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CLEAR PATH ANALYSIS

FUND TECHNOLOGY, DATA & OPERATIONS, APAC 2019

Innovating, optimising and governing from the operations perspective

NOVEMBER 2019

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SECTION 1

THE ROLE OF OPERATIONS IN A CHANGING BUSINESS MODEL

1.1 INTERVIEW

Operations as a solutions driver for front office innovation

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Lounarda David,
Chief Operating Officer,
IFM Investors

SUMMARY

- *IFM Investors takes an innovative approach to business innovation through the operations team*
- *Operations can lead the charge in business transformation*
- *IFM is in year one of a three year businesses transformation program*
- *David is focusing on three principles: simplifying, optimizing and innovating*

Rachel Alembakis: What role does an operations team play in helping an asset owner/manager innovate?

Lounarda David: It does depend on the organization, but I feel that the new world does look very different from the old world of operations.

In the old world, innovation was primarily seen as an IT initiative and typically IT staff would drive a lot of it. The development and changes were also dependent on the IT team's interpretation of the business requirements, rather than the business driving the technology requirements and operations being the core and champion of the changes.

Comparing that model to today's model, you will see a significant shift in thinking and approach. Those organization who differentiate between business innovation and IT innovation have created similar models to IFM where there is a dedicated business transformation team and capability.

This is the hub that plays a very significant role in transforming an organization's business, operations and practices. Technology definitely plays an important role in these models, but more as an enabler than a driver. The other attributes and capabilities that a transformation team brings in include increasing business efficiency, effective change management, designing optimal business solutions, product developments and strategic focus of the operating platform. This team sits alongside the IT team and collaborates closely with the IT team. In these models, the IT team is more focused on the implementation of the new requirements and projects; whilst also ensuring the business engine operates efficiently every day. The Transformation team, on the other hand, has a business and enterprise focus, forward thinking and inspiring innovation.

We deliberately created our model this way because the skillsets and experience you need for IT and business transformation are different. Recognizing that innovation is not just about getting the best technology system, but also around effective operating models, capabilities, skills sets, practices, processes and governance arrangements.

More importantly, the transformation team has a forward-thinking focus, preparing the organization for the future and embracing the new technology developments such as block chain, robotics and Artificial Intelligence, etc. Adopting changes and such technologies can be challenging when you have a global organization such as ours, operating in different jurisdictions and markets which are at different stages of their business maturity and technology evolution.

> I WOULD LIKE FOR THE TERM ‘OPERATIONS’ TO CHANGE, AS IT DOESN’T DO JUSTICE TO WHAT THIS AREA COVERS. I LIKE THE ORGANIZATION TO RECOGNISE OPERATIONS AS AN ENABLER AND DRIVER, AND ALSO BE GIVEN THE LICENSE TO PERHAPS HAVE MORE INPUT INTO THE STRATEGY AND FUTURE ASPIRATION OF THE ORGANIZATION

Operations plays a very important role in transforming an organization, by leading the charge. I have seen a lot of innovations and strategic projects that have failed as they have been driven as an IT project without the appropriate collaboration and engagement from the business. As a result, the developed solutions have not been robust or developed to address the business needs and deliver value to the business. I have seen transformation projects that somehow lost the focus of the problems that they were trying to solve and by over complicating the issues, ended up building complex and sophisticated solutions that the business could not use, so the business continued to opt for their old practices and processes.

Rachel: How do you design an operational governance system that supports this kind of proactive activity?

Lounarda: It is really through the governance and vision of an organisation, recognising operations as part of the solution and being a key decision maker. At the same time, designing an operating model with the right functionalities and capabilities, clarity of the goals combined with forward thinking as well as clarity around roles, responsibilities, accountability, collaboration and decision making.

In these models, operations will need to be part of the decision making process and has to be accountable for delivering on innovation. Transformation team within the operations, encourages and inspires innovative ideas. But, ideas can come from anywhere within the organisation, and are not limited to one area. This is different to the old model where ideas would come from the product team or marketing team.

When you have a hub for staff to submit their ideas and business cases with the associated rewards and recognition, it encourages staff to be proactive and think big and outside of the box. This helps in extracting additional value and contribution from the staff and increases their interest and engagement in the organisation. We are in the process of rolling out this initiative in IFM via our business transformation area who have developed the requisite tools to help our staff with their initiatives, such as business templates, project management resourcing, financial and non financial modelling to track projects and capture their benefits and value.

This model encourages staff to think abut process improvements and new capabilities across the functions and other areas, rather than just their own area. The business cases will help staff to think bigger and wider than what they may had initially envisaged. Our transformation team will help staff to explore different options and develop a high level design for the concept with all the financial and non-financial elements. The business cases will then be put to the approval committee. The incentive for this is that people actually get rewarded financially, alongside the personal recognition that they receive, and we will pick up two or three of these ad hoc ideas and try to implement them.

Rachel: Where are you in terms of your transformation program within IFM?

Lounarda: IFM's transformation program is a three year program of integrated and aligned projects. We are at the end of our first year of this program. Our transformation program covers many facets from governance to sophisticated capabilities, capacity, skills, processes, data governance, technology, risk management and analytical insights.

For instance, on the technology front, we designed our future state architecture and operating platform designed for sophisticated global/local capability, flexibility and efficiency with a robust data and risk management framework, including our data lake requirements. We looked at it from both an external as well as internal perspectives and designed this architecture before we started embarking on the system review.

We reviewed all the systems and applications that we currently use in the context of future state operating model. This process also involved assessing market capabilities and initiating a number of technology tenders. We are halfway through this process. In the interim, we have been developing our data governance framework and data warehouse capabilities. Many organisations assume that data warehouses will automatically solve their data challenges. That is not the case at all. So, we have focussed on developing our data governance framework and policies including guidelines and protocols. This is much more complicated and critical than the data warehouse itself. The first stage of our data warehouse went live a week ago

Rachel: Does changing of staffing and resources require a different mindset from the people who go into operations to get towards this future looking system, where you are looking at solutions and processes first and not fixes and systems first?

Lounarda: Absolutely, we need staff with multiple disciplines and to be jack of all trades. Very experienced staff in all facets of a transaction life cycle, from portfolio management, to execution, implementation, market convections, custodians, investment administrators, project management, technology vendors etc. At the same time, we need expertise around the investment products both in private and public sectors and the underlying assets and instruments. These are sophisticated and different level of expertise than historically was expected from operations. So, you need a blend of investments, operations and technology expertise.

These standards and expectations are changing the trend of investment staff moving to operations rather than the traditional model of staff using operations as a mechanism to get into investment teams. We have seen some of this shift. One of equity portfolio managers moved from the investment team to the operations team and was subsequently relocated to our New York office to manage our back office activities in the US. He brought in a wealth of knowledge and experience in portfolio management and execution to our team and has transferred that knowledge to the other staff within operations. The other example is Scott Barker, who was previously the APAC head of IFM's debt asset class with extensive banking and investment experience. Scott has joined my team and is heading our investment risk and execution oversight capabilities, an independent function from the investment teams. I was very excited when Scott decided to join my team. He did it because he sees operations as a game changer, a driver, innovator and implementer.

My business transformation team has wide and diverse backgrounds including program management, investments, operations, custodians, IT, fintech, regulators, superfunds, consulting etc. The complementary skill set and knowledge is very important, yet difficult to easily find in the market. The strength of this model is the ability to develop robust solutions that can be implemented in an efficient and timely manner.

Rachel: If you were to sum up where you would like to see your ideal organization five years in the future, where would you want to see an organization, in terms of harmonized and optimized relationship between operations, product innovation and management?

Lounarda: I would like for the term 'operations' to change as it doesn't do justice to what this area covers. I like the organization to recognise operations as an enabler and driver, and also be given the license to perhaps have more input into the strategy and future aspiration of the organization. With this comes an expectation that operations will have the requisite vision, skills, experience and drive to live up to the expectations.

We have developed three guiding principles for operations around simplifying, optimizing and innovating and getting the balance right between the three. These principles have been embraced by operations and endorsed by management. I believe these guiding principles will result in significant capabilities being developed at IFM over time which will benefit and strengthen our value proposition for our clients and investors.

I am confident that in five years' time, IFM will have a sophisticated robust, cost effective and flexible global operating platform, with the expert staff in the operational hubs. Operations will be more strongly aligned to the business and a key driver and supported of IFM's growth and strategic initiatives.

Rachel: Thank you for sharing your thoughts on this topic

1.2 ROUNDTABLE DEBATE

How do Chief Operations Officers add value in a changing business model?

Moderator

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Panelists

Rob Scott,
Chief Operations Officer,
First Sentier Investors

Matthew Baldwin,
Global Head of Sales & Managing Director Asia at Financial Risk Solutions

Steven Seow,
Director, Singapore Consulting

POINTS OF DISCUSSION

- *The COO Group's function is to execute strategy as set by the CEO*
- *Compliance and regulation, particularly in the retail space, is becoming more complicated*
- *Software providers are developing strategic partnership relationships to provide skill and experience to clients*
- *Global regulation is trending towards increased protection of retail investors*

Rachel Alembakis: In terms of setting the governance agenda, where does the Chief Operations Officer sit in this chain of command or chain of operations across the business?

Rob Scott: The COO is responsible for the positioning strategy - how the asset management business positions itself within the global market. This strategy takes into account what markets the business wants to be in, whether it wants to be in managed funds and/or discreet mandates from institutional clients, where it wants to domicile the funds, where it wants to distribute them, as well as what investment strategies it wants to get into.

Off the back of this, all of the functions, including the COO Group, will go away and execute against this strategy, and hence the COO needs to come up with ways for the operations, IT and data functions to execute on the business' positioning strategy, and track to this overtime.

Steven Seow: The role of the COO varies for each organization, and also depends on whether the asset management company has a bigger focus on institutional or retail investors, because the regulatory regime is quite different.

If you are one of the larger fund houses where the funds are actively being distributed to the retail market then there are many more regulatory requirements that they need to fulfill within the different jurisdictions that they operate in which usually adds to the job scope of the COO.

Rob: Yes, you certainly end up with more and bigger legal, risk and compliance teams in these areas if you have a retail or intermediary type sales teams that you are setting up along with a large product team. This is certainly a more complicated way to go about it compared to just being in the institutional space where really you only have a smaller number of institutional clients that you are managing from a sales point of view, and the delivery is more around just managing

> IT IS A MISNOMER TO THINK THAT THE COO IS JUST FOCUSING ON EXECUTION AS USUALLY THEY ARE MEANT TO CARRY OUT THE VISION AND DON'T TYPICALLY GET STUCK INTO THE NUTS AND BOLTS OF THE BUSINESS. THE COO FORMS THE BACKBONE OF THE ORGANISATION

discreet portfolios, delivery month end reporting, and keeping the client happy.

Rachel: Matthew, what have your clients been speaking to you about on the operational and governance side of things?

Matthew Baldwin: Our focus, being a tech supplier to asset managers, is a little different but the point I would start off by making is how much the role of COO has changed over the past 10-20 years.

Part of this is because the back office has been outsourced which, in theory, was one less thing to worry about, but as people are now realizing with the regulators around the world becoming involved, just because you have outsourced the process, it doesn't meant that you have outsourced the responsibility so it has in effect come back full circle from a responsibility perspective.

The problems that our software solves are around fund pricing oversight and reducing or eliminating the huge amounts of spreadsheets and manual processes that are still being used. These tend to cluster around older and outdated software solutions. We are coming at these problems with a piece of software rather than a consultancy angle and helping to streamline these operating models.

These spreadsheets and manual processes introduce operational risks and inefficiencies which are the things COOs are looking to eradicate or remove from their process.

With a recent client, they had converted over to Invest|Pro™ from previously outsourcing this area, they used an older system which needed 107 spreadsheets in their day to day process which was obviously bringing with it staff turnover and operational risk issues. When they migrated over to our platform, they were able to get rid of all of the spreadsheets which simply has to make them more efficient.

Rob: It is a cost versus risk call. If Matthew is coming in to any potential client, then he will have some white papers or hard data that proves the benefits, and it's usually irrefutable, but at any given time we have 20 teams who have a large number of spreadsheets and manual processes, so we have to prioritise our time and spend on the changes that will give us the biggest overall benefit, whether that be a process or system solution that can be outsourced to a vendor as a service or on-boarded as a vendor IT solution.

These are both options that apply to most areas today where we have manual processes going on with a lot of risk, costs or inefficiencies around them, where we are slow to market, or where we are not best practice in what we are delivering.

Rachel: How critical is good operations governance?

Rob: A good example is a new regulatory reporting requirement. Regardless of the regulatory jurisdiction, the task should be owned by the Compliance team, who are responsible for ensuring that the business produces whatever reporting it needs to in an accurate and timely manner.

> Everything we do is focused on providing the global business scalability and efficiency, and reducing overall costs and risks

If it is, for instance, trade related data, the business could do this off the front office system. This is where your Charles Rivers, BlackRocks, Bloombergs etc. are all developing regulatory reporting solutions that you can do off the front end which is the most efficient solution, but there can be a cost.

Another option would be to deliver it off the operations data, so off the back end which could be using spreadsheets or some kind of system solution, or you can look to third party vendors who, if you give them the data, they do it for many clients and will deliver the reports or data files to the regulator in an accurate and timely manner, and you pay a fee to them instead of paying Op staff or IT front office solutions to do it.

There are a few different ways you can solution these types of tasks, but the key is to have an overall functional owner who can liaise with the stakeholders as required, identify and explore all solution options, select a final solution, implement and go live. Regulatory requirements are mandatory, so usually go to the top of the priority list, but for non-mandatory requirements, they need to build a case for prioritisation and budget, and be prioritised accordingly within a business-wide change prioritisation list, based on how well they deliver on the business' overall strategy.

Matthew: From a vendor's perspective, treating any supplier as a strategic partner and recognizing the skills and domain expertise they can bring to the table can really add value in solving the problem. Too often businesses, not just asset managers, but financial services in general have a way of treating software as a commodity where the lowest price is the most important attribute. When in fact you should be looking at the company behind the software. What is their delivery track record, what is their corporate culture like and does it match yours so that you can work well together.. These are important factors to consider, even if you are outsourcing the process, because you want to know how the outsourcer will work with you and treat you as a client.

Rob: Yes, it is definitely technology, then process, then people. That is, you start out with the technology solution, you implement automated, and if not automated, manual processes around that solution, and the people develop, implement, perform and oversee the end-to-end technology and processes, and manage the vendors.

Steven: Technology is definitely the way to go as it helps to replace a lot of the inefficiencies that we often see in the workplace and helps to streamline the lifecycle and resolve reconciliation issues as well as reporting issues, be it internal or external reporting to clients.

I am a big advocate when it comes to the use of technology but having said that, in any organisation as it isn't just limited to asset management companies, technology on its own cannot be expected to solve the problem and ultimately we need to be very clear in how it is being deployed across the value chain to make sure that it fits well with all of the manual processes. Putting very expensive technological solutions in place isn't going to solve a business problem overnight if the people who are using it aren't doing so correctly and I have seen cases like this.

Rachel: How do fund managers interact with asset owners on an operational level? Is it different when you are dealing with institutional versus retail?

Steven: It is quite different. The institutional investor does have different reporting requirements and I sit in the investment committee of a large charity and we use asset manager to manage the reserve. We meet every two months. We sit down with them and they will present the portfolio performance, risks etc.

For retail investors, quite often the fund manager will not interface directly with the retail investor and it will be done through the various financial intermediaries i.e. the bank, insurance company, independent financial advisors or even market exchanges. I am also seeing other fund houses who are interesting in using AI chatbots for the intermediaries and advisors who are distributing their funds.

Matthew: Drawing on the insurance industry, I have heard a lot of people talking about the use of AI chatbots and the full online interaction when they are dealing with the millennial market. At a conference I attended recently, one of the people talked about his firm's experience in launching an AI chatbot and how millennials were responding to it and saying they were really pleased that the robot would identify itself as a robot and not as a human at the beginning of the chat. The feedback was that millennials were more comfortable sharing their personal information with a robot than a human being, which is a fascinating insight for the retail side and anyone dealing with the mixed generation of investors.

> WITH ALL OF THESE NEW TECHNOLOGIES CURRENTLY COMING OUR WAY, IT'S HARD TO KNOW WHICH TECHNOLOGIES ARE READY TO PROVIDE TANGIBLE BENEFITS

Rob: In saying all this, with all of these new technologies currently coming our way, it's hard to know which technologies are ready to provide tangible benefits, what to focus on. In the beginning, we tend to get carried away with the possible benefits, developing technologies then finding the uses for them. Eventually, the actual benefits come to the surface. Distributed Ledger and Blockchain technology is a current example where we all went a bit crazy a few years ago without delivering any tangible benefits, then more recently some actually benefits are being delivered, and long-term it will completely revolutionise our industry.

We've just on-boarded a Global Head of Data, and are currently recruiting for an Enterprise Architect, and together with the overall IT team, we will make sure that whilst we are all head down managing BAU and solutioning things, a few of us are keeping an eye on what else is out there from a technology point of view, and whether we have any tangible use cases for some of this stuff. If we do, we will prototype it, and implement a process by which we can bring new technology business cases to the business for realisation.

Matthew: To get the most benefit from any new piece of technology you you need to invest in the people who use it and your relationship with the software supplier. You also need to maintain awareness of what technology is coming, what are the use cases are and how they might apply for you. You get the most return on your investment if you bear these factors in mind. We are seeing increasingly fewer humans administer more funds and larger assets under management with the correct software and oversight tools to scale in a low risk operating model.

Rachel: Is the COO and operations a source of innovation and strategy development for businesses?

Steven: I feel that any role which starts with a C is meant to be strategic whether it is COO, CIO, CFO etc. and clearly, they are part of the leadership team that contributes to the strategic development of the organisation.

It is a misnomer to think that COO is just focusing on execution as usually they are meant to carry out the vision and don't typically get stuck into the nuts and bolts of the business. The COO forms the backbone of the organisation.

In a number of cases we also see the COO eventually become promoted to become the CEO and this is why I feel that it is more of a strategic role and I have known some COOs who carry out market expansion plans like getting into new markets, or exiting unprofitable markets, and this tends to be the work of the COO.

Rob: Execution, but not positioning although there are many different versions of the COO role and I am certainly not saying that what Steven said doesn't occur with plenty of COO roles. I am more used to the CEO owning the way that the business positions itself in the market and the COO being responsible for how the business executes that in the market.

The way to confirm this then is to check whatever you have done against the way that the CEO wanted to position the business in the market. Obviously, there are many people involved but there is ultimately a single owner, and this is the way that I am used to it operating.

Rachel: Matthew, if the COO has a more strategic role does this affect the way that they engage with you in terms of the demands on the software and their partnership with you?

Matthew: I don't know if we have seen a difference between the way a COO would interact with us due to having either a strategic or non-strategic position with their business. In theory, it shouldn't impact the way they engage with us or other vendors like us because a lot of the requests come from more of an execution perspective, so someone might need data to solve a problem or to automate a certain area of their process.

We are seeing more oversight and a tangible set of automated checks running on our software which is the evidence for auditors, regulators and clients alike. This sits well with the culture of continuous improvement in both service

Rachel: What are the future trends that most concern COOs?

Rob: I focus on how the Ops, IT and Data functions can help the business execute its strategy. The company has always been open to on-boarding systems to streamline, automate, reduce risk and make more efficient processes, so to a certain extent most of the functions already have one of the usual best-of-breed solutions in place, or have outsourced most of their function to a vendor. Moving forward, my focus is on helping the business optimising a lot of this, and so there is nothing wrong with the tools we just have to use them better to fully realise the benefits they can provide.

We do have a couple of big projects going on. Everything we do is focused on providing the global business scalability and efficiency, and reducing overall costs and risks, so once we've identified the opportunities and possible solutions, it is then about prioritising our efforts on the changes that will provide the business the biggest overall benefits.

Matthew: An area where there seems to be a lot of activity in Europe currently is the protection of the retail investor. I suspect that the APAC regulators will start to focus more here soon, and in fact in some markets they already have.

In Europe there is a regulation called Packaged Retail and Insurance-based Investment Products or PRIPS, which requires a very sophisticated fund fact sheet to be produced using a standard format across the entire industry. It requires 38 calculations to prepare it and is very onerous on the fund house or asset manager.

At the moment it is only in the insurance industry in Europe, but it is being rolled out to the managed funds or UCITS world very shortly and has had to be delayed because it is such a big implementation.

Following the royal commission in Australia there is an emphasis on protecting the retail investor, making sure that they know what they are buying and that they are only being charged for things that they bought. In the UK today there are advertisements to claim back any losses that someone may have had on their investments if they were 'mis sold' these investments and didn't understand the risks they were taking.

These changes all boil down to the protection of the retail investor, do they know what they are buying and are they making a decision that is right for them? This could have very big implications across the whole industry globally.

There are many things that will be kept high on the COOs priority list, but this is one area that I see the Europeans being very active on and I am certain that it will start to become a bigger issue here in APAC.

Steven: A few years ago, MAS issued a consultation paper on product risk rating. With regard to the broader product governance role, there are some talks in the market on how the responsibilities should be divided between the financial intermediaries (who are acting as distributors to retail investors) and fund houses (who are acting as product manufacturers).

> “An area where there seems to be a lot of activity in Europe currently and I suspect that the APAC regulators will increase their focus on soon, is increased protection of the retail investor”

Client investment suitability is a hot topic. Regulators in major jurisdictions are putting stricter controls in place.

Fund houses are no longer insulated as they were in the past, in the past they used to just pass off the obligation to the financial intermediary but now some of the jurisdictions are starting to put the onus also onto the fund house.

Rachel: Thank you all for sharing your thoughts on this topic.

SECTION 2

MANAGING RISK IN A QUICKLY CHANGING WORLD

2.1 INTERVIEW

How do you measure, monitor, and manage risk from an operational perspective?

2.2 INTERVIEW

The known knowns and the unknown unknowns – how do we manage data and AI?

2.1 INTERVIEW

How do you measure, monitor, and manage risk from an operational perspective?

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Craig Plane,
Director, Unite
Consulting

SUMMARY

- *There is an underinvestment in front and middle office systems*
- *Cybersecurity challenges continue to mount, with some regulators mandating cybersecurity test drills*
- *Issues of liquidity management continue to be important*
- *There are increasing operational due diligence reviews around alternative strategies*

Rachel Alembakis: What issues relating to risk management and operational due diligence are front of mind at the moment?

Craig Plane: In Asia, we're seeing an underinvestment in front and middle office systems, yet middle office outsourcing is still often viewed by managers as an expensive alternative. As a result, fundamental processes are performed manually, which increases the risk of human error.

We are also seeing asset managers owned by a bank increasingly outsourcing control functions such as risk management, compliance and internal audit to the Group. While it may make sense to centralise some aspects, the challenges of group sourcing include not effectively integrating the functions within the asset management arm and competing time and resourcing demands on the banking side.

The quality of risk and compliance staff is another issue, and the demands on asset managers is increasing in these areas. The pool of candidates is limited, and they are often competing against the banking sector which often pay higher salaries compared to asset managers.

There is also the issue of the downward fee pressure on asset managers and increasing regulatory and compliance costs, which has made it difficult for many sub-scale managers to compete without making compromises.

Rachel: How does scale impact the operational due diligence that you can put in place?

Craig: We apply the same framework; however, it is necessary to assess practicality and proportionality in the application of certain best practices. For example, systems implemented at a $100 million equity boutique may differ to a large fund manager, however you would still expect the fundamental controls to be in place.

Rachel: How about cyber security and financial services firms?

Craig: Cybersecurity challenges keep mounting and has become a focal point for investors and financial services firms. While there are technical controls to prevent cyberattacks, the training element and awareness is crucial, as usually people are the weakest link.

Regulators are playing a role to raise cyber security standards. In August, we saw the [Monetary Authority of Singapore] MAS issue a set of legally binding requirements to strengthen cyber resilience in the finance sector, covering a number of areas such as robust security for IT systems, deployment of security devices, measures to mitigate the

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risk of malware infection and strengthening access controls for critical systems used to access customer information.

If we also look at Malaysia, the regulators have gone a step further and conduct simulation cybersecurity test drills with selected fund managers.

Rachel: Right. You want to have plenty of dry runs so that if the unwanted ever happens you will have the tools to handle it?

Craig: Yes, that is one component to ensure you know systems and controls are functioning effectively and teams know their roles and responsibilities if there is a crisis event.

It's equally important to adopt a forward-looking approach, a typical audit looks at a firm's compliance with policies and procedures, however ODD reviews take on a proactive approach to ensure not only are existing controls and the investment process sufficient but they can adapt to market changes and shocks.

Rachel: Obviously cyber security isn't the only risk management that needs to happen, what about other areas like unit pricing errors or liquidity management?

Craig: Our Operational Due Dilligence (ODD) approach assesses different core factors, such as governance and organizational structure, regulation and compliance, risk management, investment process, valuation and accounting, IT and business continuity and investment operations and we drill into the risks across these core factors.

An area that we are applying greater scrutiny and increased expectations on managers is liquidity management. Investors are commanding more information, such as drilling down into the percentage of illiquid assets in the fund, including Level 2 and 3 assets, effectiveness of risk management tools, fund level stress testing being performed and disclosure to investors. This is an area that depending on the asset class could have a big impact in the future.

Also, the majority of ODD work that we do is on alternative strategies. Clients are looking for higher allocations into some of these strategies, but it does bring an entire new set of complexity issues, such as structuring and disclosures. Private equity is something that a lot of investors still don't have a full grasp of the associated risks and issues, such as independent fiduciary oversight, structuring of funds and associated tax impacts and transparency in terms of conflicts of interests and fee disclosures.

Rachel: How do you handle this from the perspective of setting up just pure governance processes? Is this a matter of getting clients familiar with the ins and outs of the legal structures and regulatory burdens or is it more a conversation as to whose responsibility it is?

Craig: There is the education aspect on the part of the investor, but we also have a role in ODD to assess whether the governance structure protects the investor. The pillars of corporate governance such as accountability, responsibility, transparency, independence and ethical behaviour are all important factors to the governance of companies. Setting up and understanding the principles and practices of good corporate governance is the first step, however meaningful application and disclosure is crucial for good corporate governance.

It's important for clients to be able to interpret the fund documents and ask the right questions to make sure as an investor, they are being treated in the same way as other investors. For example, this can be where a manager might offer preferential redemption rights to favoured investors via side letters, which could potentially disadvantage other investors who are not getting the same material terms.

Rachel: So, you are also advising asset owners before they get into structured alternatives and private equity and the like?

Craig: Yes, although we apply a differentiated approach for alternative assets. Our scope of the review is tailored relative to the type of investment being made by the client. For example, assessing a real estate manager would involve reviewing more specific areas such as development management and asset servicing.

Rachel: When you are working with asset owners is it exclusively from the private banking and individual high net worth baskets or are pension funds doing this as well?

Craig: It's mixed. One of Unite Consulting's largest clients is a government pension fund, however in Singapore our consultants have also worked with clients in the private banking space to assist with their new product approval process and ongoing monitoring.

Rachel: What issues are emerging on the horizon?

Craig: We are seeing a higher allocation to alternatives, which introduces new risks for asset owners, particularly from governance standards. For example, comparing hedge funds to private equity, now hedge funds expect truly independent/multi-disciplinary boards whereas private equity continues to be structured as Partnerships. Partnerships are not legally required to have a Board and usually a General Partner ('GP') is established to oversee the fund, which in practice can result in limited independent fiduciary oversight, however we do see that large investors sometimes take a seat on the GP.

There is also the growing importance of liquidity management. This is particularly the case given the rise of open-ended funds with daily liquidity, which nonetheless buy illiquid securities, such as private securities, real estate, micro caps and so on. While cash buffers work well during times the market is performing well, this is not the case during periods of market stress. A smaller investor who has an open-ended fund and allocation to alternatives or liquid securities therefore needs greater focus and due diligence around liquidity management prior to investing.

Rachel: Has regulation in terms of HQLA and tiers and structures of liquidity been useful in focusing the mind of investors to maintaining a hyper vigilance around liquidity management?

Craig: I feel regulators have actually been doing quite well to highlight the importance of liquidity risk and we have seen a number of asset managers renewing their focus on this area. However, there is still further work to be done in areas such as decision-making framework to deal with the results of the liquidity analysis and how to effectively perform liquidity stress testing on both historical and simulated events in a timely manner.

Rachel: Thank you for sharing your thoughts on this topic.

2.2 INTERVIEW

The known knowns and the unknown unknowns – how do we manage data and AI?

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Simon Crisp,
Asia Pacific Lead,
Cyber, Deloitte

SUMMARY

- *The scale and speed of uptake of AI and machine learning means a rethink of how data is governed*
- *Governance reviews around data management has shown gaps in controls*
- *Before deploying new data solutions, there must be an articulated business case to monitise the investment*
- *Consistency in governance of data management is critical throughout organisations*

Rachel Alembakis: How should financial organizations such as fund managers and asset owners be looking at the governance of data?

Simon Crisp: I have been working in and around data governance for a long time, and the scale and speed of which business is moving today, particularly around the use of AI and technologies like machine learning, mean that the traditional way that we provided governance around the data that being used requires rethinking. Secondly, the traditional processes around approvals and controls around this data are now falling by the wayside because they aren't keeping up.

A lot of the work that I have been doing in the past 12-24 months has been to update the governance frameworks and controls required to meet this new digital era and to support emerging technologies. It is broader than just updating processes as there are new risks and in order to manage them, we need to think about governance in a new way.

The regulatory environment is also providing a great deal of scrutiny now, particularly within the financial services, around the use of these technologies. This means that getting on the front foot in this space is very important and not too many are at this point.

Rachel: What do you mean, it is more than just updating processes?

Simon: This is an area that I have been collaborating a lot with my colleagues in both the UK and the US. We have discovered that with some of these new emerging digital technologies like robotic automation and machine learning, they require additional controls to manage as they go into production, which your typical IT solutions most likely won't cover.

When we do a governance review of these new digital technologies, we also will do a review of the control framework around the technology. What we have found, even within Australia where we have worked with two of the big banks, is that there have been quite a few gaps within the controls framework which we have been able to update.

This means that when a solution is being put through design and being approved to go into production, you want to make sure that you have these controls in place to manage the risks associated with them.

For instance, a control that isn't always updated when it should be is identify management and access controls. A lot of these robotic tools or bots within businesses have their own identities and ability to log into systems and complete transactions. We feel that the identities

> “IT IS MUCH MORE DIFFICULT TO DEPLOY A MODEL INTO PRODUCTION, THAN IT IS TO BUILD A MODEL ON SOME SAMPLE DATA”

of these bots in these tools needs to be managed in line with an organization's identify management strategy that would be used for humans i.e. how you would on and off board humans who access the systems.

There are other controls in place around factors, like how you might manage the algorithmic risk, which is whether you have checked if any bias in the code. Have you got the right governance in place? Is data privacy protected? Do you understand the data lineage on the data that some of these models are being trained on and will operate on?

Being able to help an organization to understand these questions and to know what controls are in place means that we can help to reduce the risk, and hopefully start to lead the market in deploying these technologies in a safe way.

Rachel: In terms of managing bot identities, how close to a human perspective are we talking about?

Simon: When robotic automation processes started out, it was quite common to use a human's credentials. You may have trained a bot in your environment to help you out with some repetitive task, and initially people were using their own human credentials which allowed the bot to log into systems and process details.

What was discovered as RPA became more mature in the marketplace, was that this is not really sufficient from a security, ownership or controls basis. You want to make sure that for any bot that is being built, that it only has access to the systems that it requires. And when the bot is no longer used for that process, its access should be removed entirely. This is similar to the process when an employee leaves the business or moves between departments.

I am working closely with some of my cyber colleagues who spend a lot of time helping organizations update their identify management systems and strategies.

For some of the larger organizations with tens of thousands of employees, all of a sudden they will have hundreds of new user identities which will be the bots that they then need to also manage moving forward.

Rachel: What does it look like to be proactive or getting on the front foot when it comes to issues like data management, AI, algorithmic data and the issues surrounding them?

Simon: It has been a journey within many organizations because a lot of businesses have been hiring data scientists who have been very good at taking a sample of data and building new models and discovering deep insights and opportunities. However, when it then comes to deploying them into production or embedding within operational processes, this is where their experience falls short, and where we are finding issues becoming apparent.

It is much more difficult to deploy a model into production, than it is to build a model on some sample data. This comes back to a range of factors that need to be considered, such as how the model is being run, how often it is being run and if the model is self-learning. Questions like 'Are we tracking it and making sure that the model isn't building in some unintentional bias in the decisions it is making?' need to be examined.

Rachel: You mentioned that you are seeing an inconsistency in the deployment of governance around AI machine learning and data management. Where are these inconsistencies happening?

Is it the standard issue of a larger organization versus a smaller one? Or, are there other traits that are leading to the standardization being inconsistent across the industry?

Simon: It is definitely harder within larger organizations. For the clients we work with, most have been in the market for a long time, have a lot of money and have spent a lot of time on these areas, but they still don't have it perfect because it is still evolving.

The skills now required are often lacking in the departments that are doing this kind of work. I have worked with a few CROs and teams in the banking sector and they are finding that they do have this skills gap and that they don't necessarily have the level of understanding required in order to ask the right questions.

It is probably easier within a smaller organization because you will have more control over it as there is a limited number of people carrying out this work. But once you get into a larger organization it can become more difficult. Also, a lot of these technologies have been built out of the business units and sometimes with multiple vendors, which makes it that much more difficult to get the control back.

That being said, if you can get this right, there is a real opportunity to lead in the market as well as gaining consistency on how these areas are governed and managed.

Rachel: Where is the natural locus for setting up these rules and governing ethics? Is this something that should naturally sit in one part of the business and flow across other units? Where do you see this being done successfully from a governance perspective?

Rachel: So, to a certain extent it doesn't matter where so long as it is done with consistency and flows across the organization in a manner that deploys evenly?

Simon: Yes, this does make sense particularly in the business unit that is doing most of the work in this space.

The Deloitte global digital risk survey called out the biggest barrier to scaling adoption is being able to articulate the business case. You need to bring back consistency in how you monetize the value from these new tools and the use of AI in the business. I don't think anyone has quite got this yet.

Rachel: When working with clients, do you have to articulate the case that it isn't AI for the sake of AI but has a business case as well?

Simon: Absolutely although it depends on the use case. Often you are trying to get an uplift in an area, either optimizing existing process or converting customers to more products.

Depending on the business case, you want to articulate in monetary terms what the uplift could be. If you were to improve a

> If you can get this right, there is a real opportunity to lead in the market

Simon: We actually carried out a global digital risk survey, and one of the questions we asked was where does the ultimate owner of digital risk sit and there didn't seem to be a clear consensus. Thirty-three percent of participants felt that it should fall under the CIO as the CIO is usually wearing multiple hats as they often used to be the head of IT or hold the chief data officer role. Forty-one percent felt it was other C-suite executives who may be leaders in the areas in which you are deploying most of that technology - so if that was retail banking within the financial sector, you might want it sitting there because then you can build a centre of excellence around it, provided that governance and everyone else can start to align to it.

In my experience, most organizations do form a centre of excellence, where they do put a team together and build consistent methodologies and controls about how the technology is approved and adopted.

We used to do this a lot in the data management space. You would set up an information management team for the same purpose because you wanted consistency in both how people use software technology and how they manage the risks associated with it. We will see a growth in the AI centre of excellence type teams, and this will help to give the business back some control in this area.

process, capability or accuracy of a model, for instance, you would show what that looks like, and then it is about how you continue to monitor it and review it. People often build a good business case and then they don't monitor it and adjust. This is the place where most businesses fall down.

I have seen numerous times where the vendors have been asked to put some skin in the game and actually deploy the technology at their own cost, and then take a cut of the benefits. In order to do this you need to be clear on what these benefits are and how you are going to realize them so that you can get paid.

Rachel: What is coming around the corner – what are the unknown risks and opportunities around data, cyber and AI?

Simon: The challenges I see are that with these technologies becoming so accessible, often the business units themselves are outdoing their own traditional functions and the CRO and financial and legal teams are having to play catch up. They often find out too late that a vendor has been selected or someone has been building a machine learning model, and have to get involved after the fact, without always having the necessary skills to be involved in the best way.

> IF YOU DON'T BRING CONTROL BACK THROUGH EFFECTIVE GOVERNANCE THEN IT IS GOING TO BE VERY DIFFICULT TO REALISE THE BENEFITS OF THESE MODELS

The business can sometimes run away from itself when going down this path, and it may come to a point where we have to pull this back. This will be difficult as you don't want to slow innovation or its use, so there is a lot to be done here.

There are also many additional data challenges. We have been asked to come in and review certain factors such as credit risk functions which are starting to move from the typical linear regression models and algorithms for credit indicators, to exploring machine learning. We have been called in to review some of these models and help the business understand whether the model is now ready for a regulator, because the regulators are interested and want to understand what these new models look like.

Every time we have gone in to view these models, we have found so many challenges around inconsistency due to documentation, the methodology on coding, the data lineage, i.e. if it was trained on a small data set then it is probably not representative of the larger set., so when it goes into production, there wasn't enough thought on where the data will come from.

The other shift I am seeing in the market is that we are getting some vendors with software that can build machine learning models and that are seeking to provide more governance and monitoring around how a business runs these models.

In the next 2-3 years I think we will see a shift away from the free-form data scientist using open source Python code to using software to develop machine learning models in an environment that can be governed and managed.

A lot of our clients have tried hiring data scientists and building machine learning models but if you don't bring control back through effective governance then it is going to be very difficult to realise the benefits of these models in a safe way and be successful.

Rachel: Thank you for sharing your thoughts on this topic.

SECTION 3

THE RISE AND RISE OF DATA SOLUTIONS

3.1 INTERVIEW

How do you create a more seamless glide path for Defined Contribution plan members utilising innovative technology and data solutions?

3.2 INTERVIEW

How can data solutions be implemented to organize, optimize, and automate information flows across operational and investment functions?

3.1 INTERVIEW

How do you create a more seamless glide path for Defined Contribution plan members utilising innovative technology and data solutions?

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Aidan Geysen,
Senior Investment
Strategist, Vanguard
Australia

SUMMARY

- *Vanguard has developed a model to determine the utility of consumption through retirement*
- *A utility-based model manages two competing trade-offs: wealth maximisation and volatility of consumption*
- *Advice models will help determine asset allocation and spending strategy*
- *There is global demand for models that provide scalable solutions*

Rachel Alembakis: One of the big questions in the retirement savings industry today is how to create that glide path through to retirement. What are your views on the subject?

Aidan Geysen: One of the debates happening at the moment, which has been expressed by the Productivity Commission first and foremost [in Australia], is people creating a glide path to retirement or is it relevant to look at trying to solve that true retirement?

Historically, you had distinct product from accumulation to retirement. If you have got a product that serves most of your members' needs in the retirement phase, it is natural that the endpoint for that accumulation product, if it is something like a lifecycle fund, the landing point for the lifecycle ends at retirement.

From Vanguard's perspective and the way that we conduct our lifecycle modelling in the US, we use a utility based framework where we are trying to maximise the utility of consumption through retirement and therefore the model is agnostic as to what the point of retirement is, other than it is clearly relevant in the sense that you are no longer contributing to your portfolio and you are starting to draw down.

This obviously differs by region where we use the model because the circumstances for investors - factors like taxes for instance - differ by region.

Rachel: What does your utility model mean in terms of the input and the decisions that resulted it?

Aidan: This model has the advantage of taking into account the factors that are most relevant to the member. The draft version of the analysis of Productivity Commission compared a static default fund with a lifecycle fund. They looked at member returns in that period leading up to retirement and concluded that a target date fund which, in that period, has started to de-risk, and it could have sub-optimal outcomes. The only outcome that you are looking at when you make that assessment is wealth maximisation, but for a lot of investors this is only one of the factors that is important to them. It is an important factor, but there are trade-offs that need to be considered, from a wealth maximisation standpoint.

Even at the point of retirement, the optimal strategy that is the only lens that you are looking through would likely be one that still had a predominant allocation to equity. The implications of this are that if there was a market down-turn, at the most extreme, the investor would see a level of volatility that they can't tolerate so they de-risk at the wrong time.

Another consequence is that depending on the sequence of market returns, they may have to radically adjust their levels of consumption over time. If your account at the point of retirement when you start drawing from is not enough to cover basic living expenses, your ability

> DATA PLAYS A MEANINGFUL ROLE IN COMPUTATIONALLY BEING ABLE TO COME UP WITH THE RIGHT STRATEGY FOR AN INDIVIDUAL, BUT IT ALSO PLAYS A ROLE IN BEING ABLE TO DELIVER THAT STRATEGY IN THE FORM OF THE PORTFOLIO

to tolerate this kind of volatility and consumption is going to be very limited.

The utility-based framework is really trying to manage both competing trade-offs between wealth maximisation and volatility of consumption. It is also able to preference paying additional dollar of income earlier in retirement when you are more likely to be alive then the model that is trying to generate additional consumption well beyond life expectancy.

Rachel: What should the goal be for moving people through from the accumulation phase to the retirement phase?

Aidan: The challenge becomes much more individual in the retirement phase. In the accumulation phase it is important for people to understand what they need to contribute to achieve their goals in retirement, but effectively people are contributing what they can, which is largely around the superannuation guarantee level and for those who have the luxury of contributing more if that makes sense for them. The problem here is that in the retirement phase, this becomes a whole lot more individual.

Our team has put together what we refer to as the retirement road map, a white paper that details this process and the way it looks at the key considerations and the individual measures around the retirement phase. Essentially, it talks about defining what your goals are, separating those into basic living expenses that need to be met, and typically then if you have the ability to put extra aside, your next consideration might be having some contingency amount in there as you are no longer earning, so that if a car breaks down or a tree falls on the house, unexpected health risk etc. you are able to deal with it. The next consideration would be what discretionary spending would be important to them i.e. holidays, movies, meals out. Beyond this it would be if someone had a legacy goal to leave money for children, charity etc.

When you move from accumulation to retirement you need to think about the role that advice needs to play, even though you have these very individual problems. You can't have one solution that will solve everyone's needs, and so the importance of advice is something we feel is critical in being able to adequately pair asset allocation and spending strategy to come up with an appropriate plan for someone in that retirement phase.

Rachel: There is an inherent dynamic challenge to this because you are talking about the interplay between creating an individual plan in a way that is affordable, accessible and that can be commercially viable for the provider. What are the challenges to creating this scenario of something that is tailored enough for the individual but has the economies of scale and efficiency that the provider can make?

Aidan: You've certainly hit the nail on the head, and data is still a pretty meaningful impediment to be able to provide scalable advice to solve a problem. For instance, if you think about the information your super fund has about you, they don't have any info as to whether you are single or in a relationship, have dependents, whether you have other assets i.e. home or investment property where you can reverse equity mortgage or what other financial resources you have. The limitations from a data standpoint for providers to be able to adequately solve that problem for you, is probably one of the key challenges that still exists today.

Rachel: I would assume it is not just data itself but the flow of data through the lifetime?

Aidan: This is a good point and if you look ten years ahead then you have probably got a lot more clarity in terms of what the role of technology is going to be in terms of being able to gather to solve this problem. The reason it is a long burn and probably not immediate is that to really understand someone's preferences and circumstances in order to have the appropriate asset allocation and spending strategy to support their goals in retirement, needs a more technological solution.

You can do this now through advice but if you want to do this in a scalable way then collecting that data and trying to aggregate it in to come up with a really thoughtful individual solution to the problem is still 5-10 years away.

Rachel: What role can technology play in that process?

Aidan: Data plays a meaningful role in computationally being able to come up with the right strategy for an individual, but it also plays a role in being able to deliver that strategy in the form of the portfolio.

There are a limited number of permutations that you can offer to your investors because if you are going to launch each of these permutations in fund form, this amounts to an unscalable proposition pretty quickly so it requires some of those technologies on the administration side to be able to deliver customized solutions without compromising scale. Clearly, customization at some point is the cost that will come up and will get rid of any of the benefits of that customization.

Rachel: What sorts of questions are you getting at Vanguard around this in terms of wholesale clients and advisers? Are there meaningful resources to help them answer these questions?

Aidan: Vanguard in the US is the largest provider of target date funds within the market and is something in the vicinity of 40%. [In Australia], the Productivity Commission report was certainly a bit of a catalyst, specifically the draft report, as people felt pretty comfortable with the position of the final report in terms of the profile that it gave to the relevance of target date funds. The draft report was a catalyst for providers to look at this area and to ask themselves whether they are doing best by their members with their current strategies.

One of the things that the target date fund has the capacity to do when well-designed is typically take more risk than a static default earlier on in someone's career, gliding to a more conservative level than the average static default at the point of retirement, just to help manage that sequencing risk on the basis that someone's optimal asset allocation in the retirement phase is different to what that answer should be when you are 25 and you don't just want to step off a cliff from an asset allocation standpoint.

The queries we are getting are really in relation to the approach that we employ and what we see as best practice in terms of target date fund design within the US which is probably the model of how we have constructed it for our 401k sponsors. It typically has these characteristics and is pretty aggressive early in the lifecycle and generally lands higher than the average that you would see here, and it thinks about solving the problem through retirement so the landing point for the glidepath is beyond retirement age.

Rachel: Could this model be adapted in Australia if there was adequate demand for it? Would there be a desire for it?

Aidan: From the nature of some of the queries that we have seen from institutional investors in the market, the demand is there to have a more thoroughly considered view. Certainly the capacity to adapt any model exists and there is always going to be a question of resourcing and priority which is clearly something that we will need to consider overtime.

The demand is there following the Productivity Commission report for funds to have a more considered view on arriving on the right answer for their members from a lifecycle perspective.

Rachel: Thank you for sharing your thoughts on this topic.

3.2 INTERVIEW

How can data solutions be implemented to organize, optimize, and automate information flows across operational and investment functions?

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Stephen Fisher,
Chief Investment Officer,
First Degree Global Asset Management

SUMMARY

- *Improvements in data management and monitoring has meant lower costs for fund managers.*
- *By eliminating data replication functions, operations staff can perform "clever jobs."*
- *Data standardisation, particularly around AML and KYC, is still a challenge.*
- *Future challenges include smart data solutions, not just more data.*

Rachel Alembakis: You mentioned that it is getting easier to monitor data. What has this meant in terms of the ability for fund managers and family offices in terms of being able to physically get their heads around data and then organize it for it to contribute meaningfully to operations and investments?

Stephen Fisher: Ideally, we all want to be able to use the primary data because it is the actual positions and data of record. Historically, because we didn't have access to this data in real time or on a daily basis, fund managers would set up their own parallel records, which would simultaneously update trades internally whilst waiting for the external data to be made available. This would require internal records and internal accounting teams who would be able to provide more up to date data than what would be available from the external parties like custodians or fund administrators.

This was very expensive, as having your own internal operations team with 20-30 people effectively doing the same thing that the primary record keepers were doing and then having them reconcile at the end of each month where they would inevitably find some errors. The errors would be on the secondary set of records rather than on the primary set of records because the primary set of records are by definition right. These discrepancies would be whittled down to 1% or 10 basis points and this was often put down to foreign exchange variations or something similar. The value-add of having your own accounting records was nothing other than being able to trade and make decisions on more timely data.

This lag between transactions today, updating and accessing the primary records is now nothing and has effectively wiped out the need for your own back office replicating the data.

Our company is quite progressive in that we are open and proud of the fact that we don't have our own internal set of data collectors because we don't need them. The more traditional organizations have not recognized this fact and continue to run the old system, which is very expensive and superfluous.

Rachel: What does this mean?

Stephen: Ultimately, it means that we can offer a better service, cheaper to our clients. We can be more competitive as we don't have the human resources issue and huge investments in technology that are required to produce nothing other than the same records that you can access online.

From a business standpoint, this can be a negative, because we are challenging the traditional model. If a client walks into our office, they don't see a number of number crunchers, they see one or two people looking at data but not 20 people collecting and entering data. This is

> OUR VIEW IS THAT WE HAVE FEWER, SMARTER PEOPLE DOING CLEVER JOBS RATHER THAN HAVING MANY UNUSED SKILLS DOING DUMB DATA COLLECTION THAT IS NOT NEEDED

a surprise to some potential clients because they are used to the old model.

Our view is that we have fewer, smarter people doing clever jobs rather than having many unused skills doing dumb data collection that is not needed.

The issue of audit is also coming under question because these data sets are all digitally collected, stored and accessed and the error associated with the numbers themselves is actually zero. Trade data properly entered from the transaction or buying or selling a share will be accurately recorded up and down the data transfer mechanism and the transcription errors are zero which is important.

This gives additional benefit to clients as they don't have to pay as much for audit and so the fees that we charge do down.

Rachel: Does this also free up the people that you do have in place to do better analytics around data, compliance and risk management?

Stephen: It turns a dumb job into a smart job. We have fewer people, but we have built our business on this basis, so we haven't had to fire anyone as the people that we do have are doing the smart jobs rather than the dumb ones. The analogy is a ticket collector on a bus who used to collect the payments on the bus but now they have machines that dispense tickets so that the ticket collector can go into the office and do budget analysis and make suggestions for how the time table should be allocated.

We used to hire some very clever graduates and put them in the ops group, and they would vegetate and be totally unstimulated and would either leave or their career progression would be limited. It was a waste of their efforts and wasn't something that we wanted them to be doing but they had to do it because it was keeping the whole operation working. These people tended to drift into front office jobs when they became available and so by not doing mundane data replication jobs, they are now released into the more important world of making decisions.

Rachel: This idea of the automation and outsourcing of certain manual processes freeing up a lot more creativity and changing role for the operations function is a common theme at the moment.

Stephen: Traditionally there were two entry points for graduates: one was research, which would be a lucky position to be in, or operations. The idea was that a graduate would be able to do one of these jobs, contribute to the value of the company so that they could decide where they wanted their future careers to develop into.

Some people wanted to do operationss, others wanted to be portfolio managers or sales and marketing etc., but from the starting point of a new graduate these were the two entry points.

The research entry point is quite stimulating but the operations entry point in and of itself is really mundane but necessary. Now, we can take our graduates into the more interesting jobs.

Rachel: Although things have been improving dramatically over time, where are there still pain points?

Stephen: The ease of which you can access data, whilst being much better than it used to be, still does not have a uniform standard. If someone wants to get another broker online that we don't already use, we then have to spend a lot of time accessing their API's or organizing formats for csv file transfers or just being able to connect to their systems can be a pain that you don't want to have to go through.

Of course, everyone has their systems, securities and their idiosyncratic builds that have developed but having a single protocol for us to quickly be able to access a new broker or data supplier doesn't yet exist and is one problem we face.

Another issue is that in some aspects of our business, the data that is asked of us is not in a standard format so we would have to customize our systems to suit someone else. Both in terms of the infrastructure as well as the content.

This leads me to one of my pet peeves at the moment, which is anti-money laundering ("AML") and know your client ("KYC") requirements. There is an obligation on every financial sector participant to take steps that are consistent with the regulations against money laundering and knowing who it is that you are dealing with but there is no standard being set down such that if there were 10 separate counterparties doing AML and KYC on us, there would be 10 separate sets of data that would be required of us and the certifications or formats for some of these documents would be completely different.

After having thought that you had supplied the right data, a particular entity might then come back and say it isn't what they wanted and so it goes back and forth and on and on.

This is a challenge for people who are operating in an environment where there is no standard or central database for identity verification, and they can exercise their discretion in an ad hoc way.

Rachel: This isn't a data solution fix but more around a reporting regulatory perspective?

Stephen: Well everything is really data related. For AML and KYC, First Degree is an approved participant in the financial system, it has directors, shareholders and all other bits and pieces that are required to operate so that from an AML and KYC standpoint, it does qualify.

If you put this in a central database, for anyone who wants to deal with us to access and where they can check the approval, this would almost be instantaneous, but this database doesn't exist and there is no centralized approval process. Instead we have to go through months of back and forth communication with the particular counter party that we are speaking to before we can do business.

Yesterday, I looked at an approval that we got from a particular entity who is relatively easy to deal with, but we started the process in July, and it was as simple as getting a new broker to agree to have the fund as their trading counter party.

This is an enormous waste of time and it is a data problem because if the data was in the right format and location, they should have been able to pick it up instantaneously and we would have been able to do business in July not October.

Rachel: This isn't something that can be resolved with a tech fix. Does it require clarification from a regulatory perspective?

Stephen: The regulators do have a role to play here and they set down in clear terms that you have to have an AML KYC procedure, but this is interpreted very broadly and differently by every organization.

During an audit process, the regulator will come in and say that they want to see our AML KYC procedure, they show it to them and will say whether it is appropriate or not. They don't say that they would like us to standardise our procedures with a particular model as any model seems to be OK.

There is too much uncoordinated activity which makes the fastest and most efficient solution impossible to achieve. The regulators should step up and say what procedure they want to have and have everyone comply with it. The people who are charged with the job of implementing these regulatory requirements are very clever people but they are not market practitioner and so they don't really understand how businesses operates.

Rachel: Are there other data issues that you are keeping an eye on or becoming aware of?

Stephen: I feel that the API theme is going to be very useful. There is such a movement now to making data available and very open to your clients and counterparties. It is almost becoming too much data. With this, there is pressure to deliver services that may not be within our basic business requirements. Potentially, we could be asked by our clients to do more of their decision modelling and their risk management modelling because when the data channels are so open that the marginal costs of taking this data and adding value to it is actually falling.

I can envision pressure on our business to offer solutions to our clients that have been using their proprietary systems (which are spreadsheets) to do this already.

I guess the questions is do I want to get into a business where I am supporting our platform clients in the decision making and I suppose I do because it will more likely keep them as a client. However, the question is then do I have the capacity to spec our system such that it will be 'life changing' from their current one. By this I mean that any system we offer our clients had better be an improvement on whatever else they are using otherwise it is a waste of resources for everyone. A 'me too' solution is not good enough. Ideally, the client would say '...we need X, can you provide X, if you provide X, we are forever yours'.

Rachel: Thank you for sharing your thoughts on this topic.

SECTION 4

ADAPTING TO CHANGES

4.1 WHITEPAPER

Asset managers must look to multi-asset class capabilities for growth

4.2 INTERVIEW

ESG integration comes to the fore - how do operations consolidate and optimize research and data services to assist in engagement and decision making?

4.1 WHITEPAPER

Asset managers must look to multi-asset class capabilities for growth

Roger Woolman,
Director, Funds and Alternatives at SS&C Advent

"[Asset management] firms must remain focused on delivering strong returns with the capital they've amassed, especially in today's challenging markets and volatile geo-political environment, otherwise they risk losing those investors."—Tom Brown, Global Head of Asset Management, KPMG International[1].

The question is how can asset managers create the strong returns required to attract and retain investors in an era of persistently low interest rates and weakening global growth?

Of the more than 1300 CEOs of large global corporations surveyed by KPMG, the chief executives of the world's major asset management companies were among the least confident about the prospects for global economic growth. Only CEOs in manufacturing held a more negative view. Yet despite this pessimistic economic outlook, 93 percent of asset management executives are highly confident about growth for their individual company.

How will they achieve it? Several factors determine asset managers' success in attracting investors and assets. Costs are one, as evidenced by the rise of passive management and growth of the low fee indexing giants. Client service and the overall user experience are another. Distribution reach is crucial. The biggest factor traditionally though is investment performance.

And here is the great challenge. Active managers who sell "beta" index returns dressed up as "alpha" will be disrupted out of existence, warns State Street Global Advisors' CEO Cyrus Taraporevala[2]. As we near the end of the credit and bull market cycle, asset managers will therefore need to find outperformance by diversifying away from traditional bond and equity markets and into different countries, sectors and asset classes.

Shift into alternatives

We are already seeing this diversification take place around the world. Drawn by the prospect of significant risk-adjusted returns, reliable income streams and low correlation to other asset classes, investors have been ploughing into alternative assets such as private equity, private debt, hedge funds, real estate and infrastructure. And the trend seems set to continue, with the PwC Asset and Wealth Management Research Centre suggesting allocations to alternatives will almost double from US$11.2 trillion in 2017 to US$21.1 trillion in 2025[3].

Allocations from Asia-Pacific are expanding in particular. Among the fund managers surveyed by Preqin, 60% expect capital sourced from the region to increase over the next five years[4]. Fund managers also believe Asia-Pacific will present the best investment opportunities by 2023. Emerging Asia, China and India will lead the way.

Investor appetite for private equity remains particularly strong. PE net asset value climbed 18 percent in 2018, and has grown 7.5 times since 2002, twice as fast as global public equities, noted McKinsey in its most recent Global Private Markets Review[5]. Preqin's latest quarterly

[1] *2019 Global Asset Management CEO Outlook: The need for agility and decisiveness, KPMG International, June 2019*

[2] *State Street chief Cyrus Taraporevala: my 5 predictions for asset management in 2029, by Cyrus Taraporevala, Financial Times, 14 October 2019*

[3] *Rediscovering alternative assets in changing times, PwC*

[4] *The Future of Alternatives, Preqin, 30 November 2018*

[5] *Private markets come of age, McKinsey Global Private Markets Review 2019, McKinsey, February 2019*

private equity update reported PE funds secured US$163bn in global aggregate capital during the third quarter, exceeding the US$138bn raised in Q2 2019[6].

Private debt is another popular area. Fundraising has exceeded US$100 billion for the past four years, with seven-year trailing fundraising up 9 percent per annum since 2013—faster than both private equity and closed-end real estate growth, according to McKinsey[7]. The Alternative Credit Council (ACC) predicts the sector will top $1 trillion by 2020[8].

This uptick reflects widespread investor satisfaction with the asset class: more than 90 percent of respondents to Preqin's H1 outlook felt "private debt met or exceeded performance expectations in 2018."[9] And it continues to prove a source of sustainable and reliable income for investors at a time of ongoing turbulence, outperforming both natural resources and real estate[10]. Pension funds, with their long investment horizons and demand for stable returns, have been particularly active allocators.

But while the investment rationale for shifting into new asset classes may be strong, asset managers shouldn't underestimate the operational and system demands entailed in supporting multiple—especially alternative—asset types. These assets are often structured in a completely different way to traditional asset classes, with radically different workflows.

Accurately allocating profits, losses, expenses and tax impacts among every investor is a challenge, demanding specialised administrative expertise and system functionality. Meanwhile, heightened investor and regulatory scrutiny call for greater transparency and better reporting.

What is the operational ask?

Coping with complexity and diversity is a major undertaking. The alternative asset label incorporates a wide variety of asset types, investment strategies and fund structures, each with specific processing requirements. In general though, the biggest operational pain points include:

- Data sources

Data sources differ from asset class to asset class. And the information is often delivered in varying formats.

Private capital markets data doesn't always come from a standardised data feed. Notices may be sent as a PDF or fax. Image-type data may be used to notify investors of a capital call or distribution. That creates a handling consideration. Can you parse those non-flat file data types? Can the information be collected through email?

- Accounting treatment

Modern private equity funds and newer hybrid funds require complex investment accounting that feeds into the investor accounting to provide investors with detailed look-through to the underlying assets—allowing them to see their portfolio constituents and the XIRR by investor and investment. Detailed look-through from an investor to the investments is also needed to generate accurate fee calculations.

Private equity funds typically engage in multiple investment rounds as well. Whenever new investors come in, the fund must rebalance its profit and loss since inception, and the capital calls and distributions to investors.

Distribution waterfalls add further complexity, especially where distributions are heavily customised. Calculating and allocating the different tiers in the fund's distribution schedule can be a real headache without a sophisticated waterfall calculator.

[6] *Preqin Quarterly Update: Private Equity & Venture Capital, Q3 2019, Preqin, 10 October 2019*

[7] *Ibid*

[8] *Financing the Economy 2018 - The role of private credit managers in supporting economic growth, Alternative Credit Council and Dechert LLP*

[9] *Preqin Investor Outlook: Alternative Assets H1 2019, Preqin, 2 April 2019*

[10] *Preqin Quarterly Update: Private Debt, Q3 2019, Preqin, 10 October 2019*

In the case of private debt, nuances are commonplace—for instance, interest accruals may be left as payables, with loans only repaid at the end or with ad hoc repayments. Such treatments contrast with those for bank debt or syndicated loans.

- Data migration

Adding new assets to a portfolio management system typically requires a point-in-time conversion of the positions the fund holds at that moment. Certain asset types though require migration of the full back history, to accurately track all the capital commitments and drawdowns, allocate management fees and generate waterfall calculations. Transferring the data involves significant work, with the risk that any resulting errors will produce inaccurate or missing data.

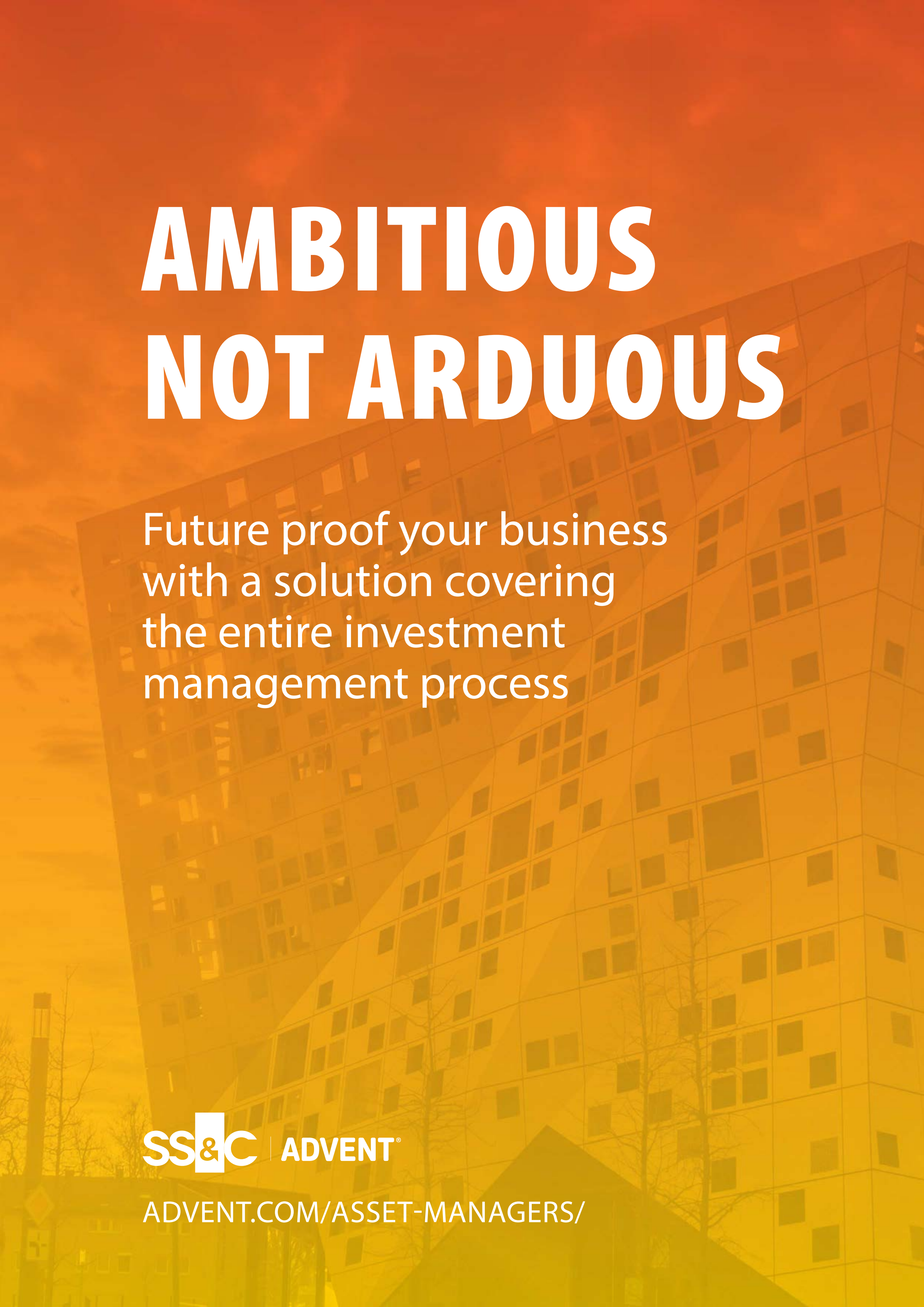
Is your infrastructure up to the task?

Asset managers' core technology has tended to be based on a narrow asset class mix. Many investment firms therefore still rely on a mix of spreadsheets and/or large, single, in-house built or legacy vendor systems that are inflexible and unscalable. These legacy infrastructures and workflows will struggle to cope with the addition of new asset classes, especially alternatives. New asset classes can affect many parts of the system, and acceptance may not be simple. And the larger the system, the larger the task. But in today's competitive environment, firms can't afford to wait months to receive the asset class support they need.

Systems need to be agile and adaptable, with built-in flexibility and comprehensive functionality as a core design principle. An ability to take on new asset classes with maximum efficiency is paramount. Any firm that needs to install new software releases or patches to extend their asset class capabilities will be at an increasing disadvantage. Asset managers need to consider not only the lead time for their technology provider to re-engineer their product and release it to the market, but also the cost and effort required to test and accept the changes.

There is little room for errors or failures either. Regulatory and reputational risks will hound any investment managers found making mistakes or falling short of best practices.

And with investors expecting high-quality servicing—and employing stringent due diligence checks to ensure fund managers can deliver it—a controlled, auditable, multi-asset class operating environment is becoming a prerequisite for attracting allocations.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4.2 INTERVIEW

ESG integration comes to the fore - how do operations consolidate and optimize research and data services to assist in engagement and decision making?

Interviewer

Rachel Alembakis,
Consultant Publisher,
Clear Path Analysis

Interviewee

Kathryn McDonald,
Head of Sustainable Investing Rosenberg Equities, AXA Investment Management

SUMMARY

- *Fund managers must articulate the philosophical case for ESG integration*
- *ESG data has improved in depth, breadth and hygiene, but challenges remain*
- *There has also been an increase in "alternative ESG" data that challenges analysis*
- *Machine learning has improved efficiency, but they have to be at the service of subject matter experts*

Rachel Alembakis: How can ESG data be integrated into quantitative investment processes?

Kathryn McDonald: First and foremost, any manager for any investment process needs to really articulate a philosophical argument for integration of ESG. They need to know their investment thesis, how ESG fits into their investment process, does ESG change for active assumptions and are you going to build new models to accommodate for ESG, or shoehorn it into existing models are all issues that have to be discussed when having a conversation within a firm about ESG.

After this, the next concern becomes the data itself. There are a couple of things that come to mind: breadth is one consideration. Part of the beauty of a quantitative investment process is that we have a way of systematically analysing many thousands of stocks. If we are going to go down the path of ESG integration, we want to get ESG information for us much of that selection universe as possible.

Depth is another consideration as the more data points we have for any given company, the better. If we just have one thing to observe per company, it isn't going to allow us to perform the kind of robust work that we want to do.

The idea of comparability is also important as we want to be able to compare stocks on an apples to apples basis and that means having the same data for all stocks available or as much as possible. There are some important exceptions to this for our own process, but generally we want to be able to make a base line comparable assessment of ESG for all of the stocks that we are looking at.

The next thing for us would be the idea of history, and for quants this is especially important because we want to try and test how this data behaves, not just in the current environment, but also how it might interact with our portfolio ideas in different environments. This is a big challenge with ESG data as some of the governance data goes back quite a way, but most robust ESG data really is from the early or mid-2000s, so we don't have this great time series to work with.

Finally, we are also interested in seeing good data hygiene and by this I mean that when we look at ESG data, we still see problems with things like identifier mapping, not catching corporate actions, time stamping i.e. when did this piece of information become publicly available?. These are examples of what we take for granted in traditional financial statement data which is, frankly, less than perfect within ESG data sets.

This has improved but it is a big challenge when we are working with large chunks of data for thousands of stocks.

> IT IS ALSO CRITICAL THAT THOSE WITH SUBJECT MATTER KNOWLEDGE WORK CLOSELY WITH THOSE DOING THE DATA INTEGRATION. THERE IS NO SUBSTITUTE FOR UNDERSTANDING THE CONCEPTS THAT THE DATA ARE MEANT TO REPRESENT

Rachel: How does Rosenberg Equities use ESG data in its processes?

Kathryn: There are six primary ESG vendors that we work with. There is more ESG data that is ancillary to what we do, too. Thankfully, based on the origins of our firm, we had already built something which was an identity mapping platform. All stocks are loaded into this common framework and we know with certainty that we are always talking about the same stock, and putting ESG into the framework that we have built that already helps us do this with traditional financial information.

We do a lot of testing of the data sets looking for stability and an idea of how data from different vendors relate to each other. If we find changes in the data, we try and trace it back to see what drove that change and whether we can confirm that a change we have seen from one vendor appears somewhere else in a different data set that we might have access to.

Our culture is very data intensive already and so there is some frustration in working with these less-than-ideal ESG data sets, but at the same time we believe that there is a lot of good to be found in the details and doing the detailed work correctly ultimately pans out as an advantage for us.

This is a place where we have hired recently, and this is work that we are very committed to.

Rachel: With the identity mapping platform and other areas, how much of the process of data integration is automated and how much of it relies on your analysts to be able to evaluate the data sources themselves?

Kathryn: When we start to work with a particular vendor or data set it is a bit labor intensive so we want people with a data science background as well as subject matter background to be looking really critically at the data to try and understand concepts like natural skew in the data. It is also critical that those with subject matter knowledge work closely with those doing the data integration. There is no substitute for understanding the concepts that the data are meant to represent.

Once we feel that we understand the data set pretty well, when it the comes to integrating it into the rest of the Rosenberg framework, a lot of it is pretty automated. There is a system in place, automation with exceptions made for items to be kicked out and reviewed by humans when needed but generally it is a pretty automated process.

Rachel: Has technology improved the processes for you at all over the journey of being a quant manager that integrates ESG signals?

Kathryn: It has worked to improve the efficiency of our work but at no point do we say OK let the machine just run with it and we will move onto something else. Machines really need to be at the service of investment people and who are very familiar with the information. This is what we mean by subject matter expertise.

It has allowed us to do lots of different types of work with the data that we couldn't do even 5 years ago and certainly the speed with which we can do things has also increased dramatically.

We need to strike a balance between being excited, interested and optimistic, but also continuing to be skeptical about how these things may or may not be applicable for the task at hand.

> When it comes to traditional ESG data, the quantity, coverage and depth of data has increased dramatically over the last 5 years

On the other hand, the quantity of the data that we deal with is also pretty gigantic so that whilst there have definitely been leaps forward when it comes to machine learning and algorithmic ways of doing things, we absolutely can't forget that human expertise is a requirement in the process.

Rachel: How has the quality and quantity of ESG data evolved over time?

Kathryn: When it comes to traditional ESG data, the quantity, coverage and depth of data has increased dramatically over the last 5 years.

When we look at our global universes now, we see really high coverage everywhere, except emerging markets small cap, which lags behind. For developed, emerging and certainly for large and mid-cap companies, the coverage has been very good.

For some of the concepts that we are interested in today, we would love to look at them going back in time, but again, some history is just not there and this makes for a challenge. The good news is that we have it today and for our own purposes we have chosen to think about what research and analysis we can carry out that will be cross sectional in nature.

In addition to improvements in traditional ESG data, we observe a massive amount of alternative ESG data that has come to market. By this I mean news flow analysis, trending ESG sentiment, natural language process derived data, etc. We also see data that is coming at us from the physical sciences, geophysical data and physical risk data that is often based on satellite imagery and the like.

These are often giant data sets and the challenge that some vendors have chosen to bite off is to map some of this information to companies and map them to identifiers that we can use as investors, which is a herculean task. What this has done is given investors such as us access to these trending news flow ideas or these physical risk ideas which are all very exciting but are unproven from an investment perspective and typically, we don't have a lot of time to work with on these as well.

When it comes to working with alternative data or ESG data more generally, we have to be very honest with ourselves on what type of information is actionable within our own investment process.

Any information that has a very short horizon is not going to be appropriate for us as longer-term investors. With some of this information, whilst it can be very compelling from a story line perspective, it may not be appropriate for our investment style, asset class and models so we need to be honest with ourselves about this.

Rachel: How do you build skepticism into a data procedure?

Kathryn: It is part art and part science and it does have to be in the people and we definitely have to have subject matter expertise or understanding.

When I say skeptical I don't mean to imply that we feel vendors are essentially pumping out bad information. What we really want to be able to do is to see whether something is an accurate representation of what is going on in a company, what are the company's physical risks, what does a company make?

We really do try and consider how we can confirm the data and even directionally or more generally, is there some information that we can look at whether it be a different data vendor or even the company information that it puts out itself?

We need to have some way of doing a reality check on the data that we see and this is a difficult task when it comes to some of the more esoteric alternative data sources but there are ways that we can dig into it a little and decide whether it passes the sniff test or not.

We are always challenged as if the data vendor has their own very complicated modelling system and then we get something that is the output of a model that will always be more challenging for us than what we typically like to get which is raw data from vendors.

When we work with vendors, we like to get the data in its most granular form, and we find that this is easiest to validate because it doesn't have someone else's model or assumptions about materiality baked into what we get.

Rachel: **Is ESG a separate signal of its own that can be integrated into other quantitative strategies, or is too closely correlated with quality signals?**

Kathryn: This is a very hot topic within the community. If we step back to a more philosophical standpoint, when we think about what is a factor or signal on its own, going into this we have decided not to treat ESG as a separate factor for a few reasons, The first is that typically when we talk about factors we are talking about something that is reasonably well defined or has an agreed definition, and there is no such thing for what a good or bad ESG company is. We really shouldn't expect, then, to have the same time of factor experience with ESG if there is no general agreement on what that means. People are often quick to point out that there are 20 different definitions for value or quality, but I would say that those definitions are fairly close, and we see a pretty high correlation in different value factors, but we don't see that in different ESG scores.

Secondly, ESG is very different things that we have lumped together, and for these issues from a factor or investment perspective, one of the main differences is that they each have natural horizons. When we think of governance risks we think of something that can really harm a company today or tomorrow but when we think of environmental risks they perhaps aren't going to really bite companies until well into the future and so it is the horizon difference and what they are trying to capture that makes ESG in totality a weird area to say is one factor that will behave in a certain way that will be independent from other factors overtime.

In terms of the correlation with quality, we do observe that at the extremes of distribution, if we look at the top and bottom 20% of stocks ranked by ESG, there is a positive correlation with quality and a negative correlation with certain types of risk like tail risk or stock specific risk however the bulk of the distribution is really uncorrelated. By this I mean that ESG scores are pretty much uncorrelated with at least our own measures of valuation ideas or earnings growth or earnings quality etc.

The way that we have chosen to work with ESG is really on this idea that for a given investment thesis, if it is valuation or quality orientated, how can we use ESG to get a better risk adjusted return overtime because we really don't have to worry so much about this being just a proxy for quality especially if we have the liberty of working with a very large selection universe.

Rachel: **Thank you for sharing your thoughts on this subject.**

“IN TERMS OF THE CORRELATION WITH QUALITY, WE DO OBSERVE THAT AT THE EXTREMES OF DISTRIBUTION, IF WE LOOK AT THE TOP AND BOTTOM 20% OF STOCKS RANKED BY ESG, THERE IS A POSITIVE CORRELATION WITH QUALITY AND A NEGATIVE CORRELATION WITH CERTAIN TYPES OF RISK LIKE TAIL RISK OR STOCK SPECIFIC RISK”

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