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EP35 | Deep dive: The U.S. healthcare industry

Cam Webster:	**00:41**	Welcome to the show. Today, we have Amit Shah from the U.S. Equity team to speak about healthcare, specifically. The reason we have Amit on to speak about healthcare is he has a PhD in neuroscience—so we were quite curious about that. Welcome to the show, Amit!
Amit Shah:	**00:58**	Thanks! Good to be here.
Cam Webster:	**00:59**	Glad you could spend some time with us. For me, it's very curious how a PhD in neuroscience ends up as an equity analyst at Mawer Investment Management. Give us your journey here.
Amit Shah:	**01:12**	Sure, I certainly have an atypical background. I've got a PhD in neuroscience from Michigan State University. What I was doing over there was trying to come up with a better mousetrap for curing hypertension. I just wasn't happy with how my career was progressing, so I signed up to do an MBA at Rotman University in Toronto and just explored some career options over there. One of those that struck with me right away was investing. It's something that I had done on the side since I was a teenager, and got the opportunity to try it out professionally during a summer internship.
Cam Webster:	**01:44**	How was your success as a teenager as an investor?
Amit Shah:	**01:47**	I don't think I was overly competent but I was very, very interested. And so I'd always read up on stuff as much as I could. And then I was lucky enough to get a summer internship over here at Mawer, tried that out, and came back here full time. Been here nearly three years now. I think I've just been fortunate to try out an alternate career. And it ended up being something that I enjoyed even more than science/being a scientist. It certainly raises some eyebrows with friends that I talked to in science, but yeah.

Cam Webster:	02:18	[Laughs] So you're in a lab environment at Mawer, but a lot different than trying to build a better mousetrap for hypertension?
Amit Shah:	02:24	[Laughs] Absolutely. On from studying science to studying J&J and companies.
Cam Webster:	02:29	Yeah! So that's a good segue into why you're here. We wanted to get your take on how the healthcare industry is shaking out in the U.S. It's a big component of the markets, about 15% of the S&P 500 market cap is healthcare. Do we care about it in the portfolio just because of that?
Amit Shah:	02:47	I think we were more bottom-up and so we look at companies just based on our investing philosophy. Wealth-creating companies, good management teams, trading at a fair price—and there happened to be quite a few of those in the healthcare sector. So that's what we care about.
Cam Webster:	03:02	All right, so what you've done in your time with the U.S. Equity team—my understanding is that you've done a couple [industry deep dives] now.
Amit Shah:	03:08	Yeah.
Cam Webster:	03:08	So why don't we just "dive" into what your initial thoughts [were on] the value of doing a deep dive in healthcare?
Amit Shah:	03:15	Yeah, maybe to take a step back—the initial idea for this is actually kind of neat and I think it speaks to the culture over here. I basically came in as a summer intern in 2015, and I was working on what every other analyst over here works on—just trying to look at companies, analyze them, and try to pick good investment ideas. I think the first company I'd worked on was American Express. Anyway, as I wrapped up the work on American Express, the question I was asked [was], "what do you want to do next?" And one of the first things I thought about [was], "let's look at the healthcare space. Let's look for good investment ideas over there."

Amit Shah:	03:52	And I was immediately encouraged to go ahead and do that—[to] try it out. That was how the idea came about. Just to look at healthcare and look for places in healthcare where we might have an edge.
Cam Webster:	04:02	So on that first deep dive, what did you come up with in terms of insights?
Amit Shah:	04:06	I went into the analysis with a really, really naïve idea that just because I studied biomolecular pathways for several years, that maybe I had an edge in terms of looking at pharma companies. And I realized very quickly that there are many other people that have the same hypothesis and they're doing this on a full-time basis. And so it's really hard to find an edge specifically in that. Moreover, it's a very probabilistic thing, right? R&D within pharma companies. I mean, when you think about it, the average estimated probability of success for a drug that goes from bench to bedside is 10%.
Cam Webster:	04:46	Okay.
Amit Shah:	04:46	[Laughs] And so I—
Cam Webster:	04:48	Sorry, you said *bench* to bedside?
Amit Shah:	04:50	Yeah. From—
Cam Webster:	04:50	Okay. So from *lab* bench—
Amit Shah:	04:52	Right, exactly.
Cam Webster:	04:53	—to actually being administered in a therapeutic environment. Okay.
Amit Shah:	04:57	But given that realization, one of the things that surprised me at the time was, why are there so many of these biotech companies that are trading at a very high valuation? Some of the companies that we looked at back then

were Celgene, Regeneron, Biogen...some of the bigger biotech companies in this space.

And I think they were trading on the premise that, all these companies have come out with one or two drugs that have been successful, and they've got this entire pipeline of drugs that's going to fuel all their future growth.

And given our thinking on the probabilistic nature of the pipeline, it was just surprising that this was the valuation that was assigned to these companies.

Amit Shah: **05:37** So we were pretty cynical on the success of these companies. We stayed away from them, and if you look at where they're trading now, the prices for many of [them] is lower than what it was back in 2015, whereas the market's appreciated, I don't know, 40% since then. So it's a pretty big relative loss for these companies.

I think it just goes to show the long-term thinking we have for investing in gener I think if we just focused on the next few quarters, then we'd be pretty tempted [the] 20 or 50% growth rates for some of these companies.

But we try to think about the next 15 years for a given company, and that kind of valuation that these companies were trading at just didn't make sense to us.

Cam Webster: **06:19** Did you discover an edge in that first deep dive, or where have you come from since 2015?

Amit Shah: **06:23** Yeah, so when we look at some of these healthcare companies, what we try *not* to do is spend lot of time in projecting out the drug pipeline of these companies.

Instead, I think we try to look for companies that have assets—current assets that is—that are going to account for a lot of the value of the company. We also try to look for companies that have a structural advantage, so this might be just good management teams, or something else.

Maybe one example of that is a company called Johnson & Johnson. So, this is basically a conglomerate in the healthcare space, right? They've got a

pharmaceutical business that accounts for 60% of their profitability, and then the rest of the business is selling medical devices, various types of medical devices, and also various consumer health products.

So you have this cash flow profile, which is pretty unique to Johnson & Johnson, where the 60% of businesses is pharmaceutical. That's a little bit cyclical in nature, as drugs are coming off, drugs are [also] coming on. But then the rest of the business is not as cyclical. So that gives them, perhaps, a structural advantage relative to other companies in the space that are just focused on pharmaceutical drugs.

Amit Shah: 07:34 And the other thing about J&J is that they have a large proportion of drugs that are biological in nature. And what this means is that when they fall off patent, they're not affected by the same patent cliff as conventional drugs, where you might lose 80% of our revenues right away. In fact, J&J [has] got a drug called Remicade that's coming off patent and the progression in terms of revenue decline has been slower—to a rate of 15% a year.

Cam Webster: 08:01 What's the reason the off-patent decline doesn't happen as quickly?

Amit Shah: 08:05 A biologic drug would just be harder to manufacture than a conventional, pill-based drug.

That's part of the reason why barriers to entry are a little bit higher and the revenue decline is not quite as high as for a conventional drug.

Cam Webster: 08:18 I want to circle back to the probabilistic nature you mentioned when you were talking about biotech companies. I know our valuation methodology and our mental model is to think probabilistically, but as it applies specifically to healthcare, do you build a model any differently? Is the distribution different in terms of when you're trying to find that intrinsic value? Just talk through how you approach it.

Amit Shah: 08:42 So, again, I say that we don't spend a lot of time thinking what the drug pipeline and the value that a drug pipeline would be. We try to find companies that have current assets that feed off of a lot of the valuation.

And then the other part of it is, yeah, we force ourselves to think probabilistically through a number of different [outcomes]. We've got several "what if" scenarios, for instance. What if the pipeline doesn't really materialize? What's the value of the company then? And maybe you assign a 5% probability of that happening. What if this drug loses patent earlier than forecasted? What's the value of the company then?

We've got several of these scenarios that can help shape our thinking in terms of the range of outcomes that's possible. And we also have a Monte Carlo analysis built into every DCF model that provides us with that range of output as well.

These are really techniques to just help us think probabilistically about a business model that really is that.

Cam Webster: 09:33 So, what I want to do Amit, is compare where things were in 2015 to now. What has changed in healthcare since 2015? Nice, small, easy question for you [laughs

Amit Shah: 09:45 There are many things that have changed, yeah. I think some of the same themes that I noticed back then are still applicable now.

So, the demographic theme for instance, where you've got a portion of the population that is aging faster than the rest of the population. You've got three times the growth rate for the 65 and above population than you do for the rest (for the younger population), [which] translates to higher costs in terms of healthcare. And that theme of having cost efficiencies built into a system—perhaps through additional regulation—I think that still applies.

Maybe the additional theme that I observed this time around was that there's new breakthroughs happening in science, especially in the area of gene therapy. And this could perhaps lead to higher R&D productivity over time.

Cam Webster: 10:34 That's interesting! Okay, the science is moving along and progressing and maybe not the flavour of the month, but the directional theme is that gene therapy seems to be gaining traction. But what about gene therapy, comparatively, makes you say that there's a possibility that it's a productivity increase on R&D?

Amit Shah: 10:52 So, gene therapy, to take a step back, is a therapeutic that's designed to either turn on a gene, turn off a gene. There are different varieties of it. This is not a new concept; it was discovered and experimented on several decades ago. But it's only now that there's FDA-approved therapies on the market that cater to a gene therapy.

And so I was really curious about what impact this might have on R&D productivity. I went out to this pharmaceutical conference for investors that invite small and mid-size pharmaceutical companies. One of the companies I talked to over there was called Spark Therapeutics, and they've just come out—I believe a year and a half ago—with one of the first FDA-approved gene therapy drugs.

The takeaway from that management meeting was that...the cost of development for a gene therapy drug might be less than the conventional therapy. This is because these diseases tend to be rare diseases, so it's just not feasible to recruit hundreds of patients for a clinical trial when the entire disease might affect 1,000 or 2,000 patients locally.

Amit Shah: 11:58 And so the costs related to use of clinical trials and development are lower. And also the costs related to *development* of these might be lower because you already know the molecular pathway that you want to target, all you need to do is come up with the therapeutic to specifically turn that on or off rather than basically, discover an entire new molecular pathway.

So, these are some of the things that might need to lower costs for [the] development of these drugs and might lead to higher R&D productivity.

Cam Webster: 12:26 If you're looking at a business like that, is it attractive or not? Because yes, the R&D might be less costly so margins might be wider, but 2,000 patients...that doesn't sound like a big market.

Amit Shah: 12:39 Absolutely. I think you're right to point out the economics of this are very different. The drug that I talked about that Spark Therapeutics developed is called Luxturna, and they priced it at a million dollars on a grzoss basis. And so—

Cam Webster: 12:52 Per application?!

Amit Shah:	**12:53**	That's right.
Cam Webster:	**12:53**	Like 2,000 people times that price?
Amit Shah:	**12:56**	Right.
Cam Webster:	**12:56**	Wow.
Amit Shah:	**12:57**	Yeah, it's very different. And I think it's still an open question as to whether or not these economics are sustainable. It's an area that clearly the larger companies want to get involved in. The story behind Spark Therapeutics specifically, is that it is being considered for takeover by a much larger company, Roche Pharmaceuticals, which is a holding in our international equity fund. It's an example of how insight developed from a company in the U.S. base, might translate over to some of the other funds as well.
Cam Webster:	**13:27**	Quick [follow-up] to that: what would Roche find attractive in that? Would Roche have the ability to scale it up?
Amit Shah:	**13:33**	That's I think part of it—that they would have the distribution networks in place to be able to, basically, target every single person with that disease. I think the other thing that they could take from it is the expertise involved. Spark Therapeutics talks about having some of the best scientists on the team working on gene therapy. So I think that's something that Roche could certainly benefit from.
Cam Webster:	**13:53**	Okay, thanks for that perspective. Your recent examination of the healthcare space—what type of investment ideas came out of that? Is there any holding in the portfolio now as a result of that examination?
Amit Shah:	**14:03**	Yes, sometime in-between the first deep dive that I did four years ago to one that I did a few months ago—one of the companies that came up is one that

benefits from these themes that I talked about, in terms of an aging population, as well as just more breakthroughs in science leading to new therapies in the market.

The company is called Waters, and what they do is sell equipment and consumables to the healthcare space. This is most of their business, and the specific equipment is actually something called a liquid chromatography machine. Basically it takes a drug and divides it into sub components so that you can easily identify that that drug is what you think it is.

So, you can imagine that's pretty helpful for quality testing of drugs for pharmaceutical companies. It's also helpful in researching new drugs.

This is a company which not only has a good business model—I mean it's a "boring" business, it's a wealth-creating business—but they also have a good management team and a reasonable valuation.

Cam Webster: **15:07** Anything else from the re-examination? In terms of investment ideas and what are you looking at in terms of implementing from your learnings?

Amit Shah: **15:15** I think one of the things that we try to do is win by not losing. And so, while there might not be any *direct* investment ideas that come out of one of these analyses that we do, there might be areas that we choose *not* to focus on because they seem unattractive.

One of these areas specifically is hospitals. And the underlying theme over there, is just the U.S. healthcare system moving from fee-for-service to fee-for-value. And the distinction there is, basically, hospitals, instead of being reimbursed in terms of quantity, they'll be reimbursed in terms of quality. You can imagine it's going to lead to, perhaps, more cost efficiencies within the system and it could lead to lower revenues for hospitals.

The fee-for-service, I think, is easy to grasp. You get 10 diagnostic tests done on you and you get paid for each of those. A fee-for-value...it's not an easy concept, and it's still a work in progress. I think some of the quality metrics that are being looked at are mortality rates, readmission rates, and so if a

		patient has fewer infections, that could lead to fewer readmissions, and so the hospital would get reimbursed for providing a better quality of service for this.
Cam Webster:	**16:26**	Okay. And where's that pressure coming from? Is it coming from governments who are largely funding the bill? Insurance companies? Where's that pressure that hospitals are experiencing, coming from?
Amit Shah:	**16:37**	It's a mix of both. It's government funding through Medicare, Medicaid that is now being associated with a lot of these quality metrics. And private payers are [also] adopting.
Cam Webster:	**16:46**	So a big change, potentially less cost overall in the system. What does that mean for investments we hold that may have exposure to hospitals?
Amit Shah:	**16:55**	I think it could be a potential risk for suppliers to hospitals, and the one that comes to mind is Becton Dickinson, which just makes several products that go into hospitals like needles, like catheters for instance. Clearly now this is a risk that we're more aware of and are monitoring actively. But it's also important to keep in mind that this whole shift towards fee-for-value is happening pretty slowly right now, and there might be offsets to it. So, companies like Becton Dickinson—I think they're very focused on innovations that help increase their pricing pressure. One of the things that they do is provide a whole suite of anti-infective products. And hospital associated infections is something that costs the U.S. 10 billion dollars a year. So you can imagine how having these suite of products can be helpful.
Cam Webster:	**17:42**	I want to round out our conversation with a nice, easy question. Going back to your background as a neuroscientist: where do you think neuroscience is going to be in 10 years? Give us some insight into where it might be going.
Amit Shah:	**17:54**	[Laughs] Your guess is probably as good as mine.
Cam Webster:	**17:56**	No, no, no [laughs]. I don't have a PhD in neuroscience, Amit!

Amit Shah:	**17:59**	Fair enough. I guess I'm very optimistic on what *can* happen. One of the things I was reading is that, if you look at breast cancer, the mortality rate for breast cancer over the last 40 years has gone down by 30%. And there's so many neurological diseases like Alzheimer's that affect—I think they affect a half million people or half a million new cases of Alzheimer's are going come out in the U.S. this year. Things like that, they're a very large problem. And I think they're getting more and more attention, more and more R&D dollars, and so I'm pretty optimistic that even within our lifetime we'll see some changes, some new drugs.
Cam Webster:	**18:34**	Well, thanks for spending time with us, Amit! Very, very interesting walk through healthcare and keep up the good work.
Amit Shah:	**18:39**	Thanks, it's been a pleasure.