

EPISODE 64

[INTRODUCTION]

[0:00:05.8] Benjamin Felix: This is the Rational Reminder Podcast, a weekly reality check on sensible investing and financial decision-making for Canadians. We are hosted by me, Benjamin Felix and Cameron Passmore.

The end of the show was something that a lot of people I think have been looking for, or do, or at least the two people that I've asked about it.

[0:00:22.2] Cameron Passmore: Two people. Yes, Ben's mom finally came in to the studio and we finally got to explain to Ben's mom what factors are.

[0:00:30.2] BF: Yeah. That was an interesting exercise. Like we said in the episode, it was interesting to do and we hope that you enjoy it. We also talked about some other things. We did a quick recap of some of the comments on the video that we posted on Saturday about the irrelevance of dividends.

[0:00:42.5] CP: Got to watch it. Such a good video.

[0:00:44.1] BF: Cameron, I thought it was funny, that you said I this episode I didn't say anything. I know other people do this too, because I can see the same people replying to comments way down, you included. People must just sit there and watch the comments stream in.

[0:00:54.4] CP: Oh, it's hilarious. What a great way. It was raining on Saturday. I'm scrolling through just watching the people chime in. There's hundreds of them in no time.

[0:01:01.3] BF: I'm there too.

[0:01:02.1] CP: It's hilarious. The one you pinned at the top is so funny. It is quite amusing.

[0:01:06.9] BF: I pinned a comment that said, “Wow, this guy is so wrong.” I think I replied to I don’t know, two of his replies. Then a whole bunch of other people jumped into that discussion.

[0:01:15.3] CP: Yeah. There’s another guy, and another site that said he can’t watch that Ben guy’s face. His face freaks me out.

[0:01:20.2] BF: Oh, I’m sorry about my face.

[0:01:21.8] CP: Anyway, so we covered also the story about Michael Burry. A lot of people have been asking about Jim Cramer, like in index funds. Cool discussion on negative interest rates.

[0:01:30.8] BF: Yeah. Currency has a goal of fixed income and how that actually overcomes the issue of negative interest rates. I thought that was a worthwhile discussion. In a future episode, we have a whole other discussion on bond indexing that I think you guys are going to find fascinating, but that’s for a future episode.

[0:01:42.7] CP: Great. Anything else?

[0:01:43.8] BF: No. Enjoy.

[EPISODE]

[0:01:50.8] BF: Welcome to episode 64 of the Rational Reminder Podcast.

[0:01:54.3] CP: You want to kick it up, just time with the relevance of dividends, perhaps?

[0:01:57.5] BF: Well, we released a video on that on Saturday and lots of people watched it. I think you picked off a couple comments that you thought were pretty funny.

[0:02:03.9] CP: As people know, you drop a video every two weeks on YouTube; common-sense investing. Anytime, you can tell by the headline if it’s going to get a lot of buzz in the comments section, so I spent a lot of the time on the weekend enjoying the comments. I got such a kick out of this. That’s why I put it as one of the news stories. Maybe this one, pre-news

stories of the week. Some of the comments and I thought the video was great, but man, people just still don't get it. You went through this quite slowly.

[0:02:28.4] BF: There are still two cohorts of people. I don't know if one's winning in terms of convincing the other side and that's probably not something they'd ever expect to happen, but there's still a very large contingent of people who believe wholeheartedly that picking dividend stocks is the smartest thing that you can possibly do and that me, citing academic research is just complete foolery.

[0:02:50.0] CP: For reading that I mean, yeah, that's a big point. We'll get to that. Even the basic math of some company pays a dividend, the stock price has to go down by that dividend, otherwise, you'd buy the stock, collect the dividend and it doesn't make any sense.

[0:03:01.9] BF: I was really careful with my language in the video. The value of the company has to drop by the amount of the dividend, which is not necessarily going to be reflected in the price at that exact moment.

[0:03:13.4] CP: Sure. For you to persistently capture that arbitrage opportunity –

[0:03:16.7] BF: It's not an arbitrage opportunity.

[0:03:18.5] CP: That's just it.

[0:03:19.4] BF: Maybe it is, but it's not going to be consistent. Somebody –

[0:03:21.4] CP: Some of the comments was a dividend of \$1 paid out will decrease by \$1 in the value of the share. You don't know what the share price goes back up, right? He's questioning like, "How do you not know this?"

[0:03:30.9] BF: Well, this is my point with the value of the company is that the value of the company drops in an efficient market, the price converges on the value of the company. At any given point in time, the price is going to vary around the actual value. Somebody in the comments posted a ton of research papers. I didn't read them all, but I read the blurbs that he

attached to them showing that markets don't properly price shares at the time of dividend distribution.

My response was, "Okay, that's fine. But the value of the company is still dropping by the amount of the dividend." In an efficient market, like you said, you can't consistently arbitrage something like imperfect pricing around dividend dates, which you wouldn't necessarily expect anyway, because there's so many other factors affecting the price.

[0:04:12.5] CP: I get a kick out of people think you don't like dividends. You were quite explicit that not that you don't like dividends, it's just that is not the identifying factor when building a portfolio to explain returns.

[0:04:21.8] BF: Yeah. Anyway, I love the discussion that these videos create, because it is a very polarized conversation, or polarizing conversation. There are definitely two sides and they're definitely very opinionated.

[0:04:32.3] CP: If you want to have fun, go in to Google, is Ben Felix wrong? Or relate to a video.

[0:04:36.3] BF: Yes. Somebody's going to post a reply video. Don't do that. Then they're going to get a bunch of views.

[0:04:40.3] CP: Yeah, it's just good to see the counter-arguments. Nothing wrong with that. Do you want to jump to listener question?

[0:04:44.9] BF: Yes. We had a great listener question. This was really neat for us, because this is somebody that discovered the podcast fairly recently and instead of starting at the most recent episode and I think a lot of people tend to do this, they went back to the very first episode. It was interesting, because I can't remember the number of hours they told me how many hours it was.

[0:05:02.5] CP: It's huge.

[0:05:03.4] BF: Within the course of I don't know, a week or two weeks, they listened to every single episode. The interesting thing about that is that they had context for everything that we've ever said. They had it within their recent memory and they constructed a set of questions based on that. It's like, that's pretty cool. They heard everything that we've ever said in the podcast. These are the relatively small set of questions they came up with.

This first thing is not a question. It's a quote, but I thought it was really interesting. They said "Your podcast has made me realize that I've spent the last three years in a single room of this home, in the home that they moved into already in their example was index investing." They discovered index investing and this podcast has made them realize that if they spent the last three years in a single room of this home and that there are many more rooms to explore, like factors and insurance and annuities and the other things, the other non-index investing things that we talk about on the podcast.

[0:05:53.2] CP: Yeah, and that's a pretty cool way to look at it.

[0:05:54.7] BF: I thought it was cool. Anyway, the questions were how do you determine what amount of a portfolio should be tilted towards each factor? The answer is there's no right answer. The dimensional portfolios that we use are tilted in a way that should increase expected returns while still being palatable to investors. You're not going to have too much tracking error. You're not going to have too much volatility from small cap value stocks, but you're still going to have a higher expected return. We'll talk about the expected magnitude of that as an answer to one of the other questions here.

Same thing for the Rational Reminder model portfolios we have posted online, the US equity portion and that, which is the only tilted portion. We modeled that after the dimensional portfolios that we use, so that they're intended to have the same level of exposure to the size and value factors.

The next question was how much overlap is there between factors? Now this is a great, great question; really insightful question. When you build for example, a value portfolio, you're going to be short profitability, the profitability factor. Likewise, when you build a profitability tilted portfolio, you're going to be short value, which is just the nature of the types of companies that fall into those categories. The most profitable firms tend to be growth stocks. The question of

how much to go for each factor, a lot of it comes down to how you're implementing. There are different ways to implement factor strategies.

The way that Dimensional does it and this is why we like using their stuff is they don't look at any one factor in isolation. Instead of going and finding all of the profitable stocks and building one product based on that and then all the value stocks and building one product based on that, which together would cancel each other out completely, you would just have market. Instead of doing that, they sort all of the securities in the market by all of the factors.

If anyone listened to our episode on valuation theory, this is what that research was all about, that you can sort the whole entire market based on exposure to all the different factors. What you would end up doing is all of the profitable large cap stocks, which are mostly growth stocks, you can find the least expensive large cap profitable stocks. That effectively ends up being a value tilt within large cap profitability.

[0:07:59.4] CP: Precisely.

[0:08:00.2] BF: It has to be very intentional implementation when you're combining factors together, because they do cancel each other out. Another really good example is small cap. When you own all small cap, you're going short profitability. Again, that's one of the main reasons that small cap as a whole has done so poorly, but when you just take small cap value, which gets rid of that tilt towards low-profitability, you revive the factor as you might describe it.

Anyway, so integration between the factors is extremely important and it's one of the hardest things in factor investing and it's really hard to do when you're just using ETFs. The reason that we're not trying to tilt toward profitability so much in the Rational Reminder ETF portfolios is because it would be really hard to do without an integrated product.

[0:08:40.8] CP: We also asked the question how much expected value do you expected Dimensional portfolio to add over a cap weighted portfolio and just to justify the higher expense ratios in those funds?

[0:08:50.3] BF: Based on the magnitude of factor exposures and based on 50% of the historical factor premiums, which is my made-up proxy for expected feature premiums. I don't really know

what the right way to do that would be, but if we assume half of the historical premiums are what we expect going forward, the DFA equity funds would have – this is based on US equity only, because it's the easiest one to do factor regression on, you'd have 65 basis points before fees of higher expected return over the market. If you chop off 40 basis points for Dimensional's fees, that's 25 basis points of higher expected returns.

If we're comparing it to another ETF, you've got to add back their fees. If it's 25 basis points, but we're comparing it to VGRO at 25 basis points, you'd expect the Dimensional portfolio to have 50 basis points of higher expected returns after fees on both sides. The short answer is 50 basis points compared to VGRO, but it depends what you're comparing it to.

[0:09:41.5] CP: Okay, so let's rip on to current topic number one; one that comes up a lot lately, the Michael Burry article that so many people been asking about in meetings and in e-mails.

[0:09:51.3] BF: I can't tell you how many times we've had this question.

[0:09:54.1] CP: It's amazing how many people ascribe a ton of credibility to him. I'm not saying it's not justified, but mainly because of his call with respect to CDOs back in 08.

[0:10:03.5] BF: We have a guest coming up named Daniel Crosby. He's a behavioral finance expert, but he's got his PhD in psychology. We have him coming up as a guest. We're doing the interview this week. I've been doing a ton of research on him and listening to a ton of his stuff. One of the things he talks a lot about is the power of the story. It's one of the four pillars of Cameron, what he calls it the failure of investor psychology. One of those four is attention, where we focus on stuff that we've heard recently, or stories; we focus on stories.

[0:10:30.9] CP: Well, that's the whole point. I told you this morning about watching the Theranos story in HBO. Incredible. It's all about stories. People ascribe credibility to these amazing stories.

[0:10:40.0] BF: With Michael Burry, there's not a whole lot of credibility that claims that he's making, but because everyone knows who he is from the Big Short, everyone wants to listen to him.

[0:10:47.0] CP: The tone that I'm getting from people is, "Aha! I knew there's something wrong with index funds." Go and answer this one.

[0:10:52.3] BF: Yeah. We answered it. The concern is saying that because index funds are large cap weighted, if we're talking about market cap weighted index funds, the thinking goes is that if money is just pouring into these funds, then you have to buy more of the bigger stocks to beat the index matching needs of a market cap weighted index fund, which is going to artificially push up the prices of the bigger stocks.

[0:11:11.0] CP: These are creating demand for the shares, prices are being bid up.

[0:11:13.3] BF: Well, suppressing the demand for smaller stocks, because the index funds have to buy less, or even none of those, in the case of something like the S&P 500. That's all scary sounding. I think that there are a couple things that are really important to understand. One of them is how much assets are actually indexed, which is actually irrelevant to the discussion and we'll talk about that more in a second, but it's still an interesting data point.

People throw around half the market is indexed. It's not. Blackrock did a study in 2017 for global stocks. Vanguard did a similar one in 2018, but the global stocks was more interesting. They found that 17.5% of the total global market is owned by index strategies.

[0:11:49.3] CP: Index strategies. That's the key point. Just because it's an index fund, doesn't mean people are owning it passively for the long-term.

[0:11:54.8] BF: Right. Now where the 50% figure comes from is that 50% of the US fund universe, 50% of US ETFs and mutual funds are –

[0:12:02.1] CP: Which is a subset of the retail world.

[0:12:04.0] BF: - are index. Right. In aggregate though, globally, 17.5% of the market is indexed. In actual index funds is only 7.4%. The difference, the other 10% is institutionally run, but in-house index mandates. Index funds 7.4%. If we're just talking about indexing in general is 17.5% of the market. That was in 2017. Vanguard found somewhat similar numbers when they looked at this last year.

Now, I said that was irrelevant to the discussion and it is. It's just a point of interest. The reason that it's irrelevant is that assets AUM, assets under management don't set prices. They play no role in setting security prices in stock prices. Trading sets prices, so that's a question we need to ask.

[0:12:46.2] CP: A very small part of the trading is actually done by index funds, because the turnover is so low by and large.

[0:12:51.5] BF: The turnover is low. The other big piece of that is that the turnover only happens when there's creation or redemption. The vast majority, Vanguard looked at this in a paper last year, 94% was the median, I think. 94% of ETF transactions are happening on the secondary market.

[0:13:08.1] CP: That really surprises me, because I would have thought there'd be more units being created to provide the supply side. That's what the data point is. Still, to me is the trading activity. The other point that Larry [inaudible 0:13:18.9] made in his article on this talks about how you would think money is flowing from active management to passive management, but there's still all those active funds out there. Even though the dollars in those funds have dropped, there's still money in those funds and those active managers are still the ones setting prices, even though it may be on less volume potentially.

[0:13:36.8] BF: This is Vanguard's next point in this paper and they're – one from Blackrock in 2017, one from Blackrock in 2018 that we can link in the show notes, but they're both fantastic in terms of providing real data to think about this. 94% of ETF trading is done in the secondary market. Then the next data point that follows that is that the actual amount of securities transactions, not the percentage of trades in aggregate executed by index strategies, 5%. 95% of trading is still being done by active managers.

[0:14:03.8] CP: Yeah. That's that I would have guessed.

[0:14:06.1] BF: Then Blackrock, they'd found that for every \$1 of stock trades placed by index funds, there were \$22 of trades placed by active managers. It always leads back to that, the Grossman Stiglitz paradox, where markets can't be perfectly efficient, because if they were,

everybody would index. If everybody indexed, prices would be wrong. Burry is saying that's happening now, what you might call like peak index or something. One of the things that matters a lot about this is who's getting out of the game of active management?

[0:14:32.0] CP: Right. You would expect the weaker active managers are getting out. Therefore arguably, you have the better active managers there, so you can probably make a case that it's even better price discovery going on now.

[0:14:41.8] BF: Yeah, following French out of paper in 2005, where they made that exact argument. If assets flow out of the unskilled active managers, because they can't keep the assets because they're not skilled, markets would get more efficient. There's another paper arguing that markets are getting more efficient because of index funds that I found from 2019.

They made the argument that because index funds are so big on securities lending, like we've mentioned it a few times with index funds, they passively own this huge basket of securities, which makes them really good at lending them out to hedge funds who want to short the securities. Because index funds are competing for this lending market, it's driven down the cost of lending, which has made shorting cheaper and easier, which again, is an argument for better price discovery. If it's easier to short securities, there's more information going into prices, more quickly for less cost.

There's one more piece on this. If what Michael Burry is saying is true that large cap stocks are being over-priced and small cap value stocks are being underpriced, what would you do? Tilt toward small cap value, tilt away from large cap growth. The nice thing about that is you should probably be doing that anyway, because that's where expected returns are higher. Whether the market's broken or not, tilting towards small cap in value and away from large cap growth is probably a good idea.

[0:15:46.6] CP: Yeah. The time now is similar to what it was in the late 90s when growth stocks were quite expensive on a relative basis. There's some neat data points flying around. Our friend Eric Nelson, the US has a great Twitter feed on the data around this. He said, "What happened to 10 years after the last time US growth stocks went on a tear?" Some data points, so that 10 years following that, so 2000 and 2009, the Russell 1000 growth index was down

33% and a Dimensional-type US course, which is a portfolio tilted towards smaller cap and value was up 49%.

The numbers don't really matter, it's more the directionality of the difference in those two types of returns. A lot of people now are just – I think that's such a great run with the US growth stocks.

[0:16:26.9] BF: Yeah, we'll see. It's going to be super interesting to see if history repeats itself from the early 2000s to now, because it now looks very similar to the early 2000s, but by 2001, it had completely reversed.

[0:16:37.1] CP: Who would have thought, [inaudible 0:16:37.6] number to the Jim Cramer now of CNBC famous show Mad Money, which I know you're not necessarily a big fan of, but his thinking on index funds has changed.

[0:16:46.9] BF: Is this real?

[0:16:47.7] CP: This is real.

[0:16:48.7] BF: I didn't go and –

[0:16:50.0] CP: This is real.

[0:16:50.8] BF: That's crazy.

[0:16:51.5] CP: Yeah. After more than a decade on the air, Cramer took to the airwaves to explain that his thinking around investing has evolved over time. Has a broadcasting a message, "I'm cognizant the market is hard. You got time burdens, you got demands," he said. At the same time, he acknowledged that investors can easily become bewildered trying to pick new stocks. "That's why I've emphasized that I'm not just okay with index funds, but I insist you use them."

[0:17:14.1] BF: Is he still saying people should pick stocks, or is that just for fun, or what's his end?

[0:17:17.3] CP: He's saying that's who you should do. I mean, he's talking about people later in this article that have – until you have \$10,000, you should never look at individual stocks. Of course, he's still going to be out there promoting individual stocks. I read this article, I would have thought it was an April Fool's joke.

[0:17:31.7] BF: I wrote an April Fool's article like this years ago, which is why I asked if it was real. Interesting.

[0:17:37.8] CP: Anyways, so it will be proven that we're nuts. We got sucked into story that doesn't make sense and we'll have to meet a couple later, but it's interesting how we're talking about Michael Burry's article. Then he's saying that we're in Jim Cramer says, "Hop on the index." Anyways, portfolio topic.

[0:17:50.7] BF: Cramer's not shutting down the show though?

[0:17:52.0] CP: No, no. The show is going to go on, because the show has probably one of the highest rating shows, I'm guessing. Negative interest rates, portfolio topic.

[0:17:58.8] BF: Yeah. Some people have requested that we talk about negative interest rates from an economic perspective. We're not economists, so we're not really going to talk about that. Would be interesting to have a guest on, I guess. What we're going to talk about today though is how negative interest rates affect a global fixed income allocation. People know ETFs from Vanguard, like VBG and VBU, which give you currency hedged exposure to the global bond market. If you own those and you know that there are negative interest rate countries out there, that might seem concerning.

[0:18:29.5] CP: Why would I want to buy a bond that has negative interest rates?

[0:18:32.0] BF: Exactly. That's exactly the question that – I think –

[0:18:34.5] CP: I'm paying them. Just give me my money back.

[0:18:35.9] BF: Yeah, for safety.

[0:18:37.1] CP: Give less of it back.

[0:18:38.9] BF: When we talk about currency hedged global fixed income, there's a concept called covered interest rate parity, which is extremely important to the concept of investing in global bonds.

[0:18:49.5] CP: Basically, it's a fancy way of saying there is no free lunch.

[0:18:52.2] BF: There's no free lunch. It's a no arbitrage relationship, where if you're investing in assets with similar risk profiles denominated in different currencies, you should not be able to get well, a free lunch.

[0:19:04.4] CP: Right. You can't take your Canadian dollars and go invest in a bond at another country in their currency, that might be higher interest rates, and get that free spread.

[0:19:12.5] BF: Correct. The reason that you can't get that free spread is because of the expected currency differentials based on the levels of interest rates in each country. That sounds confusing and it is. The way that expected differential is reflected is in the forward rate. If a forward contract is usually a short-term, like a one week, or one-month contract, that can be used to offset or eliminate your currency exposure.

When Vanguard is going to invest in global bonds, they're offsetting all of the currency exposure every month or every week with one-month forward contracts. Your return on the one-month forward contracts must be based on covered interest rate parity, must be the same as the differential between the interest rate, the short interest rate in your country and the foreign country.

[0:19:57.0] CP: It must be.

[0:19:58.0] BF: It has to be, otherwise there's an arbitrage opportunity.

[0:20:00.7] CP: Correct.

[0:20:01.4] BF: If we assume that there's no arbitrage, which is a safe assumption to make in most cases, you must expect to receive as the hedge return the difference between your home rate and the foreign rate.

[0:20:14.8] CP: That also works in countries that might have negative interest rates.

[0:20:18.9] BF: This is the thing that's fascinating. It's even more of an effect. Well, it's not more of an effect. Whatever you're receiving as a head return, whatever the differential is between the foreign rate and your home rate. If Canada's short rate is whatever it is, it's 2%, and the German rate is negative 1%, your hedge return based on covered interest rate parity must be the 3% difference.

[0:20:38.3] CP: It basically has the yield curves of foreign countries start at the same point as your yield curve.

[0:20:43.0] BF: This took me a while to wrap my head around. What you just said is absolutely true. Say, we use the German yield curve, just say for example, the Canadian yield curve is flat and the German yield curve is upward sloping, but the short rate in Germany is negative. You look at the German yield curve and say, "Nice-looking yield curve, but I don't want the negative rate." If you use currency hedging, if you use the one-month forward contracts, you effectively bring the short rate and every single point on the yield curve up by the amount of the rate differential between Germany and Canada.

[0:21:12.4] CP: If you find that steep yield curve attractive, you would want to pick up those German bonds.

[0:21:17.2] BF: As you should, right? In the case of Dimensional, it's a little bit different because they're specifically targeting steeper yield curves. In the case of something like Vanguard, where they're just owning everything regardless, you would still want steeper yield curves, because your fixed income return is going to come from a combination of yield and capital appreciation and you're going to expect more capital appreciation on fixed income the steeper the yield curve is.

[0:21:40.6] CP: Exactly.

[0:21:41.4] BF: Anyway, I still think that global fixed income is extremely attractive for anybody, especially because Vanguard has these currency hedged ETFs. I think that the concept that you can take advantage of the shape of a yield curve, which is an extremely important part of your total return when we're talking about fixed-income, you can take advantage of the shape of the yield curve without having to worry about negative short rates in a given country. I think that's pretty compelling.

[0:22:03.3] CP: Pretty compelling. Bad advice of the week.

[0:22:05.7] BF: Yeah. There's a paper that came out. I have found it on Reddit. They were looking at Brazilian day traders. The paper was titled and that was asking the question, can you do day trading for a living? The paper was just titled Day Trading for a Living? I just pulled the abstract of the paper. They showed that it's virtually impossible for an individual to day trade for a living, contrary to what course providers, I guess like day trading course providers claim. We observe all individuals who began to day trade between 2013 and 2015 in the Brazilian equity futures market, the third in terms of volume in the world, and persisted for at least 300 days. 97% of them lost money. Only 0.4% earned more than a bank teller. The top individual only earned \$310 per day with a great risk.

[0:22:48.8] CP: This was three years of data in Brazil.

[0:22:50.9] BF: Correct.

[0:22:51.7] CP: Equity futures market.

[0:22:53.1] BF: Correct.

[0:22:53.9] CP: Okay.

[0:22:54.4] BF: They found no evidence of learning by day trading, so people weren't getting better by nature of having experience as day traders. Anyway, interesting data point. Then I mentioned Daniel Crosby, one of the things that I was listening to from him, he talked about a study where they found day traders who self-selected as market bidding day traders.

Our starting sample is day traders who say they beat the market and they then monitor their performance going forward. I don't remember the data points, but it was a very small percentage. It was what you'd expect. Barely any outperformed the market. The most interesting point about this and this is – he was talking about overconfidence when he mentioned this study, a good portion of the day traders who were not beating the market thought that they were. The study is looking at their actual returns, but and they're also asking them how are you doing.

[0:23:35.0] CP: They have bad returns data.

[0:23:36.3] BF: Maybe they don't know how to calculate returns. I don't know. Their perception, they're beating the market.

[0:23:40.6] CP: Their story.

[0:23:41.4] BF: In reality, they're not beating the market.

[0:23:43.0] CP: Wow. Not surprising, but –

[0:23:44.1] BF: This wasn't really a bad advice of the week. It was just interesting points about day trading. If anyone tells you to day trade, that would be bad advice.

[0:23:49.8] CP: To finish up the show today, we will be doing the teach Ben's mom all about factors.

[0:23:55.6] BF: Yeah, we hope you enjoy it. We've been saying we do this for a long time and we finally actually did it. It was an interesting exercise. I hope it's easy to listen to.

[0:24:01.5] CP: I had a lot of people ask for it and said they've been looking forward to it. It's an area that we live in obviously and it's so second nature, but you have to watch the jargon. It's so easy to get into the jargon, but I think she got it. I mean, your mom's a – I mean, she's a professional. It was interesting.

[0:24:17.8] BF: It was interesting. Well, people can tell us what they think about the conversation. It was definitely an interesting exercise.

[0:24:22.7] CP: All right. Thanks for listening.

[CONVERSATION WITH GUEST]

[0:24:29.1] CP: Okay, so we have a special guest, long-awaited guest on the show. We've talked about having Ben's mom come in, so that we can try to explain factors to her. Andrea Felix, welcome to the show.

[0:24:38.5] Andrea Felix: Thanks, Cameron and Ben.

[0:24:40.7] BF: Welcome mom. I think it's useful to maybe give some context, because it's been a while since we said we're going to do this episode. I know we've got a lot of new listeners since then. Someone that listens to the podcast that I know in real life came to me and said that they love the podcast, but we keep talking about factors. Even though we've tried to explain it, they still don't get it. They asked if we could do an episode where we explained it as if I were explaining it to my mom. I said to Cameron, "Hey, it would be cool if we just actually explained it to my mom."

[0:25:08.0] AF: Here I am.

[0:25:09.1] BF: Here you are. That's it.

[0:25:10.9] CP: I think it's a great idea. Can you tell us off the top what do you know about factors?

[0:25:15.9] AF: I only know a little bit. I happen to be a clinical counselor. Through my work and training in the field of psychology and people, they use factors to do what we call factor analysis in creating personality traits. That's basically clustering together like-minded traits. Then we call them things like, open-mindedness, or extroverted, or introverted. That's the extent of my knowledge. I know nothing about financial factors.

[0:25:49.7] CP: You do have a scientific background and appreciation for what factors might be in our world.

[0:25:54.5] AF: Yes.

[0:25:55.4] BF: I never, to be honest with you, really even thought about the word factor extending to other disciplines. What you just explained is – that's in itself pretty interesting.

[0:26:05.5] CP: Ben, where did factors come from?

[0:26:07.2] BF: Oh, you're going to put it on me.

[0:26:08.6] CP: I'm putting it on you.

[0:26:09.7] BF: Okay, mom.

[0:26:10.5] CP: Everyone knows this is your –

[0:26:13.4] BF: Well, it's got to be a team effort. Just so everyone knows, the intention here is and my mom knows this is that she has to get it, which means if we're saying stuff that doesn't make sense, she's going to ask questions.

[0:26:24.2] CP: Okay, so we'll just jump in and see what happens.

[0:26:26.6] BF: Okay, so I think we start with a price of the stock, do you agree Cameron?

[0:26:30.3] CP: Sure.

[0:26:31.4] BF: Okay. A stock is the value of the company's book value. Book value just means the assets that the company owns basically, like physical assets, a building would be an example of what would make up the book value. The price is the book value, plus the discounted value of future cash flows. I know there are a lot of big words in there, so we'll unpack it.

[0:26:52.1] AF: Yeah, I don't know what a discounted cash flow is.

[0:26:54.3] BF: Yes. That is the most important part, so I'm going to explain it. When a company earns profits, you as the investor you want to invest in that company so that you can partake in the profits. Now you buy a stock, you're buying a stream of profits in the future, because the company is earning profits now, but you also expected to earn profits in the future, which is why you're willing to pay money for it. You're buying the future profits. Now the discount rate, the thing that you asked about, the discount rate is the rate at which you discount those future profits to decide how much you're willing to pay for them today.

[0:27:24.6] AF: Okay. I'm taking away the projections of the future.

[0:27:29.1] BF: You're projecting the cash flows in the future, but the term would be –

[0:27:31.8] AF: You're not counting.

[0:27:33.1] BF: You're counting them less. You're counting the ones in the future less. You're counting them less and less the further that you get out. The reason the discount rate is important is because it reflects the amount of risk in the cash flows. A very low risk set of cash flows, like a very safe company, you would apply a low discount rate, because you're fairly certain you're going to get all of those future profits.

[0:27:55.8] CP: Discount rate, that means that you're charging or expecting a lower return, because it's a safer investment.

[0:28:02.2] AF: Right.

[0:28:03.1] CP: That's why the discount rate is lower.

[0:28:04.9] AF: Lower.

[0:28:05.9] CP: Right? You're paying a bit more now to get more certain future cash flows. Whereas, it's a riskier stock with more uncertain future cash flows, you're going to say, "Well, for me to own this, I'm going to pay a lower price." Therefore, ensuring you of a higher expected

return. The riskier the investment, the higher the expected return. Otherwise, why would you invest in it? I'm not sure we're succeeding here.

[0:28:29.1] AF: Yeah. Can we go back to the discounted value? If you've got a company that has high risk, you're going to project a higher discounted value?

[0:28:39.1] BF: A higher discount rate.

[0:28:40.3] AF: Discount rate.

[0:28:41.1] BF: Which is is going to reduce the amount that you're willing to pay for the future profits. If you're buying a company and you expect to have profits of whatever, a \$1,000 – your share is going to have \$1,000 per year that you're going to expect to get from them. You're fairly certain you're going to get this year's, but less so about next year and decreasingly certain going into the future.

Because of that uncertainty, you're going to be willing to pay less for each success of your cash flow, so that cash flow five years from now, you're not going to pay a \$1,000 for it because you don't have it yet. You're going to pay less and less depending on how risky, or how uncertain it is that you're going to get that future cash flow five years from now, or whatever point in the future.

If it's certain that you're going to get it, you might pay \$900 for it. That's a low discount rate. You're only discounting a \$1,000 cash flow to \$900. If you're really uncertain that you're actually going to get it –

[0:29:26.0] AF: I want to pay 700.

[0:29:27.2] BF: 7, 6, 5, whatever. The less you're willing to pay, that's a higher discount rate. You're discounting the cash flows at a higher rate. Now the reason that this is important is that if you actually do end up getting the cash flows that you expected if you paid less for them, meaning a higher discount rate at the beginning, if you paid less for them, you're going to end up with more return.

Because if you paid \$600 for this \$1,000 expected future cash flow, if you actually end up getting the \$1,000, yes, you took some risk, but you made a \$400 profit in that example. The way that that translates into financial speak, I guess, is when your discount rate is higher, your expected return is also higher.

[0:30:07.9] CP: There's millions of people like you doing this all day every day as they choose how much they're willing to pay for stocks on the market. There's all kinds of people doing this discounted calculation on every trade. You're competing with other buyers. If we're looking at two stocks of identical future cash flows and one's riskier, so the riskier one will have a greater discount rate, therefore, you're paying less, but you're going to be competing with other investors for that same stocks. That competition goes on all the time.

[0:30:36.1] AF: I have another question. How do you determine the risk?

[0:30:39.4] BF: Yeah. That is the question. That's what the market – the market mechanism, what Cameron is talking about, all these people competing with each other to determine how much they should pay for assets, that is –

[0:30:50.3] AF: How risky is that stock.

[0:30:52.5] BF: Correct. No one person can say what the right value is, but the aggregation of everybody's guess regarding what the price of the stock should be, that ends up creating a price and that consensus price has implicit in it the discount rate. Does that make sense?

[0:31:09.7] AF: I think so.

[0:31:10.8] CP: There is a 100 million stock trades a day that go on around the world. What they are doing, they're pricing an enormous amount of information about those stocks and those discount rates all the time. Academic science has worked on this for 50-plus years and that's where they have discovered that certain factors explain expected returns.

[0:31:31.8] BF: We need to back up, because we're still at risk. Factors decompose risk into different types of risk. Where we are now, so we're at the place where a higher discount rate indicates a lower price. You're willing to pay less for the future cash flows. You're competing

with all the other people, so even though nobody can say definitively how risky a thing is, the market's price is the best proxy that we have for how risk – we know how risky the market thinks the thing is. Even if I can't say this discount rate should be 6%. What we can do is look what is the actual price, what are the company's actual expected cash flows? From that, we can figure out what the market is applying as a discount rate.

We can look at market prices and use those prices to figure out which stocks the market thinks are riskier, if we look at two different stocks with the same expected future cash flows. You're an investor looking at these two different stocks, both of them you're expected to get the same amount of future cash flows, but one of them is trading at a lower price. They're same expected future cash flows, but this stock is trading for – it's \$10 and the other one is \$11. The \$10 stock, the market is deciding that stock as riskier, because these two companies have the exact same future cash flows, expected future cash flows, but one of them is cheaper.

[0:32:44.9] AF: The market is determined by all of these millions of people that are investing and they have determined that there's more risk in that one?

[0:32:52.6] CP: Or these people bidding on to buy shares and offering to sell shares at a certain price. That trading activity goes on all day. This calculation, the opinion around those future cash flows is going on all day every day all around the world.

[0:33:08.0] AF: Algorithm puts it all together.

[0:33:10.0] BF: The market is the algorithm. I mean, there's no – The market is the mechanism that allows people to execute those transactions, which allows the information that they have to go into the price. We can use the price to figure out how risky the market thinks different stocks are.

[0:33:23.7] AF: Okay.

[0:33:24.6] BF: Good?

[0:33:25.3] AF: Yeah.

[0:33:26.2] BF: Okay. Where we get to factors is that the academic research has identified there's more than one type of risk that is going to be included in that discount rate. The main risk that's included in the price of any stock is the risk of the market as a whole. That's the whole entire stock market, which goes up and down over time based on a whole host of different factors and that creates a risk. That's market risk.

[0:33:50.5] AF: The baseline risk. Everybody is exposed to that risk.

[0:33:53.5] BF: Perfect. Baseline risk. Now depending on the characteristics of a company, it may be exposed to other risks that on average, are included in prices. Those risks are smaller companies tend to be riskier than larger companies, tend to be viewed as riskier than larger companies by the market, which intuitively makes sense, I think.

Cheaper companies and this is the example that we were just talking about, less expensive companies, so all else equal, two companies with the same profits, but one company is trading at a lower price relative to its book value. That cheaper company has an additional risk priced in by the market.

[0:34:27.0] AF: Why? I don't get that one.

[0:34:28.8] BF: It's just the why is – the Y has been answered by the market, we're just observing the outcome. It's ;ole two stocks are the same expected future cash flows, but one is trading at a lower price.

[0:34:40.4] AF: It's not because they're trying to undercut another company, it's just that the people have the –

[0:34:45.5] CP: Visible to price that the market is putting on. If we look at two companies with identical cash flows and this one's cheaper, there must be a reason. What you think is a reason, what I think is a reason may be different, but there's something going on. Might not like management, sales might be getting crushed, they have bad data on their balance sheet. Who knows what the reason could be. The fact is there's millions of trades that are causing that stock to be priced lower, therefore, higher expected return.

[0:35:09.5] BF: We don't know the why. We just know the outcome. We know that this price is lower. From that, we can decide that the market is pricing this stock as riskier.

[0:35:16.5] CP: The key thing is there's information in that price. You can tell that something is going on.

[0:35:22.1] AF: They got a weakness, or a vulnerability, or something.

[0:35:24.5] CP: If your price of your stock is going down more than other competitors for example, there's something going on there that the market is seeing. All the millions of analysts around the world see something.

[0:35:33.9] AF: There's a trend.

[0:35:34.1] CP: We just want the information, the result of that information, which shows up in the price.

[0:35:38.0] AF: Okay.

[0:35:39.1] BF: We covered market factor, we covered the size factor. The one that we were just talking about where a lower price means more risk, that's the value factor. The profitability factor is well, it's the inverse of the value factor. If a more profitable company is trading at the same price as a less profitable company, the more profitable company must have a higher discount rate applied to its cash flows.

[0:36:04.2] CP: This is totally counterintuitive.

[0:36:05.8] BF: It is. This company is generating 10 million dollars a year in profits. Company A is 10 million dollars in profits, company B is generating 8 million dollars in profits, but their price relative to their book value is the same. That means the profits of the more profitable company are being discounted at a higher discount rate to bring their prices to be equal.

[0:36:26.5] CP: All other factors being equal, a more profitable company is riskier because this price is being kept the same as other less profitable companies. Therefore, there's something

going on that notwithstanding the profit. There's something causing the price to be lower relatively speaking. Therefore, it's got to have a higher expected return. Counter-intuitive.

[0:36:44.4] AF: It is counter-intuitive. I'm thinking it's a price inflation. Then you think well, is that more profitable in the future, or not? Is it an inflation, or is it –

[0:36:57.8] BF: The prices being it's lower than it would be –

[0:37:01.8] AF: Based on its riskiness.

[0:37:02.4] CP: It's basically a price compared to the book values. Two companies have identical book value. One company has way more profit than the other, but their price to book value is identical. There's something going on. If it's more profitable than the other one, why is it being priced the same? It must be risk going on there, that now was staying at higher profit. You as a buyer will say, "I'm not willing to pay so much for it."

[0:37:24.5] BF: Again, we can't answer the question of why necessarily. There are a lot of different theories that try and explain the why, but we don't really know. Nobody really knows. There are competing theories trying to explain the why. We just know that that's the outcome. If a more profitable company has the same price relative to its book value as a less profitable company, there's some additional risk included in the price.

[0:37:45.8] CP: The question you asked about why is pretty interesting, because in our world we don't really care about why. Most of the industry we work in always tries to explain the why and predict why they think something's going to happen. Well, we think Apple's undervalued, or we think that Intel's overvalued, or whatever it might be. We think the markets got this wrong. Well, to say the market has a price wrong, it's a pretty bold statement.

[0:38:08.2] BF: It's a bold statement. I don't know if I would say that we don't care about the why. We just think about the why very differently, right?

[0:38:15.0] CP: The specifics of the why, we could never know, because you never know truthfully what the market in aggregate is on an opinion basis thinking. We just know the information is in that price.

[0:38:24.8] BF: You're right. We don't care what the specifics of the why, but we are relying on the why being risk. We're relying in those differences in prices being based on a risk.

[0:38:33.5] AF: Be able to step back and just look at here's the picture. It doesn't really matter why it is looking like that, but to know that that's a pattern that we want to look at and then say, "Ah, okay. This is something that's worth investing or not worth investing."

[0:38:49.9] CP: Why would you as an investor care about these factors?

[0:38:53.3] AF: Because I would want to make good profits, or I want safety.

[0:38:58.3] CP: There we go.

[0:38:59.7] AF: Yeah. Either way, I would either want to take a risk and attempt to make more profit, or I would want to be safe and go with a lower –

[0:39:10.4] BF: Discount rate.

[0:39:10.9] AF: Discount rate.

[0:39:11.5] BF: You got it.

[0:39:13.1] BF: Yeah. I think you're right. You want to earn as much profit as you possibly can. The way to do that is to have more priced risks, more of these risks that we're talking about in a portfolio. The more different ways you can find stocks that are trading with a higher discount rate, the more expected return you have in your portfolio. Now I think from the perspective of the factors that you're familiar with in your own field, that the next piece of this whole concept is that you can use regression analysis, which I think is what you're talking about when you're talking about the common characteristics.

[0:39:47.0] AF: Yeah. You try to predict somebody's personality and the future of that, right? There's an assumption that that's something that's going to be stable. That once you collect these factors, you can determine that that's going to be these traits, their sustainability in that.

[0:40:03.1] BF: Right. With our financial risk factors, you can do something similar, where if you look at the returns of say, two different portfolios and you're trying to figure out why do these two portfolios have different returns, you can use the factors to explain about 95% of the differences in returns between these two portfolios just based on their level of exposure to the various factors. Anytime that two portfolios have differences in returns, that difference is almost always going to be pretty well completely explained by exposure to these risk factors that we just talked about.

[0:40:36.2] CP: Therefore, you can build a portfolio of risk factors based on your risk tolerance, to get the higher expected return as safe as you possibly can.

[0:40:43.5] AF: You can take all the companies that look like this particular –

[0:40:47.3] CP: Value or a small cap and crop it altogether and get rid of the risk that you don't typically get compensated for, which is individual security risk. You want lots of different securities in each of these factors inside your portfolio, because all the value stocks will perform similarly. Small companies will perform similarly. Yes, some will be better or worse. You just want to capture the factor to have a more reliable outcome.

[0:41:11.1] AF: Based on what? I know about PWL. Wouldn't I want a diversified portfolio that has both?

[0:41:18.2] BF: Yes. You got it. Step one is you can't just own one stock.

[0:41:24.6] AF: Yeah. Just not all small companies, or not all.

[0:41:27.4] BF: Even beyond that, if we if we just found a small company, the smallest company and said, "I'm going to buy this, because it's got the highest expected return," that's true. It does. There's one risk that we haven't talked about yet, which is the specific risk of any company. That's a risk that is not priced. This one small company, it's got a discount rate that's based on market risk and it's based on size risk and maybe value, but the risk of that individual company, the risk of the CEO getting hit by a bus, the risk of –

[0:41:53.3] AF: The situational risks.

[0:41:54.7] CP: Correct.

[0:41:55.9] AF: That's the same as a person.

[0:41:58.1] BF: Right.

[0:41:59.3] AF: If somebody might get hit back crisis and you don't know how their personality traits are going to respond to that. Yeah.

[0:42:04.4] CP: You can diversify away from that by having lots of stock. Yes, our portfolios have thousands and thousands of stocks.

[0:42:09.8] BF: To your point mom, if you had just all of the small cap value stocks, you would have high expected returns, but it would be a very volatile portfolio. It would go up and down in price a lot. You'd be betting a lot on one factor, on the size factor. Like Cameron was saying, the way that we do portfolios is a mix of all of these different factors; you have the market factor, you have value, you have size all mixed together inside of a portfolio.

[0:42:38.8] AF: Right.

[0:42:40.3] CP: Did we accomplish the goal?

[0:42:41.3] AF: I think so.

[0:42:41.9] CP: You think you get what factors are?

[0:42:42.5] BF: Do you feel like you get it?

[0:42:43.1] AF: I feel like I get it. Yeah. Factors are based on various traits. The value of the stock is based on the market, the people out there that are determining that value and that the – I can't remember the name of it again, the devaluation –

[0:43:02.3] BF: The discount rate?

[0:43:03.2] AF: Yeah, the discount rate is dependent on the projections of the future.

[0:43:09.1] BF: How risky the company is.

[0:43:10.1] AF: Then you create a portfolio based on like-minded factors, but you want to also create a portfolio that's diversified.

[0:43:19.0] BF: Yeah. You gain exposure to each factor in a portfolio and mix all the factors together.

[0:43:24.5] AF: That there's still always risk involved, because you never know how a situation is going to affect.

[0:43:29.2] BF: That's true. The portfolio is going to go up and down in value, but that risk of the individual company that we talked about, by owning all of the companies, that risk effectively goes away.

[0:43:38.2] AF: Yes.

[0:43:38.9] BF: That company's specific risk, that is effectively gone when your own thousands of companies.

[0:43:43.9] AF: Because it's balanced by all the other profitable ones.

[0:43:46.7] CP: Exactly.

[0:43:47.4] AF: Great.

[0:43:48.2] CP: Super.

[0:43:48.9] AF: Thanks Cameron and Ben.

[0:43:50.6] CP: Well, thanks for joining us.

[0:43:50.9] AF: I feel much more knowledgeable now.

[0:43:52.8] BF: Thanks for coming.

[END]

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