



[00:00] [Rob Campbell] [RC] Coming up in The Art of Boring, Paul Moroz on a wide range of market topics, including what higher discount rates mean for equity valuations and the subtle shifts you might not see in the headlines, but that absolutely matter. My favourite part of the conversation is the second half, where Paul discusses Millennium Prize math puzzles, humility, podcast proliferation, entropy, and somehow he makes it all connect. For those seeking useful mental models for portfolio construction, the payoff is worthwhile.

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[00:28] [RC] Welcome back.

[00:29] [Paul Moroz] [PM] Nice to see you. Thanks for having me back.

[00:32] [RC] Love having you back, Paul, on the podcast. You're always welcome. I just thought I'd start with an observation. I think we're maybe 1% or 2% off, as we record this today, of all-time highs in markets, at least the S&P 500.

Certainly when you read the news, you feel like there is a lot going on that might not suggest that markets should be as high as they are. And so can you help square that for us? Why are equity markets doing as well as they are?

[01:11] [PM] There's a lot going on in the world, but we can't forget that the wheels of capitalism, it doesn't stop. Companies are out there, they're earning money, they're paying dividends, they're buying back stock, they're growing their businesses, they're creating new markets. That isn't stopping.

So you'll hear the Wall Street adage, the market will often climb the wall of worry, and that's the wheels of capitalism that keep on going. If I think back year to date there have been some tremendous markets that have been created in the AI complex, and companies are making lots of money.

The growth prospects are good there. There's been some amazing breakthroughs in technology. There are also some businesses that have benefited from increased interest rates. I'm thinking the outlook for a lot of the banks, net interest margins, spreads. Same thing, price of oil might be tougher on the consumer, but if you own oil stocks, they've had a really nice run year to date.

And there's some unrelated businesses that are just part of the fabric or infrastructure of the economy that just keep on doing what they're doing. So it's a whole host of things. Although you're right to point out some of the market information coming back to us, including what yield curves are doing around the world, should leave



investors at least questioning what that means going forward.

[02:54] [RC] Before we get to that, and I definitely want to ask you about that, but just on the topic of corporate earnings, yeah, they've been substantial. And in the past, perhaps even in this forum, we've had conversations about market breadth, the degree of leadership and how concentrated it is.

Have you noticed any change over the last couple of months? Or worded differently, like corporate earnings seem to be really strong, but is that really just all AI or is this more across the board?

[03:30] [PM] AI is certainly driving it, Rob. I think as a thought experiment, if you took that out and then started backing that out through the economy, it would be a question mark about how well we're doing. So it's really tough to tease things apart, because one person's, expense or CapEx is another company's or person's revenue, and there is a trickle-down effect. Maybe not as broad as we would like it, but it trickles down or moves across the whole system.

[04:07] [RC] Another thing that at least historically has trickled down, and you mentioned it earlier, has just been the discount rate impact of higher bond yields. And certainly over the last couple of weeks or months, we've really seen the borrowing rates of government bonds, specifically in the U.S., but elsewhere, rise pretty dramatically in bond terms. And it's set up this dynamic where bond markets are actually doing rather poorly at the moment if you're an investor, whereas the equity side is doing really well. What's going on?

[04:45] [PM] Listeners and students of markets have to recognize or appreciate that bond yields are the foundation of discount rates across all asset classes. So all roads point back to bond yields, and in particular the U.S. Bond yields and the 10-year Treasury. And today, as we're recording, the 10-year Treasury has traded above a 5% yield.

The 30-year Treasury bond in the States is about 5.35%, 5.37%. In Canada, the Canadian 10-year bond is close to 4%. So yields have moved up, and now it's a big question as to why is that the case and what does that mean, and getting into what could be a bit of a headwind for both equity markets and all other asset classes.

Is it that there could be more inflation because of what's going on with oil prices? For sure, there's a war going on, and oil prices are higher, and that feeds through the system. Could it be that there's just such a demand for capital now that bond markets are getting crowded out?

I think an even bigger question, if you extend that demand or need for capital, think about how many dollars are going into the AI CapEx complex. And I know we've talked about it before. Other participants have talked about it before. The bond market is being tapped by some of the large technology companies. And the amount of money that they're raising, equity side, debt side, it's unprecedented. So there could be some crowding out that could be filtering into yields.

And also, there's a changing world order in effect, and debt across governments are higher. Traditionally, it's taxes and inflation as to how you get your way out of it. So I think there's nervousness there.

And then the funny thing about—doesn't matter what financial market it is. A lot of things become psychologically



correlated and sometimes a theme gets going, and it just perpetuates itself, and we might be seeing that with bond yields as well.

If we jump ahead to, so what does this mean for equity markets? Remember, back to the simple financial math, bond yields, the concept of a risk-free rate is the foundation for all discount rates. So if the yield of the 10-year U.S. Bond goes up, in other words, the price of the bond goes down, the yield goes up, all else equal, when you're valuing any other cash flow of any other asset, that asset should be worth less.

And just to give some perspective for people, you can think of the sensitivity in equity land by applying the equivalent of a duration. Duration's a technical term used for fixed income, but you can apply that same concept for equity. In other words, what's the sensitivity to a change in the price of the asset when interest rates, your discount moves?

And for context, you can think of, we're getting very technical, but the equity duration might be around 15 of the stock market in general. So that would mean a 1% increase in your discount rate could mathematically result in about a 15% decline in equity markets. And I'm skipping the technicalities.

[08:57] [RC] The caveats that go along with it, yeah.

It's not what we've seen, right. There have been some days where you read the headlines, and it feels like interest rates up. Maybe that weighs a bit more on longer duration portions of the market, like the tech sector. By and large, if you just think back at the past couple of months, you haven't seen that duration impact on the equity side, which suggests it's not just purely mathematical.

[09:32] [PM] Or, as another theory, we might be growing into it. One of the puzzles is why some stocks on the market aren't trading more expensive given the rate of growth that they've had.

My colleague was down at a conference where Jensen of NVIDIA was speaking, and he characterized the company NVIDIA as both a growth and a value investment at this point, because they're still growing so rapidly. But from a forward-looking price-to-earnings basis, NVIDIA trades only a little over 13 times next year's earnings, and if you believe in the estimates, a little more than 10 times earnings the year after that. That would be some of the cheapest forward earnings that you would've ever seen that stock trade at.

So it just makes me question whether we have actually seen, in some cases, multiple compression that's been offset by growth, and that is maybe the factor that's accounting for higher discount rates. But these things don't go in straight lines. The stock market doesn't go in a straight line. And it's possible we're entering a period of economic history where we are just dealing with greater competition for capital and perhaps lower price-to-earnings multiples to account for higher discount rates and higher bond yields. And that doesn't mean there has to be a crash. We just might have things grind forward. There's multiple scenarios for how that could actually turn out.

[11:19] [RC] What do you do with this as a portfolio manager? Clearly you want to understand business by business, how a shift in discount rates might impact them, as well as the second and third order aspects. You mentioned banks earlier, which might actually benefit in a higher environment. But from a portfolio perspective,



the shift in bond yields that we've seen, has this prompted any action?

[11:48] [PM] It has. Just like you said, certainly positioning on things that benefit from interest rates. And also a lot of decisions where we didn't do something or have mitigated the weight. Even the emphasis on consumers, things that are more consumer discretionary.

You can imagine, you just don't have the same amount of money. So remember, the strength of your business is only as good as the health of your customers. And that's a fundamental business lesson. And so as these pools of capital move, you have to think about, well, who still has capital to spend and invest?

Just as an example, in Canada, if you're renewing your mortgage, you might be in for a shock how much you're paying now if you're buying a five-year mortgage and it's now priced off the five-year Canadian bond. A lot of places, you might not have as much money, and those are the subtle changes you make with the portfolio over time. And certainly, if you think back to some of the portfolio construction moves we've been making with the global equity strategy, consumer discretionary as a sector, that's been coming down significantly. We've been moving in lockstep with these themes.

[13:14] [RC] Obviously on this podcast and within our research effort, we've spent a lot of time on the technology side of things. But I think I heard you say recently that a considerable amount of your research effort right now is actually directed outside of AI. Can you tell us a little bit about that?

[13:38] [PM] It's tough to say ultimate research output. And I make that distinction only because a lot of our investments have been around really diversifying and building a portfolio that can withstand anything. Imagine a rope. Why is a rope so strong? It has all these single strands. The rope itself has the redundancy of all these strands and is flexible, and that's really what you want with the portfolio. In all these different scenarios where so-called strands of our rope could fail, do we have enough redundancy in other places? So that's, adding a Japanese trading house or a cement company or grocery stores or things that are very different.

Back to the actual time and research, I just make a subtle distinction is, some of the technology is moving and evolving so fast, it still occupies a tremendous amount of research and time to keep on top of. That's how we're thinking about it. And maybe the takeaway to leave with people on this point of building a rope and having all these different strands to the portfolio is that we have to be really humble about how the world could turn out. I really do believe that it's going to be this sense of humility, which is our shield, and it may well end up being our sword with the portfolio as well. Offensive. Sometimes just grinding forward with the cost of capital and staying in the game, that is actually going to produce tremendous results over time. I just feel it's so important that humility can be our shield with the portfolio, but in many cases, it might also turn out to be our sword, both defense and offense.

[15:52] [RC] How do you train that, Paul? Is this something that's intrinsic in an individual? Or, what are the things that we do to ensure that we stay humble?

[16:06] [PM] It's nature and nurture. There's some people that have different characteristics, so we're looking for those characteristics when we hire people and build a team. But some of it is like our processes that keep us humble.



And we've talked about it before on the podcast, every year we do a look back on what we've learned, the mistakes, and that starts with leaders and senior people within our research group being very open and honest about the things that have gone wrong, the mistakes that they've made.

I think it was Niels Bohr who had said, "An expert is someone that's made every error possible in a very narrow field". That's how you learn. You have to understand that that's just part of the learning. You're always learning. And if you're always learning, what does that mean? There's always more errors.

I think in practice to moving both quicker and slower, and by that, I mean how you size your positions, how you add or trim, suggest let's say, a certain level of humility. So if you knew exactly how the world was going to turn out, you'd simply just lay on all your positions all at the same time, or taken to the nth degree, why not just invest in one stock if you knew how that world was going to turn out.

But you don't. You diversify. And so we've taken the approach, and I've told people this for over a year now, of staying in the middle of the net, taking a more humble approach, having more names, more sectors, and moving in also smaller pieces or packets of trades.

And listening, asking about how humility translates culturally through the organization, listening to different views, considering other people's opinions, adjusting your own opinion in a decision process and keeping that weight in check with where other opinions... This is all wisdom of crowds, stuff that we've talked about before, but I think those are some ideas around how to foster humility.

Rob, it's super important. I don't know if people have been following what's going on with math, but ChatGPT last week cracked a massive math puzzle, and if you haven't heard about this, there's something called the seven Millennium Prize Problems. And in the year 2000, I think it was the Clay Institute, they embarked on seven mathematical problems that were unsolved at the time, very difficult, and basically put a bounty on them, so to speak. A million dollars a problem if you solved it.

Now, one was solved, I think, a couple years later in the year 2002, I think the Poincaré Conjecture. And since then, no other problems had been solved except for last week, when ChatGPT came out with a 165-page proof that they solved this problem. Keep in mind, there's a whole bunch of controversy in the background. There are people behind this, mathematicians. There's controversy whether some of the work should be accredited to someone else. This is kind of like the modern-day equivalent of Newton and Leibniz.

[20:22] [PM] But it's still such a major breakthrough. It has to get you thinking about how many problems, how many mathematical and science problems, when this technology is pointed in the right direction, it's just going to mow right through it.

And you have to have a tremendous amount of humility for how quickly the world's going to change, how much creative destruction there's going to be, and this sense that the rapid pace of evolution could mean that your ideas made here and now in the moment actually aren't going to hold for as much time as they had in the past.

Back to humility, why it can be our shield and potentially our sword and, I think originally your comment about the



effort of our research, why we're investing in things that are incredibly boring, incredibly old school, distributing groceries, grocery stores, cement companies, just things that are probably going to work out okay regardless of any number of these Millennium Prize Problems that are solved by ChatGPT or Anthropic or anyone else.

[22:00] [RC] For me, what's most amazing about that is, I can remember four years ago when I first started playing around with ChatGPT, and it could hardly do basic math. I remember distinctly once asking it to compound 7% for five years and what would my return be cumulatively, and it couldn't do it.

And so to think that it's gone from, I don't know, grade six or seven math to solving the most difficult problems in the world, yeah, absolutely humbling, not only in terms of what it can achieve, but also, the breadth of it, as you say, how quickly it can. And I think as human beings, we're not very good at extrapolating trends like that and imagining.

I was hoping you would wax philosophical, Paul. Can I get you going on another topic that I've heard you talk about lately? Actually, I've heard you talk about this ever since I've been at Mawer, and that is entropy. What is it? Why does it matter? Why are you thinking about it as a portfolio manager?

[23:00] [PM] Entropy. The second law of thermodynamics, the idea that hot moves from hot to cold and not the reverse. It's irreversible, chaos is created, but it settles out in a natural state. That's the important concept. If you can think about how something settles out in a chaotic state, you might have an edge in thinking about how investments settle out.

And really, entropy as it relates to investments, if you can just boil everything down to time, then that's the cleanest, most beautiful mathematical investing you could have. We see that in bond investing. What we try to do, taking all these strands or companies and then building a portfolio, a rope, weave it together so that it's just time. You just let entropy play out, as chaotic as it would be.

To give people some examples of entropy. Perfume in a bottle. If you take the top off, what's going to happen to those molecules over time? It's going to dissipate, it's going to be chaos, and over the course of the hours, the molecules will leave the bottle, it'll dissipate chaotically across the room and the room will smell, in this case, wonderful.

If you want another vivid example of chaos and entropy, I'm not sure if you have a lawn, Rob. Do you have a grass lawn that you take care of?

[24:48] [RC] Indeed.

[24:49] [PM] You have to put energy into it to take care of. If you do nothing, if you let entropy or chaos consume your lawn, what happens? This is my colleague Jim Hall's shorthand for what entropy is. Dog shit and weeds, that's what will happen.

But why is this important, aside from that it is nice philosophically. If you can latch on to a trend of where it's going, that can be very helpful in thinking about investing.



Even thinking about what we're doing now, if you add the concept of entropy and game theory to what we're doing now with this podcast. Now this might be the best podcast in the world, Rob, but maybe it's not. And actually podcast and content...

[25:50] [RC] Were humble here at The Art of Boring.

[25:52] [PM] Humility. It does really remind me of the Nash equilibrium or the Prisoner's Dilemma in game theory. As you can imagine—we're putting out content for our clients, and there's other firms out there that are also putting out content for their clients. Now, we could all just agree that there's only a few good podcasts in the world, and only a few people put that out.

But it's more like a prisoner's dilemma. Everyone's going to put content out, and that's the Nash equilibrium of podcasting. And what's the end result? What happens as a result if you think about entropy, the end state? You have tons and tons of content. Tons.

[26:50] [RC] Don't call it "The Art of Dog Shit," Paul.

[26:51] [PM] Yeah.. You could spend all day long listening to content. So who wins? I'll tell you who wins. YouTube. Google wins, and we own it, and that is entropy investing in process. There's going to be more content.

So my point is, there are some fundamental principles that you can take and guide you. Content proliferation is one of them. What's chaos with AI agents and security? Is there going to be more memory needed? Is there going to be more content? You have to sort through that.

So the other concept of entropy, because life and the world just is chaotic, you have to remember that so much of it is noise. And just like with your lawn, you have to focus on putting energy into it and creating order and making sense. We have to do the same thing with investing and thinking about what really matters. What's really going to drive wealth creation.

And that's in the age of AI, just leave people with the idea that, in the pursuit of knowledge, every day something is added. In the pursuit of wisdom, every day something is taken away. And that's certainly how I'm approaching things when we have just endless amounts of information and content and there's always a stock market open somewhere in the world. What really matters in understanding the world and to driving the order that you need to in the face of entropy.

[28:58] [RC] Time, humility, our sword, our shield. Paul thanks for coming back on The Art of Boring.

[29:04] [PM] Thanks, Rob.

[RC] Hi, everyone, Rob here again. To subscribe to The Art of Boring podcast, go to Mawer.com. That's M A W E R dot com forward slash podcast, or wherever you download your podcasts. If you enjoyed this episode, please leave a review on iTunes, which will help more people discover the Be Boring, Make Money philosophy. Thanks for listening.



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