	Right. The stats are there and the stats are in your face more. So you get that feedback loop. That actually reminds me Rodrigo of your poker group. The one where you were winning all the time, they didn't know.
Rodrigo:	**01:12:07**	The ReSolve Asset Management Group?
Mike:	**01:12:08**	No. Well, that one too. But the other one where you might get paid for your winnings?
Adam:	**01:12:16**	Guys, we've gotta let Dan go.
Mike:	**01:12:18**	Dan you're going to go.
Dan:	**01:12:19**	…
Mike:	**01:12:22**	I'm sorry.
Dan:	**01:12:25**	My time is up here. But thank you very much.
Mike:	**01:12:27**	Well, thank you.
Adam:	**01:12:29**	Yeah, thanks Dan. That was great. Okay, well, happy Friday.
Rodrigo:	**01:12:34**	Wait, Mike. Stay on, though. What do you mean? I'm just curious to finish that thought.

Mike: **01:12:39** Well, no, because remember your friends were. So, they're playing against you, you played a lot of poker, your semiprofessional call it, and so they're observing their losses now because you're playing online, and you have to add them up in a spreadsheet. Before, they would just pay and they would have the enjoyment and they pay their couple hundred bucks every so often and they'd be like, well, it's fun and I'm a winner.

Rodrigo: **01:13:01** None of my groups have paid. Now it's like, well do we could settle up or why don't we just use in the next boy's trip two to three years from now and then it'll hurt less, right? I guess that's fine too when we can settle up then, I think with my money.

Adam: **01:13:20** Well the trick is when you have to admit the losses to your spouse.

Rodrigo: **01:13:24** No, not only that. The spouses would come and sit next to them. So, the losers would eventually the wives would come and ask, how are we doing? And I'd almost swear to you, they'd start winning like something would kick in. And there was a moment there when we were settling up where the guys stopped showing up. We had to switch and say, look, we'll settle whenever we'll do it in that trip. You know what's pennies between friends, and all of a sudden everybody flowed back into the game. The losers continue to lose and was a little a little bit less painful. Because the pain was going to come down the line, they didn't have to explain it to their wives at that point. So certainly, this concept of who you are today versus who you're going to be in the future. The future is going to be a better poker player, going be more disciplined, you're going to pay more attention, and you're going to make your money back so that I'm not going to get that pain in the present. They are just as distracted as they've ever been. They don't really care about poker, they just care about the conversation.

Adam: **01:14:27** It's simply I want to play poker and the second I admit my losses to my wife, I'm not going to be able to play poker again.

Rodrigo: **01:14:36** You don't think it's deeper than that?

Adam: **01:14:37** No.

Mike: **01:14:41** What do you mean? I get enjoyment out of it.

Rodrigo: **01:14:43** Are we going to play this week or?

Mike: **01:14:46** I don't know if we're going to play this week.

Rodrigo:	**01:14:48**	We should think about doing a ReSolve for charity poker event one of these days.
Mike:	**01:14:53**	I'm doing that now. I help subsidize Rodrigo's Kids Education Fund.
Adam:	**01:15:01**	Do any of our listeners play poker like, raise your hand if you'd like to participate in some kind of-
Rodrigo:	**01:15:06**	Merrill's on …
Mike:	**01:15:07**	Yeah, I'm not playing with Merrill.
Rodrigo:	**01:15:09**	If you've been playing the poker game for a while, it's like I don't know who the patsy is. You're it.
Mike:	**01:15:17**	What about when you know you're it?
Rodrigo:	**01:15:20**	This is all crazy. These guys know they're in and they're like, still in it for the conversation which is great.
Mike:	**01:15:26**	Totally. All right, gents. That was fun. I think we made Dan as uncomfortable as possible. So that's nice. I hope we're still friends.
Rodrigo:	**01:15:36**	That's what happens when he doesn't drink.
Mike:	**01:15:39**	Precisely. He didn't have any-
Rodrigo:	**01:15:41**	He had to get it back. Anyway, that's great. Anyway, good job guys.
Mike:	**01:15:46**	All right. Good job gentlemen.
Adam:	**01:15:47**	Thanks guys. See ya.