In The Know: Episode 66

Finding the edge: data, AI and active investing

Announcement (00:00):

The information contained in this podcast is for general information purposes and does not constitute investment advice. You should seek investment advice tailored to your circumstances before making an investment decision.

Host (00:14):

This is In The Know, a monthly investment podcast brought to you by Magellan Investment Partners.

Rob Franklin (00:20):

The most valuable data is something that's relevant to your insight. It's often something that's harder to come by as well, so less people are already using it. And we also want it to typically have sort of broader coverage across a range of stocks. So, if we do find an edge in it, we can exploit it over and over. We also create some internal proprietary data sets that we often find has the most value.

Host (00:44):

That's Rob Franklin, research manager at Vinva Investment Management. Welcome to In The Know. Markets are moving faster than ever. AI is changing how investment managers research think and ultimately make decisions and the edge lies in knowing how to use it. In this episode, Mark Burgess, head of distribution at Magellan Investment Partners, speaks with Rob Franklin, who takes us behind the scenes of Vinva, one of Australia's pioneers in systematic investing. They explore the evolution of data and AI in investing, what's actually working, where the limits are, and why human judgment still sits at the center of it all. To kick things off, a welcome from your Host, Mark Burgess.

Mark Burgess (01:34):

Hi, I'm Mark Burgess, head of distribution for AsiaPac here at Magellan Investment Partners. Today, we're talking about data and AI in investment management, how it's changing the way fund managers think, how they research, and ultimately how they make decisions. And to help us unpack this, I'm joined today by Rob Franklin, research manager at Vinva Investment Management. Welcome, Rob. It's great to have you here.

Rob Franklin (01:57):

Hi, Mark. Thanks for having us on the show.

Mark Burgess (01:59):

Pleasure. Now, Rob, before we get stuck into today's topic, it'd be great to give our listeners some insights into your background and what led you to be here today at Vinva.

Rob Franklin (02:10):

I guess growing up, I've always loved numbers and puzzles and problem solving, and then that led to a degree at university in maths and statistics. I started my career in finance as a grad role at Credit Suisse and this was just before the GFC, which looking back was a pretty interesting, chaotic time to start a career. From there, I joined

Aberdeen Investment Management through the merger and I was mostly in fixed income roles, some quantitative, some more macro roles. And that took me over to London for eight years. I started doing these online sort of machine learning AI competitions, which not for everyone, but sort of my idea of fun in the evenings.

(02:48):

And this was probably about 10 years ago and it was really an insight into the early days of the explosion of AI. So, through that I was learning skills about building computer vision models and text models. And yeah, it was a really exciting time. And I sort of had a bit of a pivot in my career at that moment as well, where I then started working at a robotics startup implementing some of those computer vision models in that space. Then sort of COVID happened. I moved back to Australia to start a family and I knew I was sort of passionate about data and models, but I sort of had that background in finance. In Australia, there's probably less businesses where they combine the two.

(03:27):

And I started researching companies and came across Vinva at the time. I hadn't heard of them before. We sort of joke internally, they're one of the largest fund managers in Australia that no one's heard of, but sort of digging into their backgrounds and I saw that the core group of them were sort of all BGI, Barclays Global Investors and they were really some of the pioneers in systematic investing 20, 30 years ago. And so, I reached out to them and one thing led to another and, yeah, ended up at Vinva now.

Mark Burgess (03:54):

That's an impressive resume, Robert from Aberdeen to robotic startup companies. You've certainly seen it all. And our listeners who may not know or are less familiar with the businesses you've touched on, can you give us a quick overview of who they are?

Rob Franklin (04:07):

Sure. So, Vinva is a pure equities active manager. We run Aussie and global portfolios, managing upwards to 50 billion in funds under management. The business has been around for 15 years, but as I was saying that the core group of investors goes back almost sort of 30 years to BGI days. We've been pretty large in the market and institutional space for a while and as you're saying, we're sort of opening up funds and growing more into that wholesale retail space now. We characterize our investment style as insight driven systematic. So, sometimes we say we're sort of people, but leveraged by technology.

(04:40):

So, although we're big users of technology and some of the things we do might sound quite fancy, it all starts with being investors at heart. So, by insight driven, we mean there's sort of a rationale behind every stock driver, every sort of model that we build. Everything's got to be first grounded in common sense. We don't just mine or look through the rearview mirror. It's the people who have the judgment to know what's important and to be looking forward. And then a systematic process, we believe this gives a superior processing of information through scale, repeatability, and objectivity. So, to give an idea of the scale, we cover sort of 15,000 stocks across 45 markets globally.

(05:19):

We've got processes that are running 24/7, continuously ingesting relevant information into our models and we find that this coverage makes it easiest to find an edge and then in that edge, to repeat it over and over. In terms of being objective, we say it's the people who lay down the rules in advance and that prevents biases from clouding our judgment in the heat of the moment. We don't fall in love or out of love of stocks. On average, we think emotions attract from performance and often our best trades are the ones that are the ones that are the most sort of uncomfortable at the time. And then finally, I'd say our process is style neutral.

(05:53):

So, by design, we don't take large industry or style or macro bets. We're really stock pickers at heart. That's where we find it easiest for us to repeatedly add value in that space. So, we aim to deliver our performance, but without the typical concentration risk.

Mark Burgess (06:09):

There's certainly a lot to unpack there, which I'm sure we're going to get into, Rob. Maybe just extending on that and thinking about traditional funds management research, how does your day to day look like as a research analyst versus typically what you know as a traditional funds management, what you did in the past at say Aberdeen?

Rob Franklin (06:26):

In some ways, my day-to-day might look quite different from a traditional equity researcher. So, as equity researchers, we're not broken up into our coverage of certain sectors. I won't be writing research notes on an individual company or putting out sort of an update on my view after a company , and I won't be flying off to visit a company's mining site or necessarily to even meet the management. But having said that, there's still a lot of overlap with what more traditional equity researchers would be looking at. We're looking at similar factors that are driving stock prices, whether it's assessing sort of relevant market drivers or looking at balance sheet, understanding margins, trying to assess management quality.

(07:08):

These are all the same drivers that we at Vinva are looking at. So, the difference is that I'll be looking at each of these components individually, but across as many stocks as possible at the same time. And so, these components that we're trying to evaluate businesses on, I'll then typically distill them down into individual signals. So, my day to day will look like I'll be writing research reports, but on these signals themselves, reviewing existing ones, building new ones, this involves formulating the ideas, getting the data, feedback, discussions with colleagues and ultimately productionalizing the stuff that works.

(07:46):

So, when we're looking for these signals, we're looking for things that are sensible, predictive, consistent, and additive. So, in practice, when a company reports and sort of updates its financials, that should all flow through into our models. Our models are reading the reports in the same way that a fundamental manager might be reading the reports and our models are extracting the components that we think are relevant and then waiting all that information combined. So, at Vinva, the single investment team is the researchers, technology team, and the PMs. The PMs are running more the day-to-day of the portfolios and giving us sort of feedback on what might be missing from the models.

(08:24):

And that's sort of important as well as a researcher. We're not siloed. We're close to the action. We're working on things that are sort of important and relevant for markets without having necessarily to manage the day-to-day of the fund or getting too caught up in the noise of markets.

Mark Burgess (08:38):

I want to now turn to data. Now there's a term that gets thrown around a lot in your world, that being alternative data, which basically refers to any source beyond traditional financial information, things like satellite imagery, web traffic patterns, even social media sentiment. There seems to be a lot of buzz around alternative data and is it actually useful? Does it add value or is it just a lot of noise? Where do you focus your time around this area?

Rob Franklin (09:03):

Alternative data, it really used to be used as a point of distinction of systematic managers, but really nowadays, more and more traditional managers are also moving into this space. Some of them might be calling themselves sort of quantamental managers or just embracing using more technology. I think there's some data sets, you mentioned satellite imagery that in theory, you're able to monitor ports or mining activity and some of these things sound very fancy and to some degree, sells a great story. But in our context, we typically are pretty cautious of sort of a single noisy data point driving too much of one individual stock narrative.

(09:39):

Probably start by saying there's no one magic dataset and with so much noise, our job is to use a broad set of inputs and we've looked across really the sort of a full spectrum of alternative data and we find that some's more useful in our context and to our investment process than others. In terms of the mix, we still have a process that's anchored in fundamental data, probably ballpark a little bit over a half of our insights might come from this sort of other alternative data space. In theory, alt data can give you an early read on some fundamental data or metric. It's often sort of much noisier or it can be sort of a biased estimate.

(10:17):

So, you really need to know how to use it well and what you're using it to track. I'd say other data is more novel in a way of sort of assessing the quality of a business. In terms of knowing what to focus on, an investor's going to have a much better judgment on this. So, as I was saying before, our process is insight driven. Instead of using a data set as a starting point, it's better ask questions like what we think might not be captured in our models at the moment directly. So, how well we can assess the quality of company management without sort of meeting the team face-to-face? Can we actually build a better objective way to do this and then be able to sort of repeat that scale?

(10:54):

So, as a general rule, I'd say the most valuable data is something that's relevant to your insight. It's often something that's harder to come by as well, so less people are already using it. And we also want it to typically have sort of broader coverage across a range of stocks. So, if we do find an edge in it, we can exploit it over and over. I'd say that based on this, we also create some internal proprietary data sets that we often find has the most value. We don't really talk about this stuff as others sort of find out about it, or if other data vendors start commoditizing this, then it really starts losing its value.

Mark Burgess (11:30):

So, it sounds like it's the quality of that data that really determines what's possible, which brings us to AI because the two are deeply connected. Rob, you've had a front row seat to some pretty dramatic shifts in what's possible. So, the question is, how has the process evolved over that time and where has AI made the biggest difference to how you work day to day?

Rob Franklin (11:52):

We say that in the last three years alone, 75% of the world's data has been produced, but of that data, 80% of it is really sort of unstructured and the amount of unstructured data continues to grow. So, that includes text or video or audio, et cetera. And this unstructured data paired with AI is really where we've seen the growth and where AI ends up being sort of an effective tool to really harness the insight out of that unstructured data. So, I'd like to stress that while markets and data, et cetera, has changed, that our investment philosophy, so the way we manage money, that's remained consistent over time. So, we still are and always will be insight driven and systematic.

(12:33):

What it means though is how we apply this, the data sets that we work with, the types of models that we're using, that's continually evolving and markets are competitive and we must continually innovate in order to keep our edge. We say internally that our process is evolutionary, not revolutionary. So, maybe to give us sort of

an idea of the amount of change is our models from five years ago maybe overlap about 60% with what we're doing today. So, there's never necessarily a seismic shift in it, but every once in a while, there will be some changes that opens up more opportunities. Day-to-day, the most obvious change that comes to mind is in text processing.

(13:10):

So, we've been in this place for a long time. The original models that we had sort of involved much more handcrafting to build and extract what we wanted. They were far more limited than what we could extract today, but equally a lot less people were probably in that space. So, we could find that we could extract a lot more insight even with sort of a more simplistic model. But these days now, we leverage more on AI where humans still need to know what is important, but the models themselves are able to extract a much richer level of understanding from the data.

(13:43):

So, if you compare that maybe to a traditional manager who may have relied on reading a company statement closely and sort of finding nuggets of information that they think the market's missing, I think AI for systematic managers allows us more effectively to sort of read everything that we want to extract to quantify that and then to do that at scale.

Mark Burgess (14:03):

And so, thinking about that, have you had any like aha moments where you sort of thought, okay, this is genuinely different, this changes things?

Rob Franklin (14:13):

Yeah, yeah, absolutely. I like to think of that question almost reframing it as, what do we define as human intelligence? Is it the things that only a human can do and realize that that really is a moving goalpost. And once an AI or a machine masters these things, we sort of stop counting that as human intelligence. So, as one example going back as originally playing chess was perceived as being very intelligent and then 1997 Deep Blue beat Kasparov, and now we just categorize that as, oh, that's sort of just a compute problem now. That's not necessarily something that's intelligent per se. And probably sort of in this era of modern AI and things that I've witnessed really going back probably sort of 2014 or so.

(14:54):

It wasn't that long ago where a computer really couldn't tell the difference between a dog and a cat. That was actually a really hard problem for it. And then now in computer vision, there's sort of domains where a medical scan, it might be able to interpret better than a panel of doctors. And we see that same change sort of in the understanding of text, various industries at the moment, legal profession, its ability to understand quite a complicated legal argument and piece together what's happening. I think that the models or the aha moments are really witnessing it, being able to do that as a skill. Now the effectiveness which it can do it often relates to how deterministic the problem is.

(15:35):

If you were to get a lot of people in a room to try to assess the outcome, if a lot of people are going to be agreeing on that outcome, then that's becoming more and more an area where actually a model can probably be trained to start doing that. So, finance at least is still a much sort of harder domain to work in. And so, using the AI, we can sort of use it to understand what's being said, but it really still comes down, at least for now, the judgment, the human judgment on what's important, that's harder. And the other sort of big aha moment, which has sort of changed my day-to-day job to some degree in the last little while would probably be at the end of last year with Claude code.

(16:17):

So, people were sort of using these AI models to write code, but it was quite finicky, you'd have to correct it, et cetera. And then at the end of last year, there was just this huge step up where all of a sudden AI, you could tell it what you wanted to do and it could pretty much execute the code and then build this whole sort of ecosystem around it where it could test its code, evaluate it, plan out steps. So, that's probably been the one that we're juggling with at the moment. I think there's two camps of people, people who have used sort of a ChatGPT where they say, "Oh, it's pretty good at summarizing things. It's making me more efficient at reading things."

(16:52):

And then there's the programmers who are probably witnessing firsthand is the ability to start solving these problems. As I was saying, it's problems where it's more in a closed system. You need to really give it sort of a clear definition of success for it to do well. But that means that my day to day job as a researcher, the amount of time I'd spend say coding up an idea, something might take a few days, I can do in an hour or two and it's sort of really shortened that iteration cycle of research where you can try an idea, test it, fail earlier, get the feedback, et cetera. Again, people are still sort of learning how to use it.

(17:28):

As a researcher, you often learn through your own failures and exploring and that's part of the journey, changing how we sort of test ideas and learn things. And people are witnessing that now in broader markets when it comes to SaaS and software development, but perhaps it's going to be in other areas and professions as well too.

Mark Burgess (17:45):

And look, you've kind of touched on where I was going to go next and that's on the AI investment. We started with the hype, there's been the investment, but a lot of companies, and you speak just in day-to-day conversations in the financial services industry, the impact of output and how do they get a return on the investment from their AI. From your perspective, why do you think that is and what could we be doing better as a community?

Rob Franklin (18:07):

So, there was an MIT study that came out last year that was saying something like 90%, 95% of businesses just aren't realizing any benefit from their investment in AI at the moment. And I think it's a tricky space. Given all the hype around AI, I think businesses feel the pressure to be seen to be using it, whether it's sort of to get funding or someone's KPIs. So, I think this naturally creates a lot of risks as well with misallocation of capital. I think part of the hype around AI is that it is quite easy to make a demo that looks quite fancy using AI, but engineering a solution at scale and on a sort of a relevant tangible problem is far more difficult.

(18:44):

So, I'd probably say it comes down to my main reason is that the use of AI, ultimately it must be purpose driven. So, we sort of say that with our own investment process, insight driven, systematic, is how we like to use technology. Or in business, Steve Jobs would say that the customer experience comes first and then we've got to back out how to get there with the appropriate technology. You don't start with the technology and then search for problems to solve with it. I think some businesses are a much better position to take advantage of it. Maybe smaller tech-savvy businesses can embrace this change faster.

(19:18):

Having a business model that they can now scale up that they couldn't necessarily before where that's sort of opening up new pipelines of business, that's probably where the opportunities are. But larger organizations with existing processes, maybe naturally a bit more red tape are probably going to find it a bit harder to adapt quickly with it. Having said that, they can maintain an advantage if they have some proprietary data or moat. So, these efficiency gains that AI is giving us by automating some of our day-to-day jobs to run a bit faster or maybe sort of cut costs is probably going to take longer to play out on that side and with a lot more friction.

(19:56):

It's still early days though. This sort of ecosystem and the initial technology, it's coming and I think that probably this year in 2026, we're starting to see that layer in business logic that's sort of coming through. So, Anthropic are really focusing on sort of the integration of AI on the business side of things and partnering with other companies. That's probably where people are sort of adding value. And maybe as a final point on that, I'd probably say that the pace of change of this AI in some places has made it quite a difficult environment to operate in.

(20:29):

I think businesses need to be aware of where their value is, what their moat is, but also having really an understanding of how the technology is evolving. So, it's quite difficult to pinpoint when it's moving so fast, but knowing whether to buy a product or build internally, it's very easy to build something and then sort of have it made obsolete as well. And this is something that we juggle with internally.

(20:51):

I think the flip side of that as well can be a good thing in that if we've got some tasks or things we're aware that we could try to build a model and then we just say, "Oh, let's maybe just wait six months. The technology's pretty close and then it comes along and we're well-positioned to then be able to leverage that to actually solve a problem that we're working on that gives us value."

Mark Burgess (21:09):

Yeah, right. And as I think about the investment landscape and I think about how dynamic markets are, conditions change, regime shifts, we see so many events play out, how well does AI adapt when that environment changes and what can't it yet do reliably?

Rob Franklin (21:27):

There's definitely obvious limitations in AI and some fairly generic common pitfalls that we've seen in more traditional quantitative investment processes over the years. So, as I was saying before, finance is very noisy data. It's very easy to use a powerful AI tool to sort of data mine and find some pattern historically that looks good, but it just doesn't extrapolate going forwards at all. It's very easy to sort of overstate your confidence that you have on something when you're trying to use a model that has appeared to sort of work well in the past.

(22:00):

I'd say at Vinva, we're actually fairly measured in our use of AI machine learning techniques when it comes to trying to predict pure returns data. We think that using AI works much better when there's sort of a transparent way of checking whether or not it's producing a correct answer. So, don't try to predict the return, but try to predict something that a human thinks is relevant for a return and that a human can sort of validate in finance especially, don't let the AI tell us what's important or what to focus on.

(22:29):

It doesn't really know when it's out of its depth. That's really where the human judgment is really important to know what you can embed. But in terms of sort of regime shifts and markets being dynamic, that's a tricky one. But equally, we sort of say we need to be modest too and it's important to know what we know and what we don't know. So, trying to judge the implications of tariffs or how the Iran war is playing out at the moment, these are things that are hard to judge when Trump himself might not necessarily know the answer to these. And we won't use AI to judge if a market's going up or down or to take these big macro bets.

(23:06):

But I'd probably argue as well, it's quite hard for humans to consistently sort of add value in that space and to do that well. So, what we do to handle this is we have very tight risk controls. So, we believe that the best hedge to changing regimes is to actually run a highly diversified portfolio with hundreds of little positions. It's designed to outperform through sort of the stock selection side of things without taking these larger thematic bets. So,

this is probably where we differ most from many traditional managers that might run some more highly concentrated portfolios.

(23:39):

They might have a lot of skill at picking some individual stocks, but can sort of tend to underperform by having intended or even unintended exposures to these thematics that can emerge in markets. By design, our portfolio construction process tries to limit our exposure to these. And finally, I'd add that when it comes to changing regimes, it's really important to understand the assumptions that are underpinning our models. So, for whatever reason, if there is a large structural shift in one of those factors, we're in a better position to be able to judge whether it's still relevant if we want to include it.

(24:12):

And then equally, if there's some other dynamic that's playing out in markets that isn't captured in our models, the human is aware of that and then we'll either try to build a model to position around it or maybe just try to hedge out our exposure to that as well as we can.

Mark Burgess (24:27):

And then that's the important piece of the human interaction as you've talked about. I think the other thing I think about with Vinva is you've been around as a business since 2010, but the core group of you have got 30 plus years. So, you've got really long tenure and insights and understanding of that thematic. And I suppose that moves me into the next sort of area, thinking about the risks that with all the data available, anyone can build a sophisticated systematic process and call themselves a manager AI is almost democratizing some of that investing. Is that actually true and sort of how do we ensure that the real costs and hurdles don't get caught up in that?

Rob Franklin (25:06):

Yeah, absolutely. I think it's raising the bar across the board for all managers, not just systematic managers. I think what would typically count as a high level or analysis and due diligence previously now with these AI tools and with the amount of data that you need to probably process, that sort of lifted the bar overall. And this isn't really a new thing as well for us. I think the industry sort of continues to become more data intensive and there's obviously risks around that as well that were mentioned before when talking about the data that's important, very commoditized information.

(25:38):

If everyone starts focusing on it, it's pricing quite quickly, it ends up then perhaps losing its value or even worse, leading to some overcrowding and the other risks associated with that. So, as a systematic manager, we've witnessed this effect over a long period of time and so things that we might've done a few years ago and had an edge in and has become common knowledge, we tend to downweight that things. That's again, where the human judgment comes in where we try to stay ahead of the game.

(26:05):

And so, for this reason, when it comes to the real costs or hurdles of running a systematic process, we sort of tend to rank it that it's the talent, the people first and then the data side of things and the associated infrastructure that comes with that. So, as you were saying, yeah, 30 years of experience we've kind of got a pretty good idea on knowing what to focus on, but we can't be sitting still. We need to be evolving our process accordingly. Second, we say that as a business, our second highest spend is data. So, to do systematic investing well, you do need a certain amount of scale as a business.

(26:40):

I think the amount of data and the quality of data is quite expensive and the data that's often sort of either open sourced or more public available is definitely sort of more limited or more commoditized. And then finally the infrastructure that you need, it's not necessarily a case where we can say, "Oh, let's just spend a lot of money

now on AI and tokens and that's going to give me all the compute and everything I need to build the models." I think that the infrastructure that we've built up and over years is very sort of comprehensive and that that still gives us an edge.

(27:11):

Now, obviously if we're building that again from scratch, it might be a bit easier to do or a bit cheaper to do and you might need a few less coders to program it up and to do it quicker, but still like the whole sort of infrastructure and compute around a systematic process is still very, very expensive.

Mark Burgess (27:27):

And so, Rob, given that and looking forward five to 10 years, what does it mean for the way funds operate, the types of people they hire and ultimately for investors?

Rob Franklin (27:39):

Yeah, five to 10 years is a pretty long time when it comes to AI, given the rate it's going. But yeah, I mean, we'll definitely see a general trend still towards using more data and AI that's not going away. I don't think the AI doesn't replace the humans, but potentially humans who use AI effectively sort of partner with it, replace those who don't we say. Yeah, the bar keeps getting raised for what counts as proper sort of analysis and definitely becoming more competitive to keep that edge stay ahead of the pack. We'll probably see history repeating itself again investors might misplace trust in certain very hyped AI products or people going about building tools without that human judgment and sort of input into the models.

(28:24):

There's going to be probably some risks in markets where if we're letting an AI determine too much what's important, as I talked about before, the crowding and potential unwind risks around this, especially if people overstate their confidence in just a single model that becomes commoditized. In terms of investment manager, maybe smaller tech-savvy businesses are probably well-placed to adapt to the change and perhaps with less disruption as well. I think a lot of people's day-to-day jobs, what they spend their time on is going to evolve with these tools and so being able to do that in a less disruptive way is probably quite important as well.

(29:04):

It's probably the data AI is going to help smaller businesses scale to compete with larger businesses, but maybe that means we'll need less junior analysts or some middle office sort of automation roles And then equally, there'll still be large businesses that have got to be really aware of what their moat is if they've got some sort of edge of proprietary data or IP. I think ultimately though in finance and as a profession, it's what sort of endures as human. It's still trust-based capital, fiduciary accountability, things like that. So, the durable edge really becomes in investments, having a process that combines that human judgment with the AI capability.

Mark Burgess (29:42):

Yeah, exactly. Look, and just thinking as we wrap up today, Rob, something I always like to ask is looking forward, what genuinely excites you in investment management and obviously on the counter, what are you watching really closely?

Rob Franklin (29:57):

Yeah, I mean more broadly we've mentioned just how my Watch our lives and financial markets continue to become more digitalized and evolve. I think that's pretty exciting. There's betting markets opening up. There's always new data sets or inputs that we can potentially examine. I think that the pace of the AI is changing and the ecosystem around it and how we start stacking together those elements. I think that's a really exciting space. I mean, personally, I've always loved being a continual learner, teaching myself things, embracing the change. I think there's that next wave something that probably is quite sort of exciting.

(30:34):

It's really that blurring of the line between what AIs can do and what the genuine human intelligence, perhaps trading off the two of those, how they compliment each other. But no, very exciting space to be in.

Mark Burgess (30:47):

Well, Rob, it's been a fantastic conversation. I mean, I really appreciate you sharing your perspectives. It's certainly a space that's moving incredibly fast. So, it's great to hear from you and someone who genuinely is on the tools every day. Rob, thanks for joining us.

Rob Franklin (31:01):

Thanks for having us.

Host (31:02):

That was head of distribution, Mark Burgess in discussion with Rob Franklin, research manager at Vinva Investment Management. We trust you've enjoyed this episode. For more information on previous episodes, visit Magellaninvestmentpartners.com/podcast, where you can also sign up to receive our regular investment insights program. Thanks for listening.

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