WHY ACCESS TO ENTREPRENEURS AND VISIONARY FOUNDERS AND ACADEMICS MATTERS

All investment strategies have the potential for profit and loss. Past performance is not a guide to future returns.

A Key Information Document for the Scottish Mortgage Investment Trust PLC is available by contacting us.

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Amy Maxwell (AM): Hello and welcome to this live webinar where we'll be discussing why access to visionary founders and academics really matters when investing. This is a 50 minute programme brought to you by Citywire and the team behind the Baillie Gifford Scottish Mortgage Investment Trust, or SMT as many of you know it. My name is Amy Maxwell, I'm from Citywire and I'll be presenting today's broadcast. Today we'll be joined by our guest, Lawrence Burns, who is a partner at Baillie Gifford and deputy manager on the Trust. This is the first webinar Lawrence has done in this role as deputy manager, so I'm sure viewers you're as excited as I am to hear what he has to say about uncovering the extraordinary companies of the future.

Now, a little bit about how we're going to run today's session. In the first 25 minutes I'm going to interview Lawrence and then we'll be putting your questions to him in the Q and A session in the closing 20 minutes. So if you do have a question for Lawrence you can submit it at any time via the Q and A box in Zoom. Now let's begin. Welcome Lawrence, thanks for joining me today.

Lawrence Burns (LB): Great, thanks for having me.

AM: So Scottish Mortgage Investment Trust, or SMT, is a portfolio of some of the greatest growth companies in the world. The exclusivity the team has in terms of access to top management is pretty anomalous. So how has this been achieved? How did you get there? And how do you think it can be sustained to find more extraordinary companies in the future?

LB: Yes, thank you. I think the word anomalous is right. We're in a really privileged position in terms of the access that we get and I think it's a real advantage for us as investment managers, and therefore hopefully for shareholders of Scottish Mortgage. It's probably just worth sort of highlighting the nature of that access and then going on to talking about how it can sort of be sustained.

It won't surprise the people listening that I didn't do as many overseas investment trips as I would have liked to in the last year. But the most recent one I did was to Berlin in October. And we were able to meet the founders of all of our Berlin based companies as you might expect. But to give a specific example, I reached out not long before going to the founder of Zalando and sort of said would you be kind enough to meet with us, we'll be available at 11 or at 12. And he replied back instantly saying we can do both those times, we'll spend two hours with you. And then he said are you coming in for the night before and if so, would you like to go to dinner with me and my co-founder?

And so because of that generosity we were able to spend in a day and a bit in Berlin, about five hours with the founders of Zalando and their senior management team. And I think that is quite anomalous in terms of the level of access. And it's not just the quantity of time but also the nature of that time that when you build relationships with people that are more like partnerships you get conversations that are more open. They're more willing to talk about ideas, ambitions, aspirations, earlier. And I think also to talk about the inevitable challenges that exist within any great company in a more open way because there's that element of trust that you are long-term supportive holders.

You could stretch that as well going to when we first met with Elon Musk, the SM managers back in 2013. Getting to hear directly from him his vision of what Tesla could become and hearing his ambition that he thought there was a small but growing chance it could become a trillion dollar company in the world's largest nine odd years ago, that was really helpful I think in us understanding the possibilities that Tesla had. So that access is really helpful.

In terms of where it's come from, yes, originally it just comes from many, many years of doing what we say. People should rightly be suspicious of people that come onto their shareholder register an say that they're long-term because very few people I think frankly are. And so, for a number of companies it was acting that way in the good times and in the bad times. And it's where share prices tumble and you can remain a steadfast partner and continue to be focussed on the long term that people I think really value what you bring.

And I think as we move forward now what is helpful is ten years ago we might have had to spend several years trying to prove ourselves to companies but founders talk to each other. And so, we have founders that we've invested in that vouch for us to other founders. And so to get that level of access and that exclusivity that you were talking about we don't need to spend years anymore, it's something we can get from day one. And again, I think that puts us in a very good position for insight.

And the final one would just be we're talking here about public companies All of this starts to matter a lot more for private companies. Public companies, they can choose who they want to spend their time with and who they want to talk to. But private companies can also choose who they let invest. So we could all invest in public companies and Tesla and so on, but a Space X, a ByteDance which is the owner and creator of TikTok, they can be very selective about who they let invest. So there the access and the advantage that we have is not just about access of talking and understanding but it's also access to the opportunity in the first place.

AM: And you spoke there about sticking with the companies during difficult periods as well. We've had a fantastic run recently, but now we are getting kind of a macro headwind in the form of inflation. So do you want to pick up, let's address this point head on, up front. It's certainly creeping up and the potentially for tighter monetary policy is leading to quite a lot of uncertainty over whether growth stocks can continue that fantastic run that they've had. Do you have a few words for our viewers who have been in touch in advance to ask can you allay any of their fears here?

LB: Yes, so I think the first thing to say is that periods of stress, periods of difficulty are sort of par for the course. I mentioned Tesla earlier there, I think we first invested in 2013 and there's been over ten instances since then of 30% drawdowns. Even for very great companies the path isn't a straight line. Volatility is something that if you want good long-term returns you have to accept that the road's going to be bumpy there. And I think for us it's about continuing to focus on what are the outcomes of these companies in five to ten years' time. Not what are the outcomes of the gyrations of share prices over six months.

So if we look at the interest rates, rising rates do reduce the present value of earnings far out into the future and there's disproportionate impact to growth companies. And I think if you're having an investment on a short-term period this starts to matter a lot more. And it starts to matter a lot more in part because people are really buying into the market narrative so they're going to buy and sell based on those expectations around it.

But I think if you're able to invest on a five to ten year time horizon, I think your perspective becomes quite different. What we're trying to do for shareholders is identify and own the next big growth companies of tomorrow. Companies that might be able to deliver five, ten, 15, 20 times return. In the past that's been companies like Amazon, companies like Tesla, I don't think their success has ever really been predicated on either of the macroeconomic features that you were talking about there. I think it's far more structure, fare more secular, far more specific. I don't think the success of ecommerce, of the inflection points in electric vehicles are dependent on interest rates.

And so as we look to the future as well, does the success of Moderna depend on these things? I think it's success is never certain but it doesn't depend on all of the factors that I think are currently dominating the market narrative of whether Moderna can successfully continue to go out from a COVID vaccine to a much broader range of healthcare options and products. And so I think that's the key.

And I think from our perspective we always need to be humble that the ride is going to be bumpy, there may be difficult times, we'll get the occasional odd thing wrong as well obviously. But as we look at the current environment our ability to identify and own those next big winners hasn't materially changed from three months ago. We're still very optimistic about the scale and diversity of our opportunity set on behalf of Scottish Mortgage shareholders.

AM: Okay so volatility is very much part of the ride. Let's now focus in on the opportunity set then, as you see it. From our discussions previously there were three broad areas, I understand, where you see massive potential for what you define as transformative change in the coming age. So, we've got the continuing transformation, a digital transformation of our world, what's happening in biology and life sciences due to the application of data and computing power. And thirdly, the move towards clean and abundant energy combined with the electrification of the transport sector. So of those three areas so digitalisation, the intersection between biology and data and computing power, and then clean energy, how would you rate your excitement across those three areas?

LB: I think those are the right three areas. I think the first thing to just say is I find it quite amazing that there are three areas. So a lot of people would say the last ten, 15, 20 years has been great for growth investors. And again, I don't think that's down to the inflationary environment or the interest rate environment, I think it's primarily been down to the progress of Moore's Law. That doubling of computing power every 18 to 24 months has meant huge amounts of change and disruption. It's what's powered the opportunity for Amazon and e-commerce, for Netflix, for Facebook, for Google.

But what I think is interesting is that's been so powerful for the opportunity set for the last ten to 15 years but what we're seeing is that's broadening. So even within that first one, it digital transformation we're seeing it broaden well away from the narrow areas or relatively narrow areas of say, retail advertising in media, going into changing how we consume food, finance, transport.

And then on top of that as you say we've got the revolution we're seeing in biology. We've got the energy transition which is very distinct. And so, to have not one but three of those fundamental drivers for change I think is one reason on a very long-term timescale of why we're quite optimistic in terms of the opportunity for growth. That actually it feels more profound and more diverse than it was ten years ago when we were looking out.

But to answer your question properly in terms of which one is perhaps the most exciting, I think that's always difficult to say. I think if I had to choose I'd probably go for the intersection of biology and information technology. Firstly because the canvas there is simply very large. At a high level it's about we're used to software, we're used to coding information in ones and zeros, that's been incredibly powerful. But this is about moving towards coding in the building blocks of life, the biology in the four chemical letters of our DNA. And the opportunity set there is hugely varied. It's Moderna's ability to address HIV, Zika, even cancer. It's Ginkgo Bioworks' ability to potentially give us biodegradable plastic.

I think the second reason I'd look towards the biology one is I think the impact on people is hugely profound. I'm a big user of Amazon, I love the fact that it's lowest possible price, I love the fact there's a huge amount of selection, I love the fact I can get it same or next day delivery. That's an impact on society that, or at least on individuals' lives that I think is helpful. But as we move into biology I think it's much more meaningful that Illumina and GRAIL have a cancer test that can through a blood test detect about 45, 50 types of cancer very early on.

That's, I think, a far more profound impact on our society because again, it's great getting goods delivered in a timely fashion but that cancer test could save my life or someone close to me's life in the future. I think that to me makes it really very meaningful.

And I think the third reason for choosing biology is because a lot of the change we're seeing is powered by underlying computing power getting cheaper and more ubiquitous, processing of genomic sequencing for example, but also the use of data to help guide healthcare decisions. That we are seeing some sort of crude similarity in terms of the competitive advantages and the underlying economics that actually have a bit in common with what we've seen in the digital space that's been so fantastic. Because a lot of the underlying core sets and approaches are leveraging off one another. So the economics of investing in say, healthcare, might be materially better in the future than what we've been used to in terms of the return profile.

So, you could really pick any of the three as being fantastic, but I think if I was forced to it would be the biology one. And you know, Steve Jobs, one of his last predictions before he sadly died was he said he thought the biggest innovations in the 21st Century would come from this intersection of biology and information technology. And I think what's really encouraging us is that we're starting to see companies' business models and talk to founders that are starting to provide evidence that that may very well come to pass.

AM: And let's, I mean this is borne out in the portfolio, the top holding is Moderna. The rationale goes way beyond COVID, let's just delve into that a little bit more for our viewers so they can understand the true potential here.

LB: Yes, so I talked at an event after Stephane, the CEO of Moderna in a small side event and I had to follow him. And I had to start with it's really hard following that because what Moderna have done firstly just in COVID is fantastic. They've produced a vaccine in record time that's allowed a lot of us to get far closer back to the normality in our lives and saved countless lives. And that in itself is incredibly impressive.

But what it's also done is it's accelerated the journey of developing the mRNA platform. And the mRNA platform is basically the ability to get one's own body to almost programme it like software to produce certain proteins that might be helpful. So a protein that mimics the shape or a structure in some way of the virus to train our immune system as is the case with COVID. But that's one application, it's one application of many potentially ways that you could use it. It wasn't even the application, obviously, that they thought of initially, it wasn't designed, mRNA platform, to be a COVID vaccine, it was just utilised because it was the best way to get a vaccine quickly.

And so what I think becomes interesting is they've proven that mRNA technology platform, they've got the cash to scale it up, to invest very heavily, and they know have a wide pipeline. I mentioned some of them there before but HIV, Zika, a flu vaccine that could be combined with the COVID vaccine and others so that you get it all in a single shot and with higher efficacy possibly than traditional flu vaccines have had where the efficacies tend to be 20, 50% which is good but not excellent.

So that becomes a really huge opportunity set and I think in some ways, COVID has been such an important thing for them, for us as a society, that I think it's sometimes hard to see past it and say actually, the value in the next five, ten years could be a lot broader than that.

AM: Okay, well it's very exciting stuff. Let's move on now to that huge energy transition which is one of the three legs here. We have to undergo a massive transition to stave off some really dire looking consequences when it comes to climate change. So what opportunities do you see here? Obviously Tesla you've spoken about, that's a big one, it's widely reported though that you've sold approximately 80% of the Trust's Tesla holdings. So were there opportunities to invest those proceeds in other ideas around the post-carbon economy?

LB: Yes and that's both what we have been doing and I think continue to do. I should say Tesla's still a large holding, I think their opportunity set is still fantastic from here as well. But on the energy transition, as you said there's a huge environmental imperative for it, we need to do it to address climate change. But the other side of that is that renewable energy is in many cases a lot cheaper now than fossil fuels and continuing to get so. And so it's not just an environmental imperative but there's also a huge economic incentive to make the transition. And that economic incentive grows year by year.

And energy use is central to our society and so that transition to a decarbonisation and new forms of energy is hugely material, hugely impactful. In terms of the different opportunities we're seeing, they're large and varied. So electric vehicles is one, we've mentioned with Tesla still a large holding. We also invest in NIO in China. In addition to that we've invested in Northvolt which is starting to manufacture batteries for EVs and that's an incredibly important part that as we hit the inflection point and need to decarbonise transport the number of batteries we need goes up exponentially. They're based in what is increasingly a green hub in northern Sweden where they're using hydroelectric power to again, keep the costs of that battery production low but also to keep it green.

We've also invested in Redwood Materials which is founded by a former Tesla founder, JB Straubel, where they hope to build out the recycling infrastructure for batteries. We've invested in ChargePoint that's providing the charging infrastructure that we're all going to need. And tomorrow I'm heading down to London to spend five hours with the management team of another business that's at the heart of the energy transition as well. So we're continuing to see a range of opportunities here that again is quite exciting.

AM: And then to move into the final area of transformative change, which really is the backbone and is doing a lot of the heavy lifting for the digital transformation, is kind of the microchips and the semiconductors. And you're a big supporter of ASML. Do you want to tell me a little bit more about what the appeal was here and how the stock has progressed recently?

LB: I think ASML is wonderful because it's not a company that looms large in public consciousness but it is incredibly important. ASML basically build the world's most complex machines and these machines are designed to use light to etch in patterns onto chips, which is a vital part of producing chips in the semiconductor industry. They do this by harnessing a wavelength that only naturally occurs in space but doing it inside a machine. They basically get a carbon dioxide laser, amplify it 10,000 times and have to hit individual droplets of molten tin as they fall. It's really complex stuff. The machines cost $150 million, 100,000 moving parts, two kilometres of cabling. And they're really at the heart of the progression of Moore's Law, of our continuing technological development.

So I think the first thing that's really interesting is the digital opportunity is still huge. Every time there's an adoption of a new digital model or greater digitisation it effectively means more business for ASML as being that crucial component in the semiconductor industry. So that's a huge and I think very long-term structural market for them.

The second thing that's quite anomalous around them is they are a monopoly. No one else in the world can do with EUV what ASML can, it's got to that level of complexity that the competitors have not been able to keep up with the advances and now they're on their own as this integral part of our industry. And so that sort of [unclear] ASML has been, it's based in Holland but it's probably the most important tech company people have never heard of. It's hugely important technologically, hugely important economically. It's even very important geopolitically. And I think for us it's just a very long-term opportunity of that unique competitive position.

AM: Well let's delve into that long, I mean we started with the long-term opportunity. Let's continue down that path because in order to reach the potential that these companies have you really do have to stick with them. So how do you maintain that exposure over what can be decades? Do you want to talk to me a little bit about the relationships that you build there?

LB: Yes, so being long-term is behaviourally challenging. However if you are able to be long-term because of the structure or culture that exists in the case of Scottish Mortgage, I do think it actually makes investing a lot easier. So, if you go back to investing in electric vehicles, I think that was easier because we knew the battery technology would keep improving, we could see the trend lines. We knew the environmental imperative would sadly continue to increase. What we couldn't say was at what point do you hit inflection in terms of EV adoption? That I think becomes more difficult. And I think not having to make those calls around timing makes things a lot easier.

Having to take a view, if you have a one to two year time horizon of when something's going to happen is a lot more difficult. The same is true of ASML. When you look at a lot of the research that was done around ASML a lot of it was linked to the semiconductor cycle because the semiconductor industry does go in cycles. And if you can time those cycles it's great but it's much easier if you just go look, there's a huge structural demand for more chips, we know there's going to be a lot more chips in ten years, we know it's going to be again a bit bumpy with those cyclical changes from time to time, but we know that the destination's going to be a lot better than it is today. And if we can just avoid the cycle low level then we'll do very well.

And so being long-term is incredibly helpful for those reasons for allowing almost simplification. And I think you mentioned a point about relationships in terms of how you build these it's having that attitude when you're talking with companies. Companies are run by human beings, markets can bash them around a bit as well. It's being supportive to them in these difficult times, knowing that you're not going to immediately dump the shares because they've had a difficult four month period but you're going to continue to believe in that long-term destination, that long-term mission.

And it's also about encouraging and empowering them. I think one of the problems with financial markets is they encourage founders and companies and the public to be short-term. They encourage them to continually hit earnings targets every single quarter and that in turn encourages them, whatever you do don't take your earnings and reinvest them back in the business for that long-term opportunity because that'll reduce earnings and could lead to a share price decline. And so, that is being able to give them the confidence of look, if you think the right thing to do is invest heavily and the share price declines we're perfectly happy with that because we think it takes us to a better five, ten year place. And if we can offer that support to companies and to founders I think that helps solidify relationships and I think they find that in turn helpful.

AM: I imagine it's a huge risk as well, isn't it, if you give up on these companies during difficult periods. As an investor that is a big risk, really.

LB: Yes and I sort of talked about that in the past as being hold discipline, because we're looking for companies that go up five, ten, 15, 20 fold. And two things are therefore true. One, if you're going to do that properly the company's going to sometimes go up a lot in share price but the logical thing to do is not going to be to sell, if it goes up ten times the answer isn't to sell up for double because actually we're missing out on a lot of [unclear] opportunity.

Equally the reverse is true. As we said, Tesla isn't anomalous in this, most of our companies have 30, 40% drawdowns. And I think the biggest difference is almost sometimes not identifying but the willingness to support and own them through difficult periods. Because I think for most fund managers, and most individuals, when you see a company as down 30 or 40% it creates a lot of behavioural and emotional burden on you. It's not a nice place to be psychologically, we always want to be permanently up. And so it's a challenge in those situations to not get caught up in the daily market news and narrative which is just a reaction of trying to explain what's happened in the last couple of days, but to focus on again where that company might be in the next five to ten years.

Because the worst thing we could do for shareholders is when these companies hit these bumpy periods, sell. Because you're probably selling at one of the wort possible times and you're also cutting yourself off from that extreme return potential. And there's again, dozens of times in our companies where they go through these periods that if we had sold we would have done a huge disservice to Scottish Mortgage shareholders. And I think you just deal with that by accepting that these periods happen, that they're normal, they're not abnormal, they don't always mean something is terribly wrong. Accepting that they happen and trying as much as you can to focus on what does this mean for the company in terms of where it's going to be in five to ten years. Does it really change massively the value of this company's potential.

AM: I'm going to home in on that hold discipline once again and how it actually applies to China which we haven't touched upon really yet. So with China set to become the world's largest economy, businesses there are sure to play an outsized role in the future. So how do you approach investing there? Are there examples you can share of the exceptional growth that SMT looks for?

LB: Yes so I think you're right, China is a large and soon to be on many metrics the world's potential largest market. And that provides a huge opportunity set for that ability to scale and deliver outlier returns which we've been referring to. So yes, I can probably give a practical example, I think Deliveroo is great as a consumer, across their markets I think they do 800,000 or so orders a day. Meituan which does food deliveries in China, which we own, is delivering 30 to 40 million meals every day. The scale of the Chinese market is on a different magnitude. And I think scale does matter for those outlier returns.

And it's also not just the scale, it's also the appetite of the Chinese consumer and the mindset I think is even more willing to adopt new ways of doing things because of the process of change and rapid change China have been through than we are or we see in many other markets. So that's one element of the scale that the market offers.

The other is that what we've seen over the last five probably even ten years is that we're finding that some of the most innovative business models in the world are actually emerging from China. We are very far away from this idea of China being a copycat. Increasingly we find Silicon Valley and European entrepreneurs looking to China for inspiration and when we ask them where their inspiration comes from time and time again it comes from companies like Meituan.

Take for example ByteDance, the owner and creator of TikTok, that is not a copycat of a Silicon Valley model if anything it's in the reverse and it's now globally popular, it's the world's most downloaded app. I suspect a number of our current listeners will no doubt be avid users. So the innovation there is really impressive. And also linked to that is just the ambition of management, the willingness to invest heavily and to shoot for those right tail [?] outcomes. I think that's something that we see a bit in Silicon Valley, we very much see in China, we don't see quite as much as probably would be ideal in other parts of the world.

Now, at the same time the other thing we look for, and this comes to your question as well, is and this is true for all companies but I think it's particularly true in China and particularly even more true now. We're looking for companies that are clearly benefitting society in some way so that the more they benefit society the less likely they are to be regulated against or given a tough time because they're giving something back to society. William Li who's the founder of NIO we saw him many years ago, I think in Shanghai, he was quite clear that his vision for NIO was electric vehicles. The skies of Beijing and Shanghai are too smoggy and that's not good for my children, we need to decarbonise and electric vehicles are a way to do that. And he was quite clear that for him going with the grain of society rather than going against is much easier.

And I think that's something that we're looking for within our companies globally but I think it's taken on a particular element within China that we need to find companies that are able to offer these material societal benefits. Meituan and Pinduoduo for example, building out a new consumption infrastructure for China but particularly for rural areas and less wealthy consumers, I think are really material. And I think that's something that we need to keep focussing on and thinking of more as we go through these periods. Questioning ourselves and going is the social benefit that these companies are giving good enough to effectively allow them to scale and be profitable at the levels we need them to be for them to be outliers.

AM: Excellent, okay. Well look, we are bang on 1.30 so that is our 25 minutes and our intro complete. So we're now onto the questions. And they have been coming in thick and fast, this computer's been ping, ping, ping. So, the first one though I'm going to pick up on which relates to, it segways nicely into what we've just been talking about. And it relates to China and it says, here it is, Scottish Mortgage Investment Trust has more than 10% of its portfolio invested in China. In view of China's human rights record is Baillie Gifford prepared to review its willingness to invest in China? So you just spoke there about the social benefit so let's see the flipside of that and how you're handling the negative press, I suppose, around social concerns.

LB: So I think the first thing to say is that, and this applies generally but again to China specifically. When you have a ten year time horizon, investing in companies in general that are having material negative externalities is not to me a comfortable place to be. Because they'll either be innovated away, regulated away, or face consumer backlash. So one of the questions we ask ourselves is does this company make society better? And that's true across all companies.

As it pertains to China, again we're looking for companies that in some way are helping society. So whether it's Pinduoduo getting cheaper food and everyday necessities to people, whether it's the building out of cloud infrastructure. Now, how you deal around human rights, China has a very different perspective on the world, it also has a different value system. And I think the way I've tended to think about this has really been what is likely to give, even from our value perspective, the best outcome? If you withdraw all foreign and international capital from some of these Chinese business that we have those relationships, that we're able to talk to and to express certain things to, is that likely to make China more like the China that some people want or less like the China that people want?

So I think it's the ability to continue to invest that you continue to have a little bit of influence, but more than that I think it continues to have a dialogue on these issues. So I think having that influence of an international shareholder base is helpful. I think if it was withdrawn completely I don't think that would make China a necessarily better place to be. Now obviously within that there's lots of different companies within China, we're not trying to own the China market as a whole, we're trying to own a select number of companies that we think are trying to drive technological progress and that are relatively far away from some of the issues that you are alluding to there as well.

AM: Okay so China is very much, it wants to court international investors, so very much it's appealing to interests here and you are seeing open dialogue to address some of these?

LB: Yes, so we've had calls on these issues. We've had a call recently with Alibaba about ESG where they've asked us what is important to you in terms of ESG. I don't think ESG is the greatest of terms, I think it's more of a societal impact. And we've had those conversations and I think because they have international shareholders with different perspectives that does change the nature of the conversation. I know that's not a perfect answer to some of the fears that are being raised here but I do think it's just being involved in that conversation I think is helpful.

AM: Okay right, another question here. Could you talk about the current geographical distribution of investments in SMT, it seems to have shifted somewhat. Is this only because of relative changes in the price of certain holdings or are you actively shifting the regional balance of investments in the Trust?

LB: I wouldn't say that we're materially actively shifting the regional balance but what I would say is I think over time I wouldn't be surprised if we're seeing a lot of our opportunity sets come from, in terms of outlier companies, from sort of Silicon Valley, west coast of America, east coast of China. I'm hopeful that we're now seeing a few more destructive growth companies in Europe emerging and that that in turn makes it easier for the creation of future European companies because they have inspiration, they have the talent pools, they have the VCU ecosystems.

And we're also seeing other regions of the world that are now starting to digitise and build a lot of their own companies and are getting that virtuous circles going. So I first invested myself about a decade ago in Mercado Libre and at that point they were basically the only real technological digital destructor in the region. But today they're inspiration to other founders that are coming through and you see a much more diverse opportunity set there as those companies have been built up. So it wouldn't surprise me if over time we find more regions of the world where we're seeing the sorts of companies that have our growth profiles.

I suspect west coast of America, east coast of China will still remain key, but I think you'll probably end up seeing a little bit more spread of where some of those companies are coming from. And one of the things I think we need to do as Scottish Mortgage managers is we need to make sure we're plugged into all those different ecosystems, that we have those relationships, that we can build up that domain knowledge over time. We're doing that in regions of the world like Sub-Saharan Africa. It might be some time before we see some of the companies at that scale come through but you need, I think it's helpful to go to these regions early and build those relationships so that you can be early partners when they do emerge.

And also being plugged into different regions of the world I think helps sharpen your perspective of what you're seeing elsewhere. And that goes back to the China one that seeing that business model innovation in Meituan is helpful for us to understand what Delivery Hero might be able to do, what DoorDash are being able to do. You want to be approaching them while not just from an American perspective, not just from a UK perspective or a China perspective, but as much as possible from having a genuinely global perspective.

AM: Okay, moving now onto a question which is a bit more structural in nature. How many are in your team and do you feel you've lost some creativity and some of the informal meetings such as been brought about by the pandemic? So how has our day to day changed during the pandemic?

LB: Well I think it's important to be honest here and the honest answer is it's got a lot more boring in terms of a Zoom call is not the same as meeting people face to face. And I think many people will feel that way. I think for us, we've been able to very much maintain the relationships that we've had and also builds some new ones within the Zoom and the pandemic environment. And as I said, we've done some overseas investment trips and I met with a company in person just this morning. So we are doing more of that.

But I think as we go forward it is very important for our insight to be able to go and meet people face to face. It is very important for us to travel, to go and spend a month in China, a month in Berlin, a month in Buenos Aires. The types of connections and the serendipitous meetings that you end up having are much more valuable. I think that is an important part of what we do. I think we've been able to do it okay over Zoom but I don't think that's as good as the real thing. And I think once we start to ramp up that'll be a good thing for us to do.

The second part of the question was about team. There are over 100 investors in Baillie Gifford, all with the sort of long-term focus that I've been talking about. And that gives us a lot of people meeting companies, individuals, academics, it gives us insight. In particular, in addition to myself, Tom, and James, we've got a number of high growth equity investment teams in Baillie Gifford that we work with, that we're involved with and work very closely with.

We've got our long-term global growth team, and these teams will be six to eight people. We've got a North American equities team that Tom Slater heads up, we've got our international growth team that I'm involved with, we've got our healthcare innovation team which is led by a close colleague of mine Julia Angeles. And so there's a lot of support there that we're also getting in terms of ideas and also building some of these relationships that are helpful. But yes, I think the sooner that we're able to more regularly get back to doing investment trips and meeting face to face I think the better really.

AM: Yes, two years on we're all feeling the same I think. Okay, another question which is a bit more structural in nature. The session is titled Why Access to Entrepreneurs and Visionary Founders and Academics Matters. One viewer here would like to learn a little bit more about some of those academics relationships that you have. Could you talk us through those?

LB: So I think we've found the academic relationships really, really important to us. They're helpful because what we're really doing is saying if we want to do the best possible job for Scottish Mortgage shareholders only a fraction of the insight is naturally going to be embedded within the three of us or within Baillie Gifford. We need to make sure that we're getting genuine insight, broad insight from the very best minds that we can globally.

And so, being able to get that insight, whether it's company visionaries or whether it's academics, to us is absolutely key. Building those networks that will help shape our ideas and shape where we spend time doing research. Academia is particularly fruitful because academics don't think on a one to two year horizon, they think on a ten year horizon, they think on a multi-decade horizon and that really aligns very well for us.

What also aligns well is that we're patient. So, we talk regularly for example to Brian Arthur who's a leading complexity economist in complexity science and he's been very helpful in shaping how we think about AI and how we think about technology. He's one of the world's, in my view, leading academics. He was one of the first people that spotted the nature of the digital economy. And having those conversations really helps us.

And what also helps us is we're not going in and saying what do you think of company X, what do you think of company Y, these conversations tend to be more about what is interesting to you in the world? What are you thinking about and where do you see change? And we can do that because we're not looking for immediate answers, we're looking for things that might input today, they might input in five, they might input in ten years. And they've been really helpful in shaping how we think about things.

And all of these are information networks and they're never entirely contained answers, they're individuals dots on a puzzle. So Brian Arthur is telling us, as he has told me when I've visited him in Palo Alto and we have talked to him over Zoom as well, these relationships haven't gone away in the pandemic. But yes, that AI is the most important technological development since Guttenberg's printing press. Guttenberg's printing press made information more widely available, AI is making intelligence more widely available on tap.

And then we were meeting Robin Lee who was talking about the importance of AI at Baidu many years ago. That sort of helps focus us on where we want to spend our time, what do we think is interesting, what do we think are the areas where outliers are likely to emerge. And it's also been very helpful in building out those three growth areas that we alluded to earlier. So those academic networks combined with the company networks are really where we get a lot of our insights that drive a lot of our thinking.

AM: Okay, we've got nearly 100 questions here that have come through, there's so much to get through. But looking through the list of questions there are some obvious trends in them. So one of them really that I think we should address head on is lots of people still asking about the recent dip and could you put some kind of reasons behind it. So could we talk about the recent volatility of the fund and give our viewers some explanations there.

LB: Yes, sure. So completely get given the amount of volatility in times like this it's difficult to stomach, nobody wants to see it, it's not unusual. About a year ago we were experiencing a similar sort of situation as well. In terms of what's driving it, I think what I can say, I mean there's obviously inflation rate inflation narrative, what that does to earnings that are far out in the future, making them less valuable and that disproportionately impacts growth companies. And that's become a narrative that's become quite important in driving some of the buying and selling within markets. The other element of the narrative has been people trying to time a reopening and various things like that.

But I think from where we sit when we're looking at most of our companies, do we see a massive fundamental shift in the progress that they're making on their operations? Frankly we don't, not at this point. And a lot of the trends we're in, we don't think that they've been helped by the pandemic but they're not because of the pandemic. They're structural ones where that digitisation has been brought forward, that demand has been brought forward and accelerated the opportunity.

So from our perspective it really just comes back to where do we think these companies are going to be in five to ten years' time and I don't think our views have radically changed on any of them particularly between now and say November before we've hit this recent bit of volatility. I think what needs to be quite clear is what we are not good at and what we should never claim we're good at is in any way predicting those market directions. So any views that we have on the next six to 18 months on markets I think should be rightly discounted.

What we're trying to maximise for Scottish Mortgage shareholders is how do we get the maximum returns on a five to ten years basis, not how do we smooth out the six to 12 months. And I think we just need to be clear and open in terms of what we're trying to prioritise because I don't think you can get those big long-term winners and have smooth short-term performance to the extent that that's even possible anyway at the same time, I think they're somewhat exclusive.

AM: Okay thank you. Another common question here is James Anderson is obviously leaving in April, can you tell us more about the transition?

LB: So I've worked with James closely in our strategies that we've worked on together for over a decade and he's been, needless to say, incredibly important to Scottish Mortgage but also very important to me as an investor working closely and learning from him. So what I would say about that transition is that firstly there's that decade plus relationship of working and investing alongside him, including a number of the companies that are in Scottish Mortgage today.

I think the other elements of the transition have been passing on some of those relationships that we've been talking about with companies that might have been more in James' court than mine or Tom's. Some of those academic relationships as well which he's been very generous of introducing us and building us up to. And that's been quite a helpful part of the transition.

I think the other part of the transition, and we've done this really over the last ten years of learning from James and the different areas, but also trying to understand the evolution of Scottish Mortgage and the leaps in methodology, where they have come from and what's generated it. And what's come back time and time again I think from James has been how important those external relationships, academic and company, have been to developing his thinking over time. They've really inputted and shaped a lot of his creative thinking.

And so I think where we're in quite a good position is we still have a huge task in front of us but ten, 15 years ago those networks of relationships didn't exist, today they do. And that knowledge therefore is still something we can draw on and what we need to make sure we keep doing is not just leveraging, utilise those networks as they exist today, but also to make sure we expand them and improve them in the future. So that yes, we're not looking to plateau we have to be constantly looking to get better. And I think that really is a mind step that James has been central in imparting on me and Tom and I think it's one that we take very much to heart as being our challenge going forward. That Scottish Mortgage needs to continue to evolve, it needs to get better, we will never reach a point where we've solved investing, we must keep getting better.

AM: We've herd now about your hold discipline, especially when it comes to China, could you tell us more about your sell discipline?

LB: Yes, so again I'd probably start with the caveat that I think the hold discipline is both more important and harder, a whole discipline avoids not doing something every day which is selling. Selling by comparison is quite easy, it takes a few minutes to do it. Hold discipline is something that comes across over a decade or more. In terms of sell discipline it really comes back a lot of the time to our philosophy. What we're looking to do for shareholders is own companies that have the ability to pick up five, ten, 15, 20 fold.

Now, eventually at some point in a company's lifecycle it reaches the point where the ability to do that is more difficult. And we have had examples of that, we've been reducing for example, our holding in Amazon. We think Amazon is a great company but at $1.8 trillion the ability to see a ten times return is naturally a lot more difficult, A. And B, I think we take very seriously the stepping back of Jeff Bezos, he's been so instrumental to Amazon's progress but also Jeff Wilke has also been very instrumental to their progress. And that yes, Amazon is perhaps far less of a day one company than it is today.

And so that ability, and it's similar with Tesla, as we reach points where trillion dollar market caps and you go through our scenario analysis of can a company go up many multiples from here we start to struggle, then we do start to make portfolio changes based on that. So that's being true to our philosophy of looking for those big winners that are capable of delivering those returns.

And I think what I would say there as well is that when we are selling it's not selling because we're selling through fear, quite often, the competition for capital has been, I think, the most marked thing of the last 18 months for Scottish Mortgage, is that we're seeing lots of opportunities in those three big areas we talked about. We talked about the different energy opportunities. So quite often where the challenge is coming from is there are exciting new companies that we think have huge potential and we want to make sure that we free up the capital to be able to invest in them.

And it becomes a trade-off therefore of those two things. How much upside do some of these companies have from here, compared to some of the newer companies where the outcomes might be less uncertain but the upside potential is potentially far greater. And that's a lot of the time in our conversations how it tends to come from. And I think again, it's really being in that position of being quite spoilt in terms of the growth opportunities over the next five to ten years that we're seeing and need to free up capital for those opportunities.

AM: Okay and in the closing minute, one of these opportunities, we've got a question here, predictions for SpaceX please, is there going to be a manned trip to space by the end of the decade?

LB: I don't think I'm the best person to do the predictions of what governments and private companies will do around space but I think what I will say is I think the opportunity that SpaceX faces is absolutely huge. The ability to massively take down the cost of getting into orbit has all number of benefits. Yes, a lot of the time what we see from Blue Origin and SpaceX is the ability to, sending William Shatner into space is great, I love to see Captain Kirk go into space, but a lot of the opportunity set that they have here is really about how do we put satellites into orbit cheaper?

And that means you can start having more satellites that are able to measure climate change, that are able to measure agricultural efficiency, that are able to put, as Starlink is doing, a constellation of low cost satellites into orbit to provide broadband to, in its rural areas, to Scotland or Sub-Saharan Africa where building out fixed-line infrastructure was never going to be possible. And so, space I think is an increasingly important domain and the ability to offer cheap access just to orbital space before we get onto the moon or Mars, is very important.

And then yes, I very believe in Elon Musk's long-term vision that for us to be an interplanetary species, something will go wrong on earth. The magnetic field will reverse, the Sun, something will happen. The ability for us to go off and to colonise elsewhere I think is very, very important. But there are also some very important commercial steps that I think offer shareholders great returns before we get to the [unclear] stepping stones of building that capability.

AM: I mean the second order impact then of space exploration seems like a huge opportunity. And one which is actually quite grounded in real life issues.

LB: Yes. That's the thing sometimes you get the wouldn't it be better if they solved problems on earth? And there are problems on earth and we should look to solve and we've been talking a lot about the energy transition. But some of the things that we can do in space, as you're rightly pointing out, also provide a solution there as well that's helpful. And again, I really wouldn't discount that, in the very long-term for us to develop as a species, going into space will be necessary. And I think having the private entrepreneurship that we're seeing go into this industry has really accelerated what's possible. And that's a good thing and I think the benefits are broader of that than is perhaps commonly assumed.

AM: Okay, Lawrence, that's all we've got time for today. A truly fascinating and wide-ranging discussion today so thank you very much for your time.

LB: Great.

AM: And thank you all viewers for joining us and for your time today. And for all your questions of which there were hundreds. We've more sessions like this coming up so do keep an eye out for those if you found today useful. That's all from me, thank you.

Annual Past Performance To 31 December each year (net %)

	2017	2018	2019	2020	2021
Scottish Mortgage Investment Trust PLC	41.1	4.6	24.8	110.5	10.5

Source: Morningstar, share price, total return.

Past performance is not a guide to future returns.

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