

## Human-Centric Investing Podcast

Episode 31: Back From the Future, Part 1

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Featured Guest: Annie Duke, decision strategist and former poker pro

**Intro:** This is the Human-Centric Investing Podcast with John Diehl where we look at the world of investing for the eyes of our clients. Take it away, John.

**John Diehl:** Hello, financial advisors. This is John Diehl, Senior Vice President of Strategic Markets at Hartford Funds. Welcome to episode 31 of the Human-Centric Investing Podcast. Joining me today is Annie Duke.

Annie is a decision strategist and former poker pro. She's a World Series of Poker bracelet winner, the winner of the 2004 Tournament of Champions and the only woman to win the NBC National Poker Heads-Up Championship.

Annie has authored four books on poker and in 2018 released her first book for general audiences called *Thinking in Bets, Making Smarter Decisions When You Don't Have all the Facts*, which now is a national bestseller.

As a professional speaker and decision strategist, she merges her poker expertise with her cognitive psychology graduate work at the University of Pennsylvania. She focuses on improving decision making and critical thinking skills. Annie, welcome to our podcast.

**Annie Duke:** Thanks for having me.

**John Diehl:** So, today, we're going to talk about how Annie can help you help your clients to make better decisions. So with that, Annie, let's get started. So, how do you – how does one go from, A, first of all, becoming a poker pro, but maybe even more so, becoming from a poker pro to becoming a decision strategist or do the two go hand-in-hand?

**Annie Duke:** Oh. Well, so, it's kind of a two-fold answer. So the first piece, which is to the last part of your question is that they did indeed go hand-in-hand in the sense that when you think about what decisions in life look like, and particularly decisions in investing fall into this category, those decisions look a lot more like the kinds of decisions that you make at a poker table rather than say the kinds of decisions you might make if you're playing chess for example.

So, I had someone the other day say to me that they always wanted to say to people, we're playing chess, not checkers. But the reality is actually we're kind of playing poker, not chess.

And the reason for that is that when you play a game like chess, you can see all of your opponent's pieces. You can see where everything is so that as you're considering anything that you want to do, you know what all the possible responses are. And then the other thing is that there is no luck involved.

So, like, nobody rolls the dice and they land 11 and all of a sudden you lose two pawns and then I roll a seven and I get an extra queen and no matter – you played really well, but you lost the game.

And when you think about the kinds of decisions that we have to make at life, they've got those two elements that chess is lacking. They've got that hidden information, meaning there are just things that you can't or don't know, which is true in poker as well because the cards are face down.

And then they also have this strong element of luck, that you can make a really, really good decision and something happens that just isn't in your control, or you could make a really bad decision and something happens that isn't in your control and all of a sudden the good decision works out very poorly and the bad decision might work out very well.

And you can see how that particular issue exists so strongly in poker. I can have the very best hand and we can put all our money in the pot and you could be maybe 20 percent to win and on the turn of a card, you could just hit a card that allows you to win.

So, when you think about life's decisions and in particular investing decisions, you can see where those elements are. The future is hard to predict. There is lots and lots of luck involved in kind of what ups and downs of your portfolio are.

A lot of the kinds of decisions that you're making are trying to withstand that luck. And there is always just a lot of stuff that you don't know. And that's the world that you're trying to make decisions in, which is why poker and decision strategy really marry so nicely.

John Diehl: So would look at the game of chess, Annie, almost like it's a totally efficient market, in other words, you won the game and you'd be able to trace back every step to examine exactly how, when, and why you won the game. Or the same is true in a losing game of chess, but what you're saying is in poker it's not that easy, right, the same as investing.

Annie Duke: Yes, exactly. I mean, if you look at – it's a really interesting difference. So there is this thing called resulting, which is a natural bias that human beings have, which is – human beings really kind of – when we're thinking about things, we tend to kind of take the uncertainty out of it.

We like to make connections. We like to create patterns. And one of the patterns that our minds really like to create is if we know what the quality of an outcome is, like you won or lost, then you could work backwards from that to the quality of the decision.

And that does actually work really well in chess as you just pointed, if you and I play a game of chess and I lose to you, nobody needs to see the game. They don't need to know what the moves were, right?

All they need to know is that I lost to you and then they know that I played worse than you do – than you did. They know that my decisions were not nearly as good quality, and vice versa, if I beat you they know that my decisions were better than yours.

But if you take that same amount of time that it takes to play a game of chess and now we played poker for that period of time, you and I, and I lose or I win, that doesn't tell you very much about who made the better decisions.

And the reason is that without actually seeing the moves, without actually seeing the decisions that are made during that time, you don't know whether the outcome was heavily influenced by luck, so that we don't know that thing.

Did (Don) make better decisions than Annie and Annie just hit some lucky cards? Or did Annie actually play better than (Don)? And think about like if you have two people who've invested in the stock market and at the end of a month one of them has won and one of them has lost and that's the only information that you have, do you know who made better investment decision?

John Diehl: So, Annie, as I think about that, do you think does resulting then is the end game of resulting? Does it wind up in creating perhaps overconfidence on one end of the spectrum and maybe such a lack of confidence or maybe a misplaced blame, if you will, on the other end of the spectrum? Is that the impact of resulting on decision making?

Annie Duke: So, it's definitely one of the impacts. So people who win will become, for sure, overconfident and actually we become overconfident in people who win because we work it back. We go backwards into the decision making and the same with under-confidence.

And, in fact, we know this when we look at asset allocators. At the end of the year they tend to roll off people who are down and re-up with people who are up. And then what ends up happening is that the people who are down tend to outperform their previous year.

And the people who were up tend to underperform their previous year, which isn't surprising, right,

because obviously, when you're looking at the extremes, again, there is this influence of luck and it doesn't necessarily have to do with skill.

So that's one thing that happens is that we look at the people who've done well recently and we mis-assign to scale too much of what that result looks like. And we look at people who have done poor recently and mis-assign to them what might be luck, but we assume that it must be bad decision making that caused that.

And so, you get this kind of miss-assignment and that plays to a general issue that resulting causes, which is if we know that our best tool for learning is experience, right, like the things that have happened in our lives are the things that can teach us what we should do and what shouldn't we do, what's a good decision, what's a bad decision. What resulting does is it causes us to learn pretty bad lessons from outcomes, particularly short-term outcomes.

So, when there is a good result, we'll say, oh, I should do that. That's the thing that I should do because, look, that turned out well. I can see that turned out well for somebody. And when somebody has a poor result, we look at – at that and we say, "Well, I shouldn't do that."

And that's part of like the driver of – people may have heard of survivorship bias and survivorship bias is believing that people who do well have applied really good strategies and tactics in order to get there, and so therefore we should repeat those. And we tend not to look at people who do more poorly because we assume the opposite which is driven from resulting.

John Diehl: And I know, Annie, if that – you made the comment that resulting is it's more than just poker or it occurs more than just in poker or in investing. One of the ways that it really made sense to me was in your book.

You give the example from Super Bowl history, would you mind sharing with our listeners how they might think about resulting just in a common everyday sports arena as happened a few years ago in that Super Bowl example that you gave.

Annie Duke: Yes, absolutely. I can actually give you a pair of examples.

John Diehl: Sure.

Annie Duke: So, the first example is in my book. The second example isn't because it occurred after my book was already locked in, so it couldn't be in there. It's in the paperback edition, actually as opposed to the hardcover edition.

So, it's Super Bowl 49. This is in 2015. And the Seahawks are playing the Patriots. And I think that this is a pretty famous play and most people probably remember this because it's the last play of the Super Bowl.

And the Seahawks were sitting on the Patriots' one-yard line. So, they've only got to move this ball one yard. They're down four points. So, if they score a touchdown here, obviously, it's basically game over because there's only 26 seconds left on the clock.

So, if they can score a touchdown, there really isn't enough time for the Patriots to be able to get that ball back down the field. So, this is really the play for the game. And people might recall that the Seahawks had a running back named Marshawn Lynch on their team.

And Marshawn Lynch, obviously, is an amazing short yardage running back. What's really important here is that there is an expected play. And the expected play was to hand the ball off to Marshawn Lynch, have Marshawn Lynch try to barrel through that line of Patriots and score.

Now, again, remember, there's only 26 seconds left, so Pete Carroll only has one time out. So, we know that if he hands it off to Marshawn Lynch and Marshawn Lynch fails to score it, he can use this time-out in order to get off another play.

Now, that's sort of what everybody expects to happen. But that's actually not what Pete Carroll does.

Pete Carroll does something incredibly unexpected and he has Marshawn Lynch actually pass the ball.

I'm sorry, not Marshawn Lynch. He has – let me say that again, he has Russell Wilson, the quarterback, pass the ball as opposed to hand it off to Marshawn Lynch.

So Russell Wilson passes this ball and as I'm sure everybody remembers, it's very famously intercepted by Malcolm Butler at the goal line, end of game. Now, the in-game (announcing) for this is just very brutal.

It's basically like I can't believe this call. What was Pete Carroll thinking? This is insanity, so on and so forth. And then the next day, the headlines were really no different. When you looked at the headlines from the major outlet, I mean, there was one that called Pete Carroll an idiot.

And then there were a whole bunch that were just basically like there was some sort of argument about whether it was the worst call in Super Bowl history or just the worst call in football history period.

Now, what I think is so interesting about this is that it's such a classic case of resulting, right? I mean, obviously, this was an incredibly awful result. The ball gets intercepted, game over. That's the end of the game.

But I think that we can do a quick thought experiment to see what the problem with these headlines are. And now, I'll do it with you quickly, (Don). So, (Don), I want you to imagine, just imagine that Pete Carroll does this really unexpected thing and he has Russell Wilson pass his ball.

And now what did I want you to imagine is that the ball is caught in the end zone for the game winning touchdown.

John Diehl:           Greatest amazing call ever.

Annie Duke:         Right.

John Diehl:         Yes.

Annie Duke:         And it's so obvious, right? Like, when you do the thought experiment, there is no human being that says worst call in Super Bowl history. There is nobody who says that. Everybody says greatest, greatest call in the history of humanity.

This is what got him to the Super Bowl. This is why Pete Carroll is going to be in the Hall of Fame because he does these bold things. And this is where you can see this resulting at play, because on that single time, that one time, once Pete Carroll calls the play, everything else is out of his control.

How it turns out on that particular iteration doesn't have anything to do with the quality of a play. It's like saying like I invest in a stock and it goes up so therefore it must have been a great investment or I invest in this one stock and it goes down, so therefore it must have been a terrible investment.

But this is what happened in this game. And to this day, when I get up and I talk in front of audiences and I put up the still of the video which I'm about to play. And everybody sees what the situation is.

Not only is there always laughter, but somebody screams out every single time, should have handed the ball off to Marshawn Lynch, every time I get that response. Now, here is the problem, is that with any decision that we have, knowing the outcome is not enough. It's just not enough because there is too much luck involved in the way that it plays out. There is too much hidden information.

What we need to know is actually what were the percentages. So, if you'll bear with me, let me just walk through this really quickly. So the question that we really want to know here is how often is the ball intercepted in that situation, like what percentage of the time is the ball intercepted in that situation?

And the reason in particular why we want to know that is because if you actually think about the play and you say, "Hey, yes, I agree. I'd like to hand that ball off to Marshawn Lynch twice too. I agree."

We know that Pete Carroll has a clock problem. He's only got 26 seconds left and he's only got one time out. So if he hands it off to Marshawn Lynch and Marshawn Lynch fails to score, Pete Carroll is going to burn the time out and if he hands it off to Marshawn Lynch again, that's it. Those are the only two plays that Pete Carroll gets.

But if Pete Carroll passes, if he passes first or second, so if either he passes first and then if there is a failure to score he hands the ball after Marshawn Lynch, when he passes there, when it's incomplete, the clock stops and he's got enough time to hand it off to Marshawn Lynch twice as well.

Again, if he hands it off to Marshall Lynch, fails to score and they call the time out, if he passes on the second play and fails to score, the clock stops on its own and he can hand it off to Marshawn Lynch.

So once you kind of understand that, you say, "Oh, that's interesting." If he passes the ball on the first or second play, because of this natural clock, the way that the clock naturally stops, he can actually get three plays, three tries at the end zone instead of two, which I think we all agree we'd like against the Patriots.

But the cost of that is, however, often the ball is intercepted. That's what the cost of getting that third play is. So that's why that number is so important. And it turns out that that happens less than two percent of the time.

So once you understand that, you're like, "Oh, maybe it isn't such a bad play after all." And I think that what's really interesting and how you can say the power of resulting is that two years later in the Super Bowl when the Eagles were also playing the Patriots – because the Patriots are in every Super Bowl.

They actually did a very unusual play, which was called the Philly Special which people might recall. And when they did the Philly Special, which was really an unusual play, I mean, the quarterback ended up in the end zone, catching ball in a spot where everybody expected there to be a field goal.

What happened was, Nick Foles catches the ball in the end zone, so notice that this is again – the play works out. That's the difference. And everybody hails it as the best play ever. Doug Pederson is such a genius.

Oh, look at this crazy bold play. This is what it takes to beat the Patriots. So, I think if you watch football, if you watch any sport, you could see this all the time. Actually, this just happened with should they have played Kevin Durant.

And, obviously, it ended up in disaster because he's badly injured. But that's also a good play – a good example of resulting, like nobody really knows in advance because there is too much hidden information. Nobody knows whether he was healthy enough to play, right? Only the team knows that.

And so, we don't really know if he was healthy enough to play, if it made sense for the increase in the percentage of time that they thought they would win for the risk that they were taking. We don't really know what the chances of that size injury happening during the game.

All we know is that it worked out really badly and you have a bunch of people declaring that it was a terrible decision, but none of us have the information to really know whether that was a terrible decision. Only the team does.

- John Diehl: Well, and if you think about it, Annie, in your Philly Special example, the ball actually changed hands a number of times before it was ever thrown into the air.
- Annie Duke: Right.
- John Diehl: To a quarter back who isn't used to receiving footballs.
- Annie Duke: Right.
- John Diehl: So, if you sat down and thought about all the potential for the risk, if you will, you might actually come

back and say, well, that was really a crazy play to call at that time, but nobody will ever think about that because of the result, right?

Annie Duke: That's exactly right. And this is what happens all the time to us. Think about like a kid goes to college and they love the college. It's a great decision. A kid goes to a college and they don't like that college, it's a bad decision, right?

If somebody invests in a stock, it goes up, it's a good decision. Someone invests in a stock, it goes down. It's a bad decision. Someone goes out on a date, it turns out great. It was a good decision. Someone goes out on a date, it turns out poorly, it was a bad decision. I mean, this is the way we live our lives.

John Diehl: So, Annie, thinking about resulting, we only have a few minutes left on this podcast, but I'd like to ask you. This sounds like a terrible thing that we're all afflicted with, this resulting.

Annie Duke: Yes.

John Diehl: Is there a way to overrule this effect? Is there a discipline or is there something that we can do? And if you would maybe perhaps address that, then maybe on our next podcast, we can come back and get into that a little bit deeper.

Annie Duke: Yes, absolutely. So basically, there are two solutions to it, both of which you want to put into play. The first is retrospective. So, after a result occurs it's really important to think about the other possibilities that could have happened.

And when you think about the other possibilities that could have happened and then think about what the – really, try to think about what the likelihood of those things are, what you can get a sense of is was this a very low probability event that occurred or a very high probably event that occurred, right?

So, this kind of works actually no matter what mistake you're making. Because there are other mistakes that you can make in terms of thinking about outcomes. So, for example, you could think that something that happens is actually bad luck when it's actually bad decision making.

So that's a mistake that can occur. So when we think about, OK, I got this particular outcome, let me actually think about what all the possibilities are and then let me actually think about how often those occur.

What you can do is you can spot when, oh, yes, it was a good result but it was really, really low probability and there was actually much more risk than I originally saw in there, or it was really bad result then I'm beating myself up for.

But actually now that I look at it, that was actually really unlikely to occur and mostly I was going to get good outcomes from that decision or like if you're someone who, when you have a bad outcome you have a tendency to really say it was bad luck.

When you do that, you can see actually it wasn't bad luck at all, it was totally expected. And that retrospective solution is really what I did with the Pete Carroll decision, right? I look back and I said, what are the different ways that that play could have turned out?

It could have been an interception. It could have (just been incomplete) or it could have been a touchdown. And then I said, well, how often do those actually happen? And then you immediately see, oh, the interception happens only less than two percent of the time and that's what helps you kind of get over resulting. So that's the retrospective solution.

But actually the best way to deal with this is actually prospectively, is through great planning. And that's a longer conversation about how do you do great planning. But the short story is and we could talk about that in the next podcast.

The short story is when you do great planning, you actually have already thought in advance about what the possibilities are. You've thought in advance about what the probabilities are. You've thought

about what can go wrong. You've thought about what can go right. You've thought about the downside risk.

You've thought about the (inaudible). And you kind of have that all memorialized in a way that gives you that automatic context when you have that reaction to an outcome that might cause you to engage in resulting.

John Diehl: Well, Annie, thanks very much for this discussion around resulting and for kind of whetting the appetite on maybe some things we might do to overcome it. And I'd encourage all of you listening to make sure and tune in for our next podcast episode in addition to maybe reviewing this one.

In the next podcast episode, we'll pick up where we left off and we'll talk about combating the impact of resulting by employing what Annie calls time traveling. So, Annie, thanks again for joining us today.

Annie Duke: Well, thank you for having me.

John Diehl: And for all of you listening, thanks. And we look forward to having you again listen to our Human-Centric Investing Podcast.

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