The background of the cover features a dark blue and black color scheme with various financial data visualizations. On the right side, there is a 3D bar chart with several bars of varying heights. Below it, a line graph with multiple colored lines (yellow, red, blue) is overlaid on a grid. Some numerical values like '-05.22', '00.01', and '-00' are visible on the graph. The overall aesthetic is modern and data-driven.

THE Frontier Line

Thought leadership and insights from Frontier Advisors

Issue 112 February 2016

An Enterprise Risk Management Platform for Australian Asset Owners

Part 1: Defining the Problem

▶ Frontier Advisors

Frontier Advisors has been at the forefront of institutional investment advice in Australia for over two decades and provides advice over more than \$250B in assets across the superannuation, charity, public sector and higher education sectors.

Frontier's purpose is to enable our clients to generate superior investment and business outcomes through knowledge sharing, customisation, client empowering technology and an alignment and focus unconstrained by product or manager conflict.



AUTHOR

Lee Eriera

As IT Manager, Lee is responsible for Frontier's technology strategy, including delivery of our proprietary software platforms and management of IT infrastructure. Lee is also a member of our Quantitative Solutions Group.

Lee has over 12 years of experience in similar roles, most recently as Senior Business Analyst at fund of hedge funds business Financial Risk Management. He holds a first class honours degree in Computer Science with Cognitive Science from University College London.



AUTHOR

Michael Sofer

As a Consultant, Michael leads our Quantitative Solutions Group, which provides bespoke financial modelling and quantitative analytics to clients.

Michael is also a member of the Real Assets Team, with a focus on infrastructure research, and provides general consulting advice to clients. Previously, he worked at Bilfinger Berger as a financial analyst in the Project Finance team. Michael completed a Bachelor of Commerce and Bachelor of Aerospace Engineering (Hons). He is also a CFA Charterholder.

An Enterprise Risk Management Platform for Australian Asset Owners

Meeting investment objectives in the face of an increasingly complex and dynamic global investment landscape is leading Australian asset owners to develop sophisticated multi-asset investment strategies.

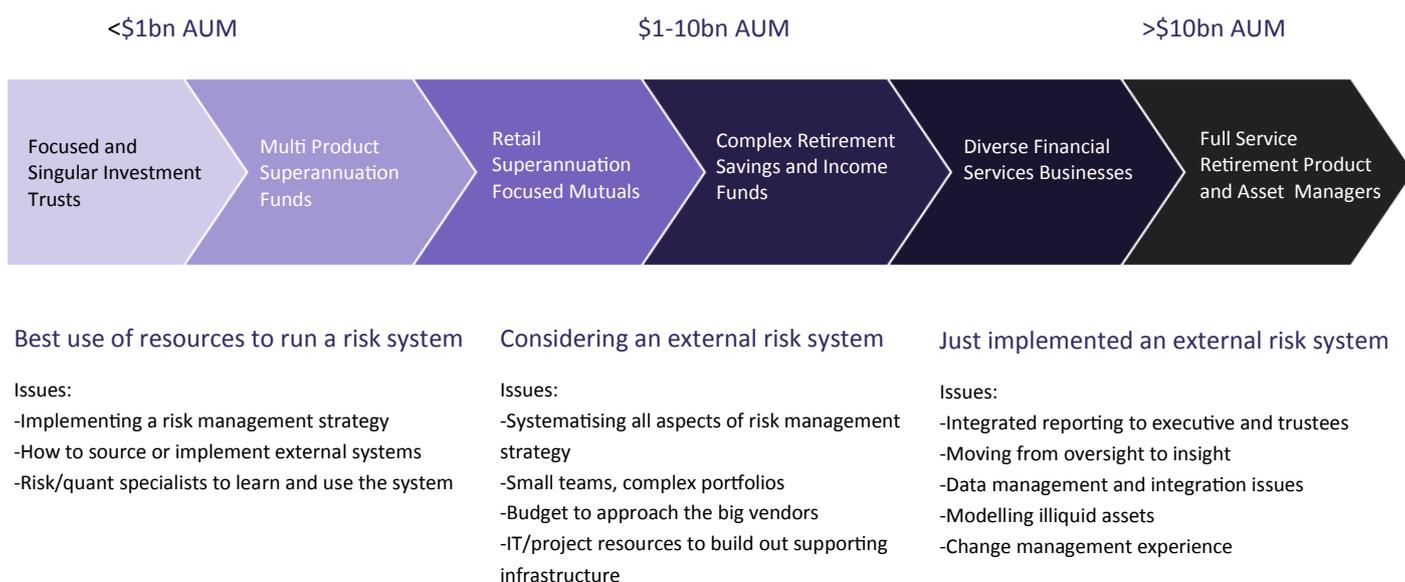
Best positioning these investments for the future, and managing the diverse and complex set of risks, requires a comprehensive understanding of the portfolio. This notion is supported by regulators. They require trustees to demonstrate a fit and proper framework for selecting, monitoring and managing investments in a manner that is appropriate to the size, business mix and complexity of business operations.

To deal with these challenges, many are turning to third party investment risk systems to provide this aggregated view of their portfolios.

However, implementing a risk system is a comprehensive undertaking and it is easy to underestimate the resources, time and cost required to effectively deploy. It is also challenging to implement a risk system that achieves its ultimate objective: empowering trustees and the investment team to appropriately monitor and manage the investments of the fund.

Figure 1 sets out the range of typical issues faced across funds of different sizes and structures in the industry.

Figure 1: Enterprise Risk Management – issues for asset owners



Similar and growing regulatory requirements for risk management strategy, monitoring and review



Examining this problem more closely, Frontier's Quantitative Solutions Group undertook an extensive global research trip in October 2015. We met with risk system vendors, boutique risk analytics providers, investment managers and pension funds. The objective was to acquire a better understanding of how various organisations are managing these issues, and the solutions offered by external third party vendors.

What became clear is that in order to properly navigate the complexity of today's environment, asset owners need to adopt an approach to risk management that transcends the investment function and integrates across all areas of the business.

This may include general governance, investment governance, liquidity, operational, insurance, strategic and other material risks. Some areas lend themselves more directly to system-based analysis (i.e. investment governance and liquidity) but all need to ultimately feed into one unified framework.

This is a truly enterprise perspective on risk management, and we refer to this holistic framework as an Enterprise Risk Management Platform. It is an integrated and structured way for an organisation to determine how risk is defined, measured, monitored and actioned. Properly executed, it facilitates an effective and efficient flow of risk information from within the various business units up to the executive and trustees.

Over the next series of papers, Frontier intends to set out best practice across the elements of the Enterprise Risk Management Platform.

This paper - the first in the series - focuses on investment governance risk and sets out the key considerations when thinking about implementing an investment risk system.

What to think about?

Selection and implementation of a risk system is about much more than the technical functionality of the risk system software. It is about how the system will fit within the broader investment governance framework to enhance investment decision making abilities and meet regulatory requirements.

This is a comprehensive undertaking, which requires detailed consideration of numerous aspects related to system implementation and operation. Selecting a risk system in isolation, without due attention to these issues, makes it very difficult to achieve a smooth interaction between the risk outputs from the system and the investment decisions that need to be made. It is important to address these considerations upfront.

Figure 2 sets out critical aspects relating to selecting a risk system. Against each item, we highlight the following broad considerations.

Figure 2: Critical aspects of risk system selection



Risk Management Strategy

It is critical to consider how a risk system will be integrated into the investment governance framework and, more broadly, the risk management strategy. What is the philosophy on risk? How is risk defined? Who needs what output? How will it be used? Proper and careful consideration of these issues are pre-requisites for the successful selection and implementation of a risk system. It ensures that the risk system fulfils its ultimate objective: empowering trustees and the investment team to appropriately monitor and manage the investments of the fund. It provides a vision for how the system will be used and what questions it is trying to answer.

Regulatory Requirements

In addition to utilising a risk system to monitor investment risk within the fund, it also needs to support compliance with regulatory requirements. Can the system aid trustees in demonstrating sound and prudent management of the fund? Does it allow them to identify, assess, manage, mitigate and monitor material risks? Is it a fit for purpose tool considering the size and complexity of the fund? Risk systems cater to the Australian regulatory environment to varying degrees. Their ability to aid trustees in meeting current and future regulatory requirements is paramount.

Risk System

Now that it is clear how the system functions as part of a broader risk management strategy, it is necessary to decide upon matters of practical implementation. Who will run the system? What data is available and where will it be sourced? Who needs what output? How frequently? What will they do with the results? These questions inform the type of risk solution being sought. External risk system solutions sit on a broad spectrum of: philosophy (some are flexible, others are resolute in their definitions of risk); data requirements (some require only minimal input data, others accommodate the most granular detail); support (some offer none, others will design, build and operate the system for you); and output (some have a very technical interface, others allow different views depending on whether the user is a subject matter expert or CIO). These questions answered upfront narrow the field of possible solutions, and inform the functionality being sought. System implementation is a comprehensive change management project within an organisation. It is critical to ensure the system employed will function as expected.

Data Requirements

The most challenging aspect of any risk system is data. It is the first and last word mentioned when attending any meeting on risk systems. What data is needed? How will it be received? How do we confirm its accuracy? How do we model unlisted assets? How do we model currency overlays? Australian institutions are relatively rare in that they have large and complex multi-asset class portfolios with varied implementation methods. In contrast, risk systems have evolved out of modelling fixed income and equities. Accurately modelling assets such as alternative debt, private equity, property and infrastructure is challenging and at the extremes involves either a prohibitive amount of time and resources, or numerous simplifications and assumptions. The data decisions made at the start have a compounding impact on the resulting output. Poor or inadequate choices will generate spurious results, which ultimately engenders a lack of trust in the system. Deciding on how data will be managed is the single most important decision in selecting a risk system.

IT and Integration

The data requirements for a risk system impact the required IT solution. How much data will we have? How frequently is it collected? Where will it be stored? How will it be accessed? How will it be protected? The required IT environment to support a risk system is an often overlooked aspect of system implementation. Using as a case study many investment managers, who are arguably more experienced and tenured users of these systems, all have comprehensive and well integrated IT systems. This facilitates the efficient use of data and allows it to be an empowering input into the process, as opposed to a burden. An organisation's propensity to invest in supporting IT dictates the risk systems under consideration.

Cost

Implementation of a risk system involves more expense than simply the outlay for the software. Investment is required in the people and systems to support it. This is an expensive but critical undertaking. While this can make many risk systems cost prohibitive, they simply will not work efficiently or effectively without it.

Considering these issues ahead of time ensures that the implemented risk system solution is fit for purpose and gives proper consideration to the unique characteristics of an organisation. The next section discusses our views on best practice in aggregating these considerations into a comprehensive framework.

How to put it all together?

Our global research trip exposed us to a broad spectrum of philosophy, implementation methods, complexity and cost. While the use cases varied substantially, our observations led us to conclude that a risk system can only add value when integrated into a risk management platform that takes account of the entirety of the business's operations.

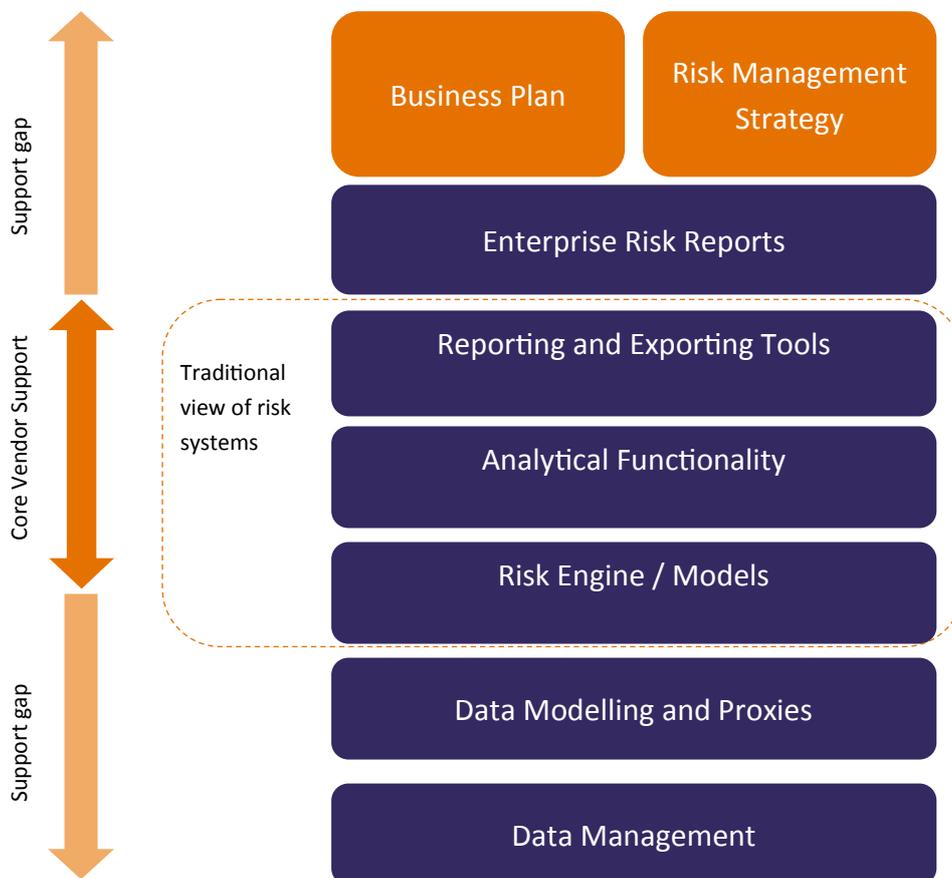
Our rationale is that it provides an integrated platform for thinking about risk in the broadest possible context, and prompts an organisation to clearly and consistently set out how risk is defined, measured, monitored and actioned.

We call this framework an Enterprise Risk Management Platform (ERMP). Figure 3 below sets out the ERMP as it applies to the investment governance framework.

The orange blocks are universal to the ERMP across both financial and non-financial applications. However, the blue blocks are specific to the investment governance framework and its interaction with a risk system.

A key premise of the ERMP is that it represents an entire risk "ecosystem" which is much broader than the risk system itself. The diagram below builds from the bottom up.

Figure 3: ERMP as it applies to the investment governance framework



Data Management

At the lowest level, an ERMP requires a mastery of data from multiple different sources. An organisation's data management needs to be structured appropriately to efficiently feed into a risk system.

Data Modelling and Proxies

At the next level, asset owners need to give proper consideration to the modelling of securities that are unrecognised by the system. Often equities are the easiest, fixed income is a little harder and unlisted securities are incredibly challenging. At this point, decisions need to be made in regard to how these complex securities will be treated by the system. These decisions have significant consequences further up the chain.

Risk Engine

Beyond data, the next decision concerns risk models. There are a multitude of quantitative approaches available for modelling assets. They vary greatly in complexity, philosophy and flexibility. Having a risk model that accords with your philosophy and approach is paramount.

Analytics and Reporting

Having refined data availability and selected the appropriate risk models, the next stage of an ERMP is running the analysis and receiving the results. Vendors are varied in how they offer user interaction with the system. Some offer access solely through a web-portal, whereas others allow results to easily flow into existing spreadsheets and databases. Some offer only point in time analytics while others can accommodate batched reporting and time series analyses. It is important to ensure a system can offer the flexibility required to fit within investment processes.

Enterprise Risk Reports

User interactivity with a system is a primary consideration of selecting a risk system. Often users range from technical experts to executives to trustees who each require different functions and outputs. An ability to cater to this breadth of staff is important, with every level provided clear, actionable and complete reporting.

Risk Management Strategy

At the highest level, the risk output needs to feed into a much broader risk management strategy. This covers all material risks encountered by the organisation – be it financial or otherwise – and integrates them in a consistent and coherent manner. It affords decision makers a holistic view of risk across the organisation and the interrelationship amongst the various business operations.

Business Plan

Complementary to the risk management strategy is the overall business strategy. Output from the risk system needs to inform forward looking strategic and dynamic business decisions. It is important that consideration is given to how these outputs feed all the way up from those running the system to executives to trustees. All have varying definitions of salient information.

As seen above, the ERMP encompasses the traditional domain of risk system vendors – reports, analytics and models – but additionally focuses on broader elements as well. These non-traditional features capture how data gets into the risk system and how it is used in a functional way. Our experience is that these are critical features of an ERMP – the system will not provide valuable support to the investment function without them – but are the most complex elements for asset owners to manage and are typically not the focus of vendor support. A well formulated ERMP gives adequate consideration to each building block.

In our next Frontier Line on the topic, we aim to establish best practice across each of these areas by examining the approaches taken by asset owners and investment managers around the world.

The final word

Asset owners are growing in sophistication across all areas of their business. This includes increasingly sophisticated investment portfolios, expanded operational capabilities, more comprehensive insurance offerings, and highly detailed and purposeful business strategies. Risk within all of these functions can no longer be considered as separate and independent concepts. A holistic and integrated framework is required in order to face an increasingly complex and dynamic investment, regulatory and competitive landscape.

In light of this requirement, Frontier proposes the concept of an Enterprise Risk Management Platform. This sets out a process for integrating varied definitions of risk across the business into a cohesive and unified framework. It allows for a consistent approach to how risk is defined, measured, monitored and actioned within an organisation. It facilitates an effective and efficient flow of risk information from within the various business units up to the executive and the trustees.

This paper – the first in the series – dealt specifically with investment governance risk and the primary considerations when implementing a risk system. In this regard, it is important to acknowledge that a risk system operates within a broader investment governance framework. At its heart, the intention is to support the investment function and inform forward looking investment decisions.

To be effective in this role, it is important to consider the context in which it will be used.

Subsequent papers will address best practice across the various elements of the Enterprise Risk Management Platform. We acknowledge as well that there is a spectrum of risk solutions for funds depending on their size, complexity and resourcing. Therefore, we will also cover the various implementation options available to Australian asset owners and how these can be achieved using a phased roadmap approach.

In all cases, we encourage readers to discuss the Enterprise Risk Management Platform concept with our Quantitative Solutions Group in greater detail, and particularly the options available to you.





About Frontier Advisors: Frontier Advisors is one of Australia's leading asset consultants. We offer a range of services and solutions to some of the nation's largest institutional investors including superannuation funds, charities, government / sovereign wealth funds and universities. Our services range from asset allocation and portfolio configuration advice, through to fund manager research and rating, investment auditing and assurance, quantitative modelling and analysis and general investment consulting advice. We have been providing investment advice to clients since 1994. Our advice is fully independent of product, manager, or broker conflicts which means our focus is firmly on tailoring optimal solutions and opportunities for our clients.

Frontier does not warrant the accuracy of any information or projections in this paper and does not undertake to publish any new information that may become available. Investors should seek individual advice prior to taking any action on any issues raised in this paper. While this information is believed to be reliable, no responsibility for errors or omissions is accepted by Frontier or any director or employee of the company.