EPISODE 60

Valuation Theory and the Imminent Recession

[INTRODUCTION]

[0:00:06.1] 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.

[0:00:16.5] Cameron Passmore: One of the things I wanted to talk about right off the top with you, instead of just introing the episode was, is doing a podcast something you'd want your financial adviser to be doing? I think it's a pretty cool question. I can say from this episode 60, so we've had whatever, 30 or so interviews with special guest. There's been a many that have changed and improved how we think.

[0:00:39.3] BF: Absolutely.

[0:00:40.0] CP: We've come across people helping us in our practice. We've gotten to know after the fact that we reach out to as subject matter experts.

[0:00:46.1] BF: Recency bias in effect here, so apologize to older guests. Alexander McQueen that we just had on in our last episode, that has well, in the research phase now, but that may have, we'll see what the outcome is, may have had a fundamental impact on the way that we structure our overall asset allocation, product allocation.

[0:01:02.7] CP: Yeah. We're exploring new tools and changing our framework of thinking around retirement and the use of annuities.

[0:01:10.4] BF: I never would have put my head into that, into annuities. I read her book, because she was coming on the show and yeah, I learned a ton. It is an interesting question. I'm sure other advisors out there are putting tons of time and research and understanding these different things, but we put a lot of time into researching, understanding these things. Guest episodes, you're right, subject matter experts, we learn a ton.

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Just the amount that we dig into stuff for the conversations that we have with each other, it's a real motivation for us to put a lot of time into understanding and researching and being able to talk about a wide range of topics.

[0:01:41.1] CP: Trying to get better at communicating some of these concepts, because they aren't easy. As you hear in this episode, we talk about valuation theory, or I basically get Ben to talk about evaluation theory, which is complicated, but I think you did a good job of bringing it back to showing how science and technology is evolving, or the decades hopefully leading to a better investment experience.

[0:02:02.1] BF: You know that, the PC just said Cameron, the communication, that's for us in our role dealing with clients, we just had Moira Somers, who was on the podcast a while ago. We were speaking with her last week. We can have the best advice in the world ,the smartest advice in the world and we can have all the data and all the understanding of what people should do, but if you can't communicate that in a way that people will understand and be able to action, it's completely useless.

That can be like, what is our role? We're not stock-picking portfolio managers. We're here to help you make good financial decisions, but how do you do that? It's all about communication. To communicate, you have to understand on a certain level that you can get other people to understand too. It's pretty interesting stuff.

This episode, like Cameron mentioned, we talked of evaluation theory. I'll post links to the papers for sure, but I'll also post a little summary of my take on evaluation theory. I also have the equations on there, so if you go to rationalreminder.ca episode 60, you'll be able to see the equations as we're talking about the mystery out of computer, I guess. That might help, because there's a lot of numbers and relationships.

[0:03:02.9] CP: Right. Here we go.

[EPISODE]

[0:03:09.7] BF: Welcome to Episode 60 of the Rational Reminder Podcast.

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[0:03:12.7] CP: Off the top, I think we should be talking about the question that we're getting the most often lately, which is the obvious recession that's coming.

[0:03:19.1] BF: Yeah, the recession is coming. Haven't you heard?

[0:03:20.9] CP: Well, of course. Why would you want to buy now when the markets going to be lower in a few weeks? It's pretty much a no-brainer, of course. If it was that obvious as I always say, the market would already be there. Frankly, it was coming up on a discussion in our office. Pretty safe to assume that the rest of the market already knows this information.

[0:03:36.0] BF: I think it's coming up everywhere. It's online. Anywhere you look, people are talking about the recession. They're not just talking about the recession, they're talking about the impending recession, this recession that is about to start.

[0:03:45.5] CP: Well, we've been this long at the cycle. After 10 years, it has to happen. Of course, the yield curve has inverted. That's a dead giveaway.

[0:03:52.0] BF: The challenging thing is that's true, to take it back to reality. That's probably why people are talking about this is because the US yield curve is inverted and nine for nine, the last yield curve inversions and the US have been followed by an economic recession within 14 months.

[0:04:06.9] CP: Yield curve is on short-term rates, or higher than long-term rates, in simple terms.

[0:04:11.2] BF: Correct. The central bank is setting short-term rates, but the market is dictating the longer-term rates with bond prices. If the market thinks that a recession is coming, the story goes that people are buying longer bonds, which is pushing their prices up and pushing yields down, causing the yield curve to invert. It's supposed to be some signal.

[0:04:30.6] CP: I saw one of Trump’s economic advisors on the weekend, saying long bonds are going up, because so much money is coming from around the world, viewing the US as a safe market, so driving the prices up, so long-term yields drive down. He was putting up quite a positive spin on the optimism about the US.

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[0:04:46.0] BF: Then last week, we had some market volatility, and so everyone is like, “Oh, there it is. There's a recession.”

[0:04:51.9] CP: Yeah, it came finally and then it seemed to go away. We're recording this on Monday the 19th. Friday, the market was up, today it's up again. Maybe it was here for a few days last week.

[0:05:02.3] BF: The funny thing is that the stock market and economic recessions have not exactly had a strong relationship historically. Ben Carlson, Wealth of Common Sense, did a post on this a while ago now. He found that the S&P 500 has had 20 bear markets, which he defines is down 20% or worse and 27 corrections, defined as down 10%, but less than 20% since 1928.

[0:05:24.3] CP: 47 events.

[0:05:26.0] BF: The average losses saw stocks fall 24%, the drop lasted 228 days from peak to trough on average. Of those 47 double digits selloffs, 31 of them occurred outside of a recession and did not happen in the lead-up to a recession. He infers from that that 66% of the time, the market has experienced a double-digit drawdown with no recession as the main cause.

[0:05:47.8] CP: Yeah. I mean, we're making light at this, but what we're really making light of is the fact that people think it's so easy to predict when this is going to happen. I think it's because they connect the news and the stories in the news with wild, perceived to be wild market swings.

[0:06:00.9] BF: Yeah. There's some interesting data too on, like what if you did use the yield curve? Because in the US, nine for nine, it has predicted recessions, or preceded recessions. I looked at the data for the financial crisis, so the US yield curve inverted in February 2006. After that, the S&P 500 posted 14.52% return over the next year.

[0:06:20.2] CP: Amazing. That's the year before the crisis.

[0:06:22.7] BF: Yeah. The yield curve became upward sloping again in June 2007, which was well in advance of the market’s major downturn. If you tried to time the market on the initial yield

curve inversion, you would have missed the big gain. If you then bought back in when the yield curve went back to normal, you obviously invested right before the big crash. There's also the global data on yield curve inversions. It's not as obvious as the US data. We have the data on Australia, Germany, Japan, UK and the US back to 1985. There have been 14 yield curve inversions.

After 10 of those inversions, market returns were positive for three years in the local stock market. It's like, number one, we don't know if there's a recession coming. Number two, the yield curve inverting does not necessarily predict a recession. Number three, even if it does, it doesn't help you make market timing decisions.

[0:07:07.9] CP: Right, because it can happen outside of those inversions anyways.

[0:07:11.5] BF: Yeah. There's another data point that – I didn't have my notes, but most of the time, if not all of the time, we don't know that the recession has happened until it's either well on its way, or it's over. You don't really know if it was a recession, until after the fact. The whole talk about the recession is coming and what should I be doing and are we in a recession, it's ridiculous.

[0:07:29.9] CP: I think back to the interview we had with Dave Goetsch, talking about why not just embrace variable returns and volatility and just get used to living with it and make sure you have a portfolio that's appropriate to your tolerance?

[0:07:41.9] BF: Yeah. Such a waste of time talking about the recession.

[0:07:44.5] CP: That was bonus topic of the days. Now we're onto our current topic. You want to talk about some new asset allocation ETFs that have come out?

[0:07:52.0] BF: Nothing too crazy, iShares came out with a couple more products. They've got, I think the same lineup as Vanguard now. From 40 stock, 60 bonds, right out to a 100% stocks, there's now a full suite of asset allocation ETFs on both sides. They might actually even go more conservative than 40 stocks. I can't remember.

[0:08:07.9] CP: There's 30 in total, right? With about 4 billion of assets in Canada.

[0:08:11.1] BF: 30 asset allocation ETFs. Yeah. That's now iShares, Vanguard, BMO, Horizons.

[0:08:16.5] CP: CI's got a new one that came out, which is actively managed global asset allocation fund, ETF I should say. MER is at 60 basis points. I pulled out a table showing just to see well, how much sales are going into these funds, how much new assets are going. We peeled off the top 20. The top 20 ETFs with the greatest redemptions in, pretty amazing how eight of 20, the top selling ETS for July of this year were from Bank of Montreal, bringing over a billion dollars of net assets.

[0:08:44.2] BF: They've been pretty focused ever since ETFs started to become a real market in Canada. BMO's been hyper focused on being one of the leaders and they've done a good job.

[0:08:51.2] CP: They've done a very good job. It's amazing how Vanguard is right down a position 19, 18 and 12. Unit 12 spot was a Canadian bond ETF that brought in 83 million dollars. It's incredible to me that with their great one decision portfolios, that's their number one seller in Canada in July.

[0:09:09.1] BF: Well, bonds have done so well this year. Maybe that's why.

[0:09:12.1] CP: The number one selling fund is the BMO long federal bond index ETF, that brought in 374 million dollars, which is a 55% increase in assets in the month from purchases.

[0:09:23.9] BF: Yeah, it's pretty crazy. That ties into our other current topic for the day, which is Wealthsimple, changing their model portfolios. One of the securities that they added was that long bond ETF.

[0:09:34.8] CP: Duration of 16.

[0:09:36.2] BF: Yeah, it’s long.

[0:09:37.1] CP: Return is in 9.1%.

[0:09:39.8] BF: Yeah. You got to wonder if those inflows are because of Wealthsimple making that change it has to be, or just because bond returns have been so hot, but it has to be from Wealthsimple. You don't have inflows like that just based on recent returns.

[0:09:51.1] CP: The only asset allocation fund in the list and made the top 20 was Vanguard’s balance ETF, the VBAL.

[0:09:56.9] BF: Yeah, it’s fascinating.

[0:09:57.5] CP: 52 million dollars, which is it came to marketplaces like a drop in the bucket for such a great product. Anyways, you want to talk about the current topic number two today? The Wealthsimple portfolio changes.

[0:10:08.5] BF: They changed their portfolios, which is fine. They did a pretty insightful white paper on why they made the changes.

[0:10:14.7] CP: A very well-done paper. Easy to read. No jargon.

[0:10:17.9] BF: Yeah, they did a good job. They did a good job. Detail too. Very detailed. It goes as deep as anybody would want to go, not that I agree with it and we're going to talk with the changes, which we're going to talk about. The big changes Wealthsimple did is they added minimum volatility stocks, longer duration bonds, inflation-linked bonds and they made it more geographically diversified.

The geographical diversification was really I think adding emerging markets and they really stripped down the Canadian equities. Instead of being one-third in Canada, I think for the equity portion, it's about 12.5% now. They really stripped down the Canadian home bias, which is fine. I have no problem with that.

[0:10:54.0] CP: Yeah. We totally agree with the principles they outlined in that paper, risks drives returns, diversification increases risk adjusted returns and outperforming a diversified low-cost past the portfolio is extremely hard. Those three principles were totally in alignment with.

[0:11:08.1] BF: This is Wealthsimple saying, "These are our portfolio management principles that guide how we designed our portfolios." Yeah, like you said Cameron, those are arguably the same as our portfolio management principles. Now the real question is are they being true to those principles? Which we're going to get into.

For Wealthsimple's fixed income allocation, they increased exposure to longer duration bonds and this is Wealthsimple's words. Increased exposure to longer duration bonds, which increase the risk contribution to balance out equities. Added inflation-protected bonds to better protect against inflation. Then the last one is that they've reduced, or eliminated exposure to corporate credit to improve performance in recessions. Again, that was Wealthsimple's words, not mine.

[0:11:45.4] CP: Now queue the factor of critique.

[0:11:48.0] BF: Well, so there are two known risk factors in fixed income, term and credit. You hold longer maturity bonds, you have higher expected returns. You hold lower credit bonds, you have higher expected returns. Wealthsimple in their changes, they've eliminated as they stated, reduced or eliminated exposure to corporate credit. They've eliminated exposure to one of the known factors. That's fine. I mean, it is the decision. It is what it is, but it is an independent risk factor.

[0:12:11.5] CP: Because they wanted to spend more risk dollars on the equity side.

[0:12:15.7] BF: Well, the way that they explained it is that with corporate bonds, you're getting a little bit more correlation with equities, which is true. That is true, but that doesn't mean credit is not an independent source of risk. I don't know if I'd remove it. We have an intentional credit exposure in our fixed income. Anyway, that's a portfolio management decision. That's fine.

With term, the challenge is because they're now going all-in on term. They've said for fixed income, we're not credit anymore, we're not going to take credit risk, we're going to take just term risk, but they're really loading up on term risk. The challenge with term is that in terms of risk adjusted returns, there's a diminishing return the longer you go out on the term spectrum.

[0:12:52.3] CP: That's right. Per unit of risk. You're not getting as much unit of return.

[0:12:55.2] BF: Correct. Loading up on long term bonds, yes, you're increasing your expected returns, but per unit of risk, you're not getting enough bang for your buck to justify the decision. I don't know if I would have done the same thing. That's fine. Now for the inflation protection, I thought this was really interesting when I read the report, because I had in my head, okay, well in Canada, the inflation-protected bonds, they're not super liquid, the market's not that big, so I'm –

[0:13:20.9] CP: Super long duration to it.

[0:13:22.5] BF: Yeah. I was curious to see how they're implementing and they acknowledged all this. I'm reading their port thinking, okay. I wonder how they addressed it. They're using US tips, which is for a Canadian resident, I would say and maybe I'm not the expert here. I don't know, but I would say that using US tips for inflation protection as a Canadian resident with Canadian expenses doesn't make a whole lot of sense.

[0:13:43.3] CP: Is the currency hedged?

[0:13:44.3] BF: If it's not, that's a big mistake in my opinion. Having globally diversified fixed income without the currency hedging, you're going to have equity-like volatility due to currency with fixed income expected returns, if you're not hedging global fixed income exposure. If this is that, if they're not hedging and I couldn't – it wasn't clear from the report if they're hedging or not.

If they're not though, that's an interesting decision. Even just paying the US inflation and saying that's inflation protection for a Canadian, I guess that's betting on the correlation between Canadian and US inflation. Maybe that correlation is high. Maybe we'll continue to be high. I don't know.

Anyway, for us, we don't do any real return bonds in our portfolios. One of the reasons is the available securities in Canada aren't great. I mean, what do you think? Would you go to the US to get inflation protection for a Canadian portfolio?

[0:14:27.1] CP: I don't think so. No. We always hedge our foreign bond exposure.

[0:14:30.6] BF: Well, that's the currency. I don't know. Anyway.

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[0:14:32.9] CP: Let's shift over to the equity side. They shifted part of the equity allocations to minimum volatility, which we talked about recently on the podcast. Then they reduced their Canadian bias. The Min Vol is a very attractive name of course.

[0:14:45.7] BF: Yeah. This is where the principles to me were a little bit disjointed, relative to the words in the report. The Min Vol is one of the reasons. They say that they're reducing equity risk in the portfolio, but we're talking about the principles being wanting to target risk drives returns. We want to target risks. Now we're talking about eliminating equity risk, to by the way, add additional term risk, which has diminishing returns the longer you go out.

Anyway, so it didn't make a whole lot of sense. Adding low-volatility was an interesting decision. Wealthsimple talks about this n the report. The low-volatility anomaly, because it is anomalous, it has now been removed as an anomaly. as soon as Fama and French came up with a five-factor model, low-volatility is completely explained by exposure to profitability investment and value. When we talked with this in the podcast a while ago, we were also talking about how there's time-varying factor exposure.

If you have low-vol, sometimes you're going to get more value, sometimes you're going to get more profitability and there's no real way to know what you're going to get. You’re going to get this unreliable outcome.

[0:15:47.9] CP: Their portfolios don't have fixed allocations to size and value.

[0:15:52.1] BF: Right. This is the thing that's crazy to me. My head is exploding. They're talking about risk drives returns. I'm like, “Yes. Yes, risk does drive returns.” They're talking about adding Min Vol, which is you're getting naive exposure to risk factors.

[0:16:04.7] CP: Not persistent exposure to those factors.

[0:16:06.6] BF: If you understand that risk drives returns, why are you not targeting exposure to knowing risk factors it doesn't make any sense to me at all. Anyway, so they did acknowledge that in their paper that low-vol is going to give you some factor exposure, but they also

acknowledge that there are some other explanations for why low-vol has had good past performance. Anyway, it was just a weird decision in my opinion.

Even beyond adding an additional risk factors, just to get the benefits of low-volatility, Robert Novy-Marx did a paper. He's the guy that discovered the profitability premium. He did a paper explaining that the benefits of low-vol are almost completely explained, or low beta are almost completely explained by the fact that using a low-vol filter eliminates small cap gross stocks with low profitability, which AQR refers to as junk. Then Novy-Marx says, "Okay, well if you want to eliminate junk, just eliminate junk. You get all the benefits of low-vol without the reduction and diversification." Which again, goes against one of Wealthsimple's principle that diversification is a good thing.

[0:17:02.9] CP: The ETF that they're using is a much less diversified portfolio, right? They're using the iShares, MSCI, Min Vol ETF?

[0:17:10.6] BF: Yeah, there are two. They did mostly allocation, the one you just mentioned. They also had emerging markets low-vol. I looked at this ETF and this is a global equity ETF, but Min Vol, low-volatility. It's got 444 holdings. If you compare that to a true just market cap weight global ETF, like the Vanguard total world stock ETF, it's got 8,202 holdings.

I mean, talk about concentration for a global portfolio, which decreases the reliability of your outcome. Then the other issue – so this is Robert Novy-Marx's whole point was to get the benefits of low-vol, you can just kill small cap growth low profitability. He's saying, "Well, if you're not doing that, if you're using low-vol, you're going to get concentration, which we just talked about, but you're also going to get more turnover. You're going to get more securities having to be bought and sold in the portfolio each year."

If we look at the iShares, Edge, MSCI min-vol ETF it turns over, I looked at the annual report, about 24% of its holdings per year. I compared that to VT, that Vanguard total world stock, which returns over about 10%. You're getting a ton more turnover by targeting low-vol. Anyway, so I get the intention, but this is not how I would execute a portfolio change, I guess.

[0:18:16.6] CP: On to our portfolio topic? You want to talk about evaluation theory.

[0:18:20.6] BF: It's way more exciting than it sounds.

[0:18:21.6] CP: It’s way more exciting. I'm going to try to interject and make sure it's coming across clear to our listeners. Tell us why do you want to talk about it. Where do you want to go with this?

[0:18:30.9] CP: Well, we've talked about factor investing in the past quite a bit. We've talked about the empirical component of the factors. We've talked about the empirical validation of the factors and how that analysis has been done and the statistical aspect, which is great and interesting, but we always made references to the theoretical underpinning and why we believe in this stuff, but we never really talked about the theoretical underpinning. I was reading through some of the Fama and French papers where they really established that theoretical underpinning and I was like – I thought it was the most interesting thing ever.

[0:19:00.4] CP: Yes. This is what Ben does.

[0:19:02.9] BF: Yeah, that's true. It is.

[0:19:04.3] CP: Yeah. I know you've always got a point when you come up with these topics. This is a pretty meaty topic.

[0:19:08.0] BF: Yeah. Well, okay. Let's just jump into it. When you buy a stock, you're buying the future profits of a company.

[0:19:13.4] CP: Got it.

[0:19:14.5] BF: That's pretty basic stuff. The price of a stock depends on the expectations for future profits and how risky those profits are perceived to be. Because future profits, you don't have those today, which means you've got to discount those cash flows to their present value. When you're discounting cash flows, if anyone is familiar with basic finance, when you're discounting cash flows, the riskier they are, the higher the discount rates you're going to use.

[0:19:37.0] CP: Which is the expected return, the premium, the return that you're commanding to own that security.

[0:19:42.0] BF: Right. I mean, the way that you can think about the premium is that if we have two stocks with identical future profits, so if you and I are both looking at two different stocks with the exact same future profits, but the stock I'm looking at is way riskier, the stock you're looking at is safer as perceived by us, I'm going to be willing to pay less for that same stream of future profits, because it's riskier, which means I've got a higher discount rate.

It also means that because I'm paying less for the same future profits that you are buying from a different company, I'm paying less, which means if I actually get those future profits, I'm going to benefit more.

[0:20:14.3] CP: In that scenario, yours would be considered more of a value stock than mine.

[0:20:18.2] BF: In that scenario, yes. If I'm buying the same future profits for less, yes, it's more of a relatively high-value stock compared to yours. This was all captured mathematically in 1959, I think, by the dividend discount model, which just said mathematically that the market value of a company is the sum of its expected future dividends discounted to their present value at some discount rate.

Then Miller Modigliani came out in 1961. I've got this reputation now as being anti-dividend, or although some people would just say the reputation is of actually understanding the economics of stock returns, but depends who you ask.

Miller Modigliani came out in 1961 and they showed dividend irrelevance. The way that dividend irrelevance can be applied to portfolio evaluation, or the dividend discount model is that instead of using expected dividends in the numerator, in the top of the equation, you can use expected earnings, minus changes in book value. If you think about that, using earnings minus changes in book value is the same thing as dividends.

[0:21:16.8] CP: Because you've used up money you would have paid in a dividend to invest in the company and stuff, which would have changed the book value.

[0:21:23.7] BF: Correct. If book value is increasing, that's an investment in the company.

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[0:21:28.0] CP: You've used your cash to the investment as opposed to as a dividend.

[0:21:30.9] BF: Correct. The difference between earnings and changes in book value, anything that is left over must have been distributed as a dividend. The next thing that happened in this research and this is where Fama and French kicked in. They took all the stuff that had been done in the past, dividend discount model in the Miller Modigliani.

[0:21:45.9] CP: This decades later they did this work.

[0:21:47.8] BF: Yeah. This is 2006. Dividend discount model was pretty old, but it was also validated by empirical research. Then dividend irrelevance, again, it was relatively old research, but it has been continuously validated by empirical data. Then in 2006, Fama and French. It is amazing that it took that long for someone to do this.

In 2006, Fama and French took this updated dividend discount model and they just said, “Well, look at this. If we scale it by book equity –” so that means market price overbook equity is equal to the dividend discount model with earnings and changes in book value over book value, if we make that equality. Then it demonstrates mathematically all of the premiums that Fama and French ended up including in their five-factor model.

[0:22:32.1] CP: Okay. This is the important part.

[0:22:33.7] BF: Yeah. The reason that this was interesting so far is because Fama and French were just making this up out of thin air. They were using two pieces of well-established research, theoretical research, but they were also using a ton of empirical data. All of the relationships that I'm going to describe in a second, it wasn't just Fama and French saying, look, this theoretically should be true. They're saying this theory matches up with all of the empirical data and in their paper and Fama and French paper they cite, I don't know, it must be 30 different peer-reviewed papers, showing that all these relationships hold true.

In this equation and I know we're talking with words and you can't see the equation that I'm talking about. If think about it, it’s market price over book value, equals expected earnings, minus changes in book value, over 1 plus R to the T, which is the discounted future profits over book value. Now in that equation if we hold everything constant, except for the price of the stock

and the expected return, then we see mathematically that a lower price relative to book value must imply a higher expected return. This is just a mathematical –

[0:23:39.3] CP: Yeah, that’s not opinion. That's just math.

[0:23:41.6] BF: Correct. Mathematics. Then if we hold everything constant, except for expected future earnings and the expected return, we see that higher expected earnings must imply a higher expected return. That one's really tricky, because that's a profitability premium. When someone says a stock that is more profitable, must have a higher expected return. That's counterintuitive in the context of a risk premium. Why would a more profitable stock have a higher expected return if we're using the risk framework for return premiums.

[0:24:08.4] CP: It is more profitable, people would think, well, that's a safer company if it's more profitable, not in this equation.

[0:24:13.6] BF: This is the thing. This is the amazing thing about the evaluation equation that Fama and French developed is that if you hold evaluation constant, so if you hold relative price constant, that's the price relative to the book value of equity. If you hold that constant for two companies and one of those two companies is more profitable, the company that is more profitable must have a higher discount rate applied to its feature cash flows by the market, because it has the same price relative to the book value of this other company that we're comparing it to.

[0:24:41.9] CP: Which stands up to the risk theory is the justification for these premiums.

[0:24:45.8] BF: Correct.

[0:24:46.3] CP: The risk story.

[0:24:47.2] BF: Correct. Now we have a theoretical explanation for the profitability premium. The last one is that if we hold everything in this equation constant, except for expected changes in book equity, which is an investment, which is the fifth premium in the five-factor model and expected return, we see the lower expected investment must indicate a higher expected return.

Again, this is just a mathematical relationship in the equation, which we can post on the website, because maybe it's easier for people to think through when they can actually see the equation.

Interesting, but the thing that's amazing is that these individual relationships, like the higher returns of value stocks and higher returns of stocks that invest conservatively, a higher of stocks that are profitable, all of that had been documented in peer-reviewed research.

[0:25:28.9] CP: Many years before this.

[0:25:30.6] BF: Correct. Leading up to this. Fama and French are just saying, if we look at this evaluation equation, we would expect that all of these relationships don't exist in isolation. If we actually control for a couple of the variables, we should find more extreme premiums. If you find the deepest value most profitable stocks, you'd expect an increasingly high expected return. That's again, just based on the mathematics.

That's cool. That's interesting. Then the amazing part is that it took nine more years. In 2015, Fama and French finally came out with their five-factor model. The reason that it took so long I think is that when they wrote the paper in 2006, there was not a good proxy for profitability and investment. Those are the last two factors in the five-factor model. In 2012 and 2013, peer-reviewed papers came out identifying good proxies and then it didn't take long for Fama and French to incorporate those into a five-factor model. Now we're back to the empirical side.

The amazing thing is that Fama and French went from the theoretical research to show these are the factors that should explain differences in returns. Then once they had all of the tools from the empirical research, they were able to build the five-factor model.

[0:26:35.0] CP: Super interesting, is basically a story of technology and science going back and forth over 50 years.

[0:26:42.6] BF: Right.

[0:26:43.6] CP: Amazing.

[0:26:44.3] BF: It really is. It really is amazing. This to me, I got that there was a theoretical underpinning. I got that, but probably at a surface level. When I started reading this, it was really the 2006 paper, I started to realize like, “Geez, it's a really strong theoretical foundation.” Questioning, if people want to say, we should use a different factor model, you should be using momentum, you should be using quality, whatever you want to say, it's really hard to make those arguments to me, anyway, when you understand how strong the theoretical background is.

Then the amazing thing about it is that we have the strong theoretical background, once they had the five-factor model built, they can now go and start testing it empirically. This is where it gets mind-blowingly interesting is because they can now take the five-factor model and they can test it against cases where the three-factor model didn't work.

If there was an anomaly, like low-volatility, which we just talked about that the three-factor model that Fama and French published 1992, if there's an anomaly that that model could not explain, you would expect, if the evaluation theory is true, you would expect that the five-factor model would be – it would explain those differences and it did, it does. They've looked at all sorts of different anomalies since then and consistently, the five-factor model explains differences in returns. It's like, this strong theoretical foundation, but then you add on the fact that when you take the empirical data using that theoretical foundation, it just strengthens the position of the theory, I guess.

[0:28:02.5] CP: I think you pulled it off. I think people get it.

[0:28:04.9] BF: Well, we'll see.

[0:28:05.7] CP: Firing any questions on the website and love to have some engagement on this. Move on to the next topic? Planning topic, one that gets us both fired up. The spending rules for FIRE. Financially Independent Retire Early. I know it’s a bit of a bugaboo for you. Perhaps you chilled on it a bit lately, because there's been so much talk in the media and on Twitter about different people are getting into the FIRE movement and becoming bloggers and writers and all kinds of different things.

[0:28:31.7] BF: Well, I talked to someone not too long ago. I talked to someone who wants to retire early. They're an intelligent person. I always have good conversations with them and they say they want to retire early. I just asked them candidly, why? What do you want to do? I think that retire really is a really bad name for this movement. The way that I'm starting to understand is that people want to do things that they love, as opposed to maybe a career that they don't love, but they want to do the things that they love without sacrificing lifestyle, which means they potentially need to have income from some investment to fund any shortfall.

[0:29:06.3] CP: A lot of the ones I have looked into have reasonably modest lifestyles. A lot of people don't have enormous amounts of money to afford a lavish lifestyle, but that they're totally okay with that. They figured out what lifestyle makes them happy.

[0:29:18.2] BF: Yeah. I don't think it's a matter of like, I want to retire and do nothing. It's like, I have an idea of some stuff that I want to do and I need the capital to fund that. I'm coming around to that I guess, but I do have a big problem with a couple components of the FIRE movement.

[0:29:33.4] CP: The rule of thumb, around the 4% rule, safe withdrawal rate. As Alexandra told us last week, there's so many rules of thumb that make it safe to say drive her crazy. The people using 4% is certainly one of them.

[0:29:44.0] BF: 4% rule is completely ridiculous.

[0:29:45.9] CP: Especially at that young – that fits a young age.

[0:29:48.4] BF: I do think that the prominent FIRE people, all of them, I mean, I guess it's selection bias, all the ones that we know about are the ones that are public about it. There seem to be a lot of people who are publishing blog posts and books about how they've become financially independent, but they're not necessarily talking about how they're using the income from their blogging, or book writing, or whatever else they're doing.

[0:30:08.9] CP: Do you think many of them have a lot of side income from that? I don't know if there's any data on that.

[0:30:12.9] BF: I don't know. Anyway, so 4% rule, we've talked about in the past, but worth mentioning again, because I think this is one that's really, really dangerous. The 4% rule was developed by a financial planner named William Bengen. When he developed the 4% rule, he did historical testing to find the worst 30-year period in US market history and what was the sustainable spending rate over the 30-year period.

[0:30:34.7] CP: I can hear our listeners now scratching their head. “Oh, yeah. I remember you guys talked about this a few months ago.”

[0:30:39.1] BF: Yeah. That was the 4%. That is where 4% came from. For early retirees, we're talking about FIRE, Financial Independence Retire Early. The big, big, big issue with the 4% rule is it was designed for a 30-year retirement. If we're talking about a 50-year retirement, or a 60-year retirement, the 4% rule doesn't work. It goes even deeper than that, US market data, we know now looking back that the US market has been the best performing global stock market. If you instead use global stock market data to perform the same analysis, you would have come up with a 3.5% spending rule.

[0:31:07.3] CP: By the way, where are fees in that number?

[0:31:09.6] BF: Yeah, fees aren't there.

[0:31:10.2] CP: No one's ever certain, are fees in, or fees not? Are factor premiums in there? Factor premiums not?

[0:31:15.8] BF: Fees are not in, factor premiums are not in.

[0:31:17.4] CP: Taxes?

[0:31:18.2] BF: Taxes are not in. Withholding taxes are not in. I'm not a fan of the 4% rule.

[0:31:22.9] CP: There's still a ton of people that think 4% is too low. A lot of people, I'm sure in their mind think, “Well, I can get whatever, 6% of my portfolio. Therefore, I can spend that.”

[0:31:29.8] BF: Oh, yeah.

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[0:31:30.3] CP: They don't even think about the replacement for inflation.

[0:31:33.3] BF: I had someone on my YouTube channel comment recently that they use options. They're very aggressive. They were not a nice person on the internet, but they were saying how they use options to increase their stock returns. If you're earning anything less than 7% on average, you're basically an idiot. 4% ROI way too low in their opinion. One of the challenges with testing something like the 4% rule for longer retirements is that there's not enough data. How many rolling 60-year periods are there historically? Not enough.

[0:32:03.4] CP: Not enough to be significant, I don't think.

[0:32:04.4] BF: Yeah. Not enough to be meaningful. One of the ways you can test it is with Monte Carlo. We did that a while ago. We built a Monte Carlo model. It's actually interesting. When you use the Monte Carlo to figure out what the 4% rule should be, it ends up being 3.5% for a 30-year retirement using the Monte Carlo simulation, which is the same as it would have been using global data, the way the original 4% rule analysis was done. If you extend that to 50 years, the safe withdrawal rate drops to 2.4%.

[0:32:30.1] CP: Again, there's no fees in that.

[0:32:31.8] BF: Correct. I also think, 2.4% is pretty low. That may seem confusing, because I'm talking about how the 4% rule is too high. I think that the real trick and if you read Mister Money Mustache, yes, he talks about using the 4% rule, but he also talks about being flexible of spending. He also talked with having side incomes. He also talks about different ways to deal with inflation.

[0:32:51.0] CP: Flexibility in spending is a conversation we've had a lot with people playing the retirement lately. They find out what is that zone that covers all your basic needs. We know behaviorally, if the market tanks one year, you're not going to be doing your big expensive round-the-world cruise.

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[0:33:05.1] BF: I think it can be systemic too. There's a bunch out there, a bunch of different variable spending rules out there. I think, like you said Cameron, you can set a floor and then ratchet up if markets are good. That means setting a very conservative floor to start.

[0:33:18.2] CP: Most people's lifestyle is a pretty basic floor. I saw the other stuffs that instead of taking out monthly out of your account, you could do in lump sums as the trips come up, or the gifts to your kids, or whatever your spending desires might be.

[0:33:30.2] BF: You can also have guardrails. You might start with the 3% withdrawal rate in the first year and set a guardrail at 5% and a guardrail at 2%. If your inflation adjusted spending in a future year rises above 5% of the remaining portfolio, you would adjust your spending back down. Or if it drops below 2%, you would adjust your spending back up. I think that those rules are fairly simple, but implementing them, realistically that takes a serious amount of discipline, a serious amount of discipline.

[0:33:54.8] CP: And a spreadsheet.

[0:33:55.7] BF: Flexibility, when you look at long-term simulated outcomes, like using Monte Carlo, if we're talking about a 50-year retirement, even though the withdrawal rate is low at 2.4%, like our example, the average ending assets are going to be crazy high, like tens of millions of dollars or something like that on average. You're planning for that worst case outcome, which is why you've got to spend so little. That sucks. If you die with 50 million dollars and you only spent 2.4% of your portfolio each year, that sucks.

[0:34:22.1] CP: Say as you're going to top this and revisit it all the time.

[0:34:24.4] BF: Yes. That comes down to the efficiency, spending efficiency, which we talked a little bit about with Alexandra. I think that we've been talking about this a lot since we had Alexandra on. I think using single premium annuities and deferred annuities, that can be a really interesting way to increase the efficiency of spending. Flexibility is also a really good way to increase the efficiency.

If you can be flexible with spending, you're going to be able to use more of your money while you're alive without really increasing the probability of running out of money while you're alive,

but you'll spend more, as opposed to having a huge pot left over at the end. Anyway, 4% rule it's not something that you should be relying on in any form as an early retiree.

[0:35:00.2] CP: Yeah. You'd want to plan your lifestyle on a lower percentage.

[0:35:03.9] BF: A lower percentage and flexibility. This the other thing too is if you're retiring when you're 30, or 35, you can go back to work maybe. That gets tricky too, because if your skills start to diminish, like if you're in tech and five years later, everything's changed, maybe you can't go back and use your human capital. That depends on your skillset and how sharp you stay. That plays into flexibility too.

[0:35:23.7] CP: Okay, so we're running long on time. Quickly get to the bad advice of the week.

[0:35:26.9] BF: Was this recent, or was this an older video?

[0:35:29.5] CP: I don't know. It shows up. I search Dave Ramsey once as you know, a few weeks ago, and he's a pretty big-time personal financial guy. He's got his own show. He's got his own podcast. Huge ratings. I think he's number eight in Canada podcast, financial podcast. Now it shows up on my YouTube feed all the time.

One video showed up last week and I give him credit, because he's very good at getting people engaged in savings and the amount you save matters more than your return. I agree with a lot of those principles. We had a Jeff from Phoenix called in on this one video I saw and asked about the PBS documentary, the retirement gamble. It's from the show Frontline at PBS. I don't know if you've seen that. It's phenomenal. People should go watch. It's a phenomenal show.

[0:36:11.2] BF: We can link into the show notes. Do have the episode link?

[0:36:12.9] CP: I've got the link here. We'll link it in the notes. Anyway, so Jeff from Phoenix asked about the impact of fees on a portfolio and that the documentary advised that investors should invest in a quotations market index fund. This question was what is that and what is your opinion?

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Anyways, so Dave Ramsey says a lot of great things, but here's where in my opinion that goes south pretty fast, and maybe I'll be lucky like Ellen Roseman and he'll block me on Twitter. Anyway, so his response was this: so the top 500 companies in the NYSC makes up the S&P 500. That's not –

[0:36:44.1] BF: Wrong.

[0:36:44.8] CP: - technically right. He says, “Or you can go and get small caps on the Chicago exchange.” He said the S&P 500 will not do any better, not do any worse than the market. He said there's plenty of mutual funds that outperform the market.

[0:36:57.7] BF: It's true.

[0:36:58.3] CP: It's true. Absolutely true, but who can find them at a time? Here's where he went on a bit of a rant. The problem he said with a PBS special, that the problem is not the fees, it is the fact that people are not putting enough freaking money into retirement. That is true. People’s savings rates are not high enough. We're in alignment here.

He continues, “All of these guys to start ripping on fees are from a liberal political perspective of figuring out what is wrong with America today and that capitalism is something bad. They've got this as an undercurrent. You're never allowed to charge a fee for anything in their minds. It is the undercurrent and it is PBS, so we know that's there. The research indicates that getting people to save is a primary thing you do first. The second thing is rate of return. The last thing as an indicator is fees.”

Wow. Yeah, I agree that people should save more. You’re willing to describe the four types of funds, which is he's got a wacky way of sorting funds and he talks a lot about behavior and bad behavior matters a lot. But boy, how do you completely don't understand the underpinnings of why indexing makes sense and why capitalism leads that to happen? It doesn't have advice based on science. Picks funds. I don't know how you manage the managers and keep track the managers as they switch around.

[0:38:09.1] BF: For how large his audience is, it's staggering the type of information that he's providing. There are a couple posts that I've seen on Reddit from a while ago, where I've even

had it on my own YouTube channel, where people have said in comments, “Wow, I've only ever gotten investing advice from Dave Ramsey. This is so much different.” It's like, man.

Just on this topic, something that I found really interesting is I've seen a couple of Reddit posts recently where people have shared my videos. A lot of the discussion around the video has been stuff like, this guy that's making these videos, he's actually an expert. I don’t know if I’d call myself an expert, but someone with credentials and background who's citing academic research and the fact that on YouTube that is an outlier, because most of it is just people talking about stuff that they think, like opinion I guess.

It's amazing to me that somebody with an educational background in a field who's citing academic research is an outlier. Dave Ramsey falls right into that, where he's not those things, but he's got a massive following.

[0:39:08.4] CP: For example, here's something that you would never say that was in this video. If your expenses are 1% higher, but you came out 4% ahead, the return in your – is your primary measure. The last thing I look at is expenses.

[0:39:21.5] BF: Oh, you got to read the last line there. That's the reality, not the theory. Makes my head explode.

[0:39:26.8] CP: Well, yeah. I don't know how you ignore – you can build beautifully diversified portfolios with tilts towards academic factors for pennies compared to an average mutual fund, why would you not want to do that and likely have a better investment experience because you're not worried about managers switching and changing?

[0:39:43.2] BF: Well, we hear this all the time. We hear this all the time. We hear this all the time where people don't want to look at the evidence, they don't want to look at the theory and you’ll hear things like, “Well, that that makes sense in theory, but in real life I bought Disney stock and made a bunch of money,” that's real life. It’s like, man, that's not how it works. That's not how evidence works.

[0:39:59.8] CP: We from a liberal political perspective?

[0:40:02.0] BF: I don't know.

[0:40:03.0] CP: That's it.

[0:40:03.8] BF: Yeah, that's it for today.

[0:40:04.5] CP: Thanks for listening. Have a great week.

[END]

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