INTERNATIONAL ORGANISATION OF PENSION SUPERVISORS

IOPS Working Papers on Effective Pensions Supervision, No.16

STRUCTURE OF PENSION SUPERVISORY AUTHORITIES AND THEIR APPROACHES TO RISK-BASED SUPERVISION

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July 2012

IOPS WORKING PAPERS ON EFFECTIVE PENSIONS SUPERVISION

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STRUCTURE OF PENSION SUPERVISORY AUTHORITIES AND THEIR APPROACHES TO RISK-BASED SUPERVISION

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ABSTRACT

This paper examines whether the Global Financial Crisis (GFC) has had an impact on pension supervision. This paper looks at the effect of the GFC on risk-based supervision (RBS), before going on to examine the potential impact on the external and internal structure of pension supervisory authorities. Drawing on survey evidence from IOPS Member authorities, the paper argues that the GFC hastened either the implementation of RBS within their organisation, or prompted a review of their RBS approach with the intensions of strengthening their risk identification methodology. In terms of the organisational structure of pension supervisory authorities, the supervisory approach of the pension authority and the changes within the supervisory structures themselves, rather than at the macro organisational level, proved more critical during the GFC. Following an analysis of the different internal structures of pension supervisory authorities (i.e. the portfolio approach; functional approach; or hybrid approach), the paper concludes that internal changes were manifested as either reorganisation of internal structures, or via supervisory methodological changes, and / or through changes in resources, particularly human and technical resources.

Keywords: pension, supervision, supervisory authorities, risk-based, global financial crisis

JEL codes: G23 G32

[1] This Working Paper was prepared by Ms. Taliya Cikoja while on secondment to the IOPS Secretariat from Australian Prudential Regulation Authority (APRA).

STRUCTURE OF PENSION SUPERVISORY AUTHORITIES AND THEIR APPROACHES TO RISK-BASED SUPERVISION

Introduction

One of the first issues addressed by the IOPS was the structure of pension supervisory authorities. IOPS Working Paper No.1 (IOPS 2007) examined the pros and cons of the alternative structures for supervisory agencies, specifically asking whether pensions should be supervised along with other financial sectors in one integrated supervisory agency. The paper concluded that there is no simple reply, that the answer depends on the context and environment of the pension system, and that the benefits of both integrated and specialist pension supervision can probably be achieved within either structure.

In subsequent years, the IOPS undertook research into supervisory approaches, notably the application of risk-based supervision (RBS) to the pensions sector - which is advocated in the *IOPS Principles of Private Pension Supervision* (IOPS 2010). The IOPS *Toolkit for Risk-based supervision*[2] defines the term as*: "a structured approach which focuses on the identification of potential risks faced by pension plans or funds and the assessment of the financial and operational factors in place to minimize and mitigate those risks. This process allows the supervisory authority to direct its resources towards the issues and entities which pose the greatest threat."*

Following the global financial crisis (GFC) of recent years, the IOPS has decided to return to the topics of supervisory structures and approaches, and to examine whether the GFC has had an impact on pension supervision. This paper looks at the effect of the GFC on risk-based supervision, before going on to examine the potential impact on the external and internal structure of pension supervisory authorities.

I. Risk-based Supervision and the GFC

The GFC clearly showed that the current financial services market is a global system comprising an integrated, dynamic, innovative network of interconnected components (Masera 2010). Many authors contend that the extent of the GFC was primarily due to weaknesses and gaps in supervisory oversight in being able to appropriately identify potential risk exposures and their subsequent effects. For example, the OECD report on *Tools for Regulatory Quality for Financial Sector Regulation* (Black, J. et al., 2009) states that among the acknowledged main regulatory shortcomings that contributed to the GFC were weaknesses in risk assessment and risk management by all those involved, including but not limited to supervisors (OECD 2011). Meanwhile the International Monetary Fund (IMF) concluded that the prevailing supervisory framework, particularly for the banking and insurance industries, was certainly a contributory factor to the GFC, as supervision failed to recognise and/or address developing risks (Vinals and Fiechter 2010).

[2] www.iopstoolkit.org

Box 1. Efficient and Effective Financial Regulation & Supervision

The OECD's work on efficient and effective financial regulation and supervision (OECD 2010) highlights and reinforces the avenues where a number of key risk exposures in the financial system lie. These include:

- *Multiple functions in the financial system:* The financial system involves a number of key functions, such as the provision of payment mechanisms, financial intermediation, management and transfer of risks, exchange and pricing of financial assets, and clearing and settlement of financial obligations.

- *Multiplicity of products, institutions, systems, markets, and participants:* The operation of the financial systems involves different types of products, institutions, systems and markets, each involving different types of participants, all of which may evolve and change in form and purpose over time. This has been particularly evident with the pension sector, in a number of jurisdictions, due to various changes in government policy and the continual development and maturing of the sector itself.

- *Linkages with other sectors of the economy and households:* The financial system is closely interconnected with the real economy and individual households given its role in providing funds for investment, and vehicles for savings and investment; in this respect the pension sector plays a crucial role.

- *International linkages:* The financial system is international in nature, spanning countries and regions, with integrated financial markets, exchanges, and clearing and settlement systems, cross-border supply of financial products and services, and globally active financial groups and conglomerates. Many pension fund products invest globally and as such are exposed to the effects of such linkages.

- *Rapid evolution and innovation:* Technological advances, market liberalisation, competition, regulatory and legal reforms, and globalisation have served to accelerate change in the financial system. The pension sector has equally evolved rapidly due to these advancements together with the progression in government social policy direction which also plays a significant role.

Though the pension sector was neither the source of nor a mechanism for propagating the GFC, the industry has not remained immune – not least in terms of investment and market related risks. The fallout of the GFC, as experienced by pension funds, was that due to this complexity and the interrelated nature of modern financial markets, risk exposures can no longer be quarantined into separate risk categories or contained to specific financial sectors. During the crisis many pension funds experienced market and investment risks which quickly spilled over into liquidity and contagion/counterparty risks (where alternative investments and/ or derivatives were involved). Pension funds operating in the current post financial crisis environment have noted that interrelated risk exposures such as market risk, counterparty risk and liquidity risk are considered to be their top three concerns (Neilson, F., A. Costabile & J. Short (2011).

The consequences of the blurring effect of such risks and their effect on supervision and its effectiveness are therefore relevant. The lessons stemming from the recent crises are that in going forward, regulators and supervisors will have to pay more attention to background risks and systemic risks, as well as build in mechanisms for learning from past failures and near misses (OECD 2011).

In determining the factors which contribute to the making of good supervision, the IMF noted that some countries with similar financial systems, operating under the same set of global rules, were less affected than others in the GFC (Vinals and Fiechter 2010). The IMF concluded that one reason for this was better supervision. One key constituent of 'better supervision' noted by the IMF is a process involving a forward-looking assessment of risk. The supervisory framework should also be able to determine whether an institution's risk management framework, including its risk appetite and mitigating controls, are adequate in this perspective. This is precisely what a risk-based approach to supervision attempts to achieve.

The IMF suggests that for effective supervision, supervisory authorities need to expand their risk analysis to better develop their emerging risk capacities. The IOPS has recognised the importance of such risk identification and mitigation. Principle 5 in the *IOPS Principles of Private Pension Supervision* (IOPS 2010) indicates that risk-based supervision (RBS) is imperative for efficient and effective supervision. As noted in the principle, in order to use a supervisory authority's resources efficiently, a risk-based approach should be adopted, together with a suitable risk-assessment methodology. Such methodology should incorporate both a macro and micro perspective of risks, that is, at the economic/industry level and at the institutional level.

Therefore, the use of RBS techniques would result in resources being directed to entities which pose the highest net risk exposures. This means that supervisory resources will not be allocated evenly across all supervised entities, but will follow those identified as potentially posing the greatest threat to the goals which the supervisory authority is trying to achieve. Given a supervisory authority's often scarce resources, RBS provides for an efficient resource allocation method in targeting the risk exposures that are of greatest concern to the supervisory authority. In this way, RBS is considered to be a more dynamic and flexible process than that of a compliance-based approach, as the emphasis is more on understanding and anticipating the possible risks the supervised entity will be facing when executing its business plan.

It can therefore be argued that the GFC has elevated the importance of RBS in identifying critical risk exposures at both an industry and institutional level – and hence supported the trend of pension supervisors to move towards this approach which was already taking place (as noted by the World Bank (Brunner et al 2008) and in the previous work of the IOPS).

This is supported by the results of a recent IOPS survey of its Members, exploring the impacts of the GFC on pension supervision. In the current post crisis environment many supervisory authorities cited a more concerted effort in applying RBS techniques. For example, a vast majority of respondents indicated that additional reporting by pension funds regarding information and data on their investment portfolios, particularly with respect to composition and structure, had been implemented. Supervisory authorities noted that the primary motivation for the requirement of increased reporting was to be able to identify and assess the level of risk exposure, such as liquidity, credit and valuation risk, within a pension fund. This would then allow for appropriate supervisory oversight.

In addition, a number of authorities also have suggested that the GFC hastened either the implementation of RBS within their organisation, or prompted a review of their RBS approach with the intensions of strengthening their risk identification methodology.

Some further lessons were noted by IOPS Members in response to the survey on the GFC and risk-based supervision. These include the following suggestions:

- ***Check that the pension supervisory authority's objectives consider and incorporate 'risk awareness'.*** That is, an authority should regard its supervisory objectives with foresight, and encourage the identification of risk exposures which threaten achieving these objectives. This would enable and support a risk-based approach to supervision;
- ***Train staff in risk-management techniques.*** This includes the areas of risk analysis, data gathering, risk measurement and the development of appropriate remedial actions. These

areas were shown to exhibit weakness within some authorities during the GFC. In addition, staff should be continually educated with respect to emerging risks, whilst also ensuring that there is sufficient expertise within the organisation in specialist risk areas;

- ***Review technological resources to ensure that they adequately meet the needs of the authority***. Areas which were highlighted to be of specific concern included data collection and analysis systems, particularly relating to investment risk, financial product assessment and investment valuations. It was shown that such information was necessary to establish robust risk assessment methodology;
- ***Ensure the authority has sufficient powers for gathering data in a timely manner.*** Data needs to be up-to-date and appropriately detailed with respect to potential risk exposures, particularly relating to matters of investment risk. Further, review and where relevant amend pension supervisory regulation / legislation in order to allow for future flexibility by the authority in developing appropriate crisis management remedies;
- ***Enhance the proportionality and consistency of supervisory actions.*** This can be done through the establishment and use of overarching 'supervisory groups' within the authority to identify systemic risks and recommend appropriate remedial action; and
- ***Improve data exchange and timely communication with supervisory authorities in other relevant financial sectors.*** This may be achieved through the organisation and meeting of a high-level regulatory council of such authorities.

II. Organisational Structure of Pension Supervisory Authorities

In the previous Working Paper No. 1 (IOPS 2007), the IOPS considered the pros and cons of a separate pension supervisory authority vs. incorporating pension supervision into an integrated financial sector authority. Given the return of interest in the Twin Peaks structure – with prudential regulation and market conduct oversight being handled by two separate organisations (Taylor 2009) - the IOPS has gone on to consider pension supervision on a two dimensional basis – i.e. first in terms of whether the pension supervisory authority is a specialist, stand alone agency or part of an integrated authority, and in addition whether a twin peaks or a unified supervisory structure is employed (combining prudential regulation and market conduct oversight in the same authority). This four quadrant approach is outlined in Figure 1 below.

Figure 1. Supervision Matrix - Variations of the organisational structures of pension supervisory authorities

		Objective	
		Twin Peaks (Only prudential supervision. Separation of consumer protection / conduct of business supervision)	**Unified** (Supervises both prudential soundness and consumer protection / conduct of business)
Institutional	**Specialised Authority**	Twin Peaks/ Specialist	Unified/ Specialist
Functional	**Integrated Authority**	Twin Peaks/ Integrated	Unified/ Integrated

As noted in Working Paper No.1, a greater number of IOPS Members are integrated authorities, with specialist, stand alone pension supervisory agencies being in the minority. Likewise, most of the IOPS Members operate under a unified structure, with a Twin Peaks approach being fairly uncommon – though a few members are moving to introduce such an approach. The bulk of IOPS Members therefore fall into the bottom right hand (Unified/ Integrated) box.

However, it is interesting to note that when IOPS Members were surveyed regarding the impact of the global financial crisis on their authority, they *did not find* that the specific, overall supervisory organisational structure under which they operate was the source of any significant concerns of supervisory weakness. Any issues or changes which were encountered were predominately centred on the supervisory approach instead (i.e. with further moves towards RBS – as discussed), and the way in which an authority organised its internal resources (as discussed in the following section).

This result also coincides with the findings of IOPS Working Paper No. 1, which concluded that there may be no *one* optimal pension fund supervisory structure, rather a number of optimal structures depending on the jurisdiction's pension sector environment (IOPS 2007).

Therefore, attention should be directed, not to which operational supervisory structure would be considered optimal to prevent or minimise the occurrence of another financial crisis, but rather to which supervisory approach and internal organisation within the current supervisory structures best facilitates effective forward looking and risk aware supervision.

In this regard, a number of general themes emerged from the results of the IOPS survey which provide useful insight and lessons learnt from the GFC in order to effectively supervise the pension sector in a post crisis environment and beyond. These include:

- Risk awareness: A key driver during the GFC in virtually all supervisory authorities was greater 'risk awareness'. That is, supervisory authorities irrespective of which organisational structure they embodied, were primarily concerned with sufficiently identifying and assessing potential risk exposures of the pension sector, and thus determining the implications on their supervised pension funds.

Such risk awareness was undertaken at both a macro and micro level. Due to the nature of the GFC, supervisory authorities actively took into consideration macro, or systemic risks, which threatened the financial sector as a whole, in order to determine the respective implications on the pension sector. It followed that supervisory authorities would then turn their attention to the micro, or entity specific risks which affect their pension funds as a result.

With greater risk awareness, authorities were better able to respond to supervisory concerns in a timely and consistent manner.

- Defined risk focus: The core of any risk-based supervisory system is that it should start with risks. That is, the regulatory framework needs to set out clear supervisory objectives for the pension supervisory authority which should enable the pension supervisor to determine which risks require the most focus and the outcomes it should be seeking to achieve through addressing these risks.[3]

  It was clear that during the GFC, irrespective of whether the supervisory authority had a narrow set of objectives like that of a Twin Peaks / Specialised supervisor, or a broad mandate such as a Unified / Integrated authority, supervisory resources were directed to areas which posed the greatest risks.

  Therefore, scarce supervisory resources were effectively deployed or redeployed to address the risk exposures which most threatened the authority's supervisory objectives, and thus the pension sector as a whole.

- Co-ordination and consultation: In developing the supervisory authority's risk awareness and executing its risk focus during the GFC, the crucial importance of co-ordination and consultation was highlighted. It was clear that both external, as well as internal communication and co-ordination was required.

  It was observed that supervisors in a Twin Peaks model, or an authority that was specialised, required co-ordination and consultation externally with other relevant conduct of business supervisors. On the other hand, it was necessary for an integrated authority to undertake internal communication with other financial sectors which it supervised.

  This co-ordination and consultation was primarily useful in gathering data essential in developing accurate risk assessments and consequently determining appropriate supervisory actions.

  In addition, increased communication as a result of co-ordination and consultation ensured that supervisory overlaps, gaps or conflicts were either avoided or managed effectively.

- Enhanced engagement: Comments received by pension supervisory authorities from all organisational structural types confirmed that the GFC resulted in enhanced engagement with the pension industry and its stakeholders. This was achieved through a variety of communication methods.

  The primary objective of communication was often to disseminate the supervisory authority's expectations of the pension industry and/or pension fund trustees/managers. In addition, the

[3] IOPS (2010), "IOPS Toolkit for Risk-Based Pensions Supervision", Module 1 – Preparation for Risk-based Pension Supervision.

authority also often provided information on the potential risk exposures which endangered pension members' benefits.

Such enhanced engagement proved to be beneficial in creating greater collaboration between the supervisory authority and the pension sector, ultimately leading to an aligning of interests and effective supervisory outcomes.

Therefore, as the above lessons demonstrate, it is the supervisory approach of the pension authority and the changes within the supervisory structures themselves, rather than at the macro organisational level that proved more critical during the GFC. The general themes of risk awareness, coordination and consultation and industry engagement, together with internal systems, processes and resources which were adaptive, proved essential in undertaking effective supervision during the crisis. These themes have also established the basis for areas of even further improvement going forward, in order to undertake robust supervision practices in a challenging post financial crisis environment.

III. Internal Structure of Pension Supervisory Authorities

This section of the paper presents analysis on the internal organisational structures implemented within various pension supervisory authorities. In particular, the section canvasses the consequences of the GFC and explores the experiences of IOPS members.

The internal organisational structure of a pension supervisory authority can be typically characterised under one of the following three models:

- *Portfolio approach:* in the portfolio each analyst/supervisor or team of analysts/supervisors is given a portfolio of pension funds, which become their responsibility. The supervision team would be expected to undertake a vast majority of all the supervisory tasks associated with pension fund. That is, they would correspond with the pension fund to obtain information and data for analysis, ensuring data submission is timely, undertake initial risk assessments and participate in the on-site inspection, including developing remedial strategies to achieve positive supervisory outcomes. Thus, the supervisor would seek or suggest risk mitigating strategies to encourage pension funds to reduce their risk exposure levels. The supervisory team would also monitor prudential regulatory/legislative compliance, and in some cases consumer protection / conduct of business requirements. Each supervisor's portfolio may be organised by fund type, such as defined benefit, defined contribution, single-employer, multi-employer, public sector, private sector or might include a broad selection of funds.

- *Functional approach:* the functional approach is one where analysts/supervisors or a group of analysts/supervisors specialise in one function, such as the licensing or registration of new funds, or data gathering and statistical analysis. In some cases, a separate group would be involved in off-site analysis, whilst another unit would undertake on-site inspections. Thus, each functional group would take care of its particular specialty for all pension funds registered with the pension supervisory authority.

- *Hybrid approach:* the hybrid approach is a mix of the above two models, where a supervisor is responsible for a portfolio of pension funds, although they may coordinate with other functional areas, such as specialists risk teams or actuarial services, to seek their input into a pension fund's risk assessment. Other examples include the supervisor relying on a separate unit for the collection of statistical data, which would then be used for either off-site analysis or on-site inspections.

It is interesting to note that no supervisory authority indicated in the IOPS survey that they operated a purely Portfolio approach. Intuitively this result makes sense, as one team with a portfolio of institutions would not, and perhaps could not, perform *all* the functional tasks related to a pension fund. In addition, separating functions helps to reduce conflicts of interest and may thereby improve the governance and transparency of the authority.

All IOPS Members responding to the survey are structured along either Hybrid or Functional lines. As a whole, IOPS Members responding to the survey were fairly evenly divided between these two approaches. However, specialist pension supervisory authorities specifically were more likely to be organised in the Hybrid manner whilst, by way of contrast, integrated authorities were more likely to be organised under the Functional approach. Integrated authorities are considered to benefit from economies of scale and scope, and as such operating in a Functional arrangement would support this conclusion due to the various functional tasks, such as data collection, statistical analysis, policy development, being undertaken by separate units servicing the entire multiple financial services sectors.

Functional Approach

Having various functional departments within a pension supervisory authority creates resources that are highly skilled and specialised, which, in a Hybrid approach, supervisors may draw on to develop in depth evaluations of pension funds.

In a purely functional approach, however, the pension supervisory authority is faced with the challenge of coordinating the various units to arrive at an accurate assessment of the pension fund. Further, the pension supervisory authority would also have to overcome the situation where each functional unit may not have as detailed an understanding of the whole pension fund, as a supervisor in a hybrid approach might.

Some functional units in a pension supervisory authority may include:

- Specialist risk teams – subject matter experts on different risk areas (i.e. market & investment risk, operational risk etc)
- Data collection – responsible for collecting data from pension funds
- Statistical analysis – responsible for statistically analysis data on either an entity-level or industry-wide level
- Industry analysis – providing technical expertise with respect to the pension industry
- Legal activities – legal advice with respect to application for legislative/regulatory approval, or non-compliance with legislative/regulatory provisions
- Enforcement activities – employing enforcement actions against a pension fund for non-compliance with legislative/regulatory requirements
- Research – provides research material with respect to broader issues affecting the pension industry

- Policy development – development of legislative / regulatory policy relating to pension funds and the industry

- Actuarial services – specialist actuarial advice pertaining to the operations of pension funds

A key observation from the results of the IOPS survey where respondents indicated that they employ a Functional approach was the distinct separation of particular units. A majority of IOPS members stated that internally within their authority, units conducting prudential supervision of pension funds were often separate from the market conduct supervision unit. In addition, there was generally a separation of the unit which undertakes licensing of new pension funds from that of supervision units.

Further, the unit most often referred to as 'Regulation' which undertakes pension sector research, statistical collection and analysis, and regulatory development was also separate from supervision, although in only a few small cases this unit also undertook market conduct supervision.

IOPS members indicated that a benefit of having such distinct Functional units is that it provides for a separation of duties and responsibilities, thereby reducing the potential for conflicts of interest. In addition, it allows for independent assessments by each unit when reviewing a particular pension fund.

Most IOPS members confirmed that resources are more heavily weighted to prudential supervision as opposed to market conduct supervision. This was particularly true during the GFC where supervisory authorities indicated that resources were directed to the level and complexity of risk prevalent – that is prudential supervision. This supports the earlier observations of the paper which highlighted the deployment and re-deployment of personnel during the GFC to areas of greatest supervisory concern.

However, it was also noted by authorities that despite the lower resource count, the market conduct supervision unit serves as a useful source of risk information. Customer complaints which proved to be complex, or potentially had underlying prudential supervision concerns, were in most cases referred to the respective prudential supervision team.

Given the GFC's impact on the prudential soundness of pension funds and the heightened levels of risk exposure, a number of supervisory authorities confirmed that whilst maintaining a Functional approach, they would be moving to adopt RBS within their organisation in the future.

Supervisory authorities cited that the main reasons for prompting this move were to strengthen their current supervisory framework, and to develop effective supervision. In addition, given the spill-over and blurring of risk exposures evident during the GFC, a RBS approach within each functional unit would enable better supervision and management of such risks.

In some other cases, supervisory authorities noted the creation of risk analysis roles within units or specific risk management units as a result of the GFC. This once again supports the earlier findings of pension supervisory authorities more concerted effort to improve their risk awareness capabilities as a result of the GFC.

Whilst put in place prior to the GFC, one authority had created a committee on Strategy and Risk Management. This committee was crucially important during the GFC as it was charged with reviewing the domestic financial system and the responsiveness of the authority to global change. This included assessing the risks to the authority's regulatory objectives which stemmed from the systemic risks present at the domestic and international level. This assessment is then translated to the strategic supervisory plan of the authority and assigned to the relevant functional departments for further action.

IOPS members suggested that RBS is generally conducted by the onsite supervisory units within their authority. Nevertheless, supervisors rely on other functional units such as those conducting data collection and statistical analysis, legal advice and actuarial analysis, that also undertake risk assessments of pension funds. These additional sources of expertise and advice were considered important during the GFC.

Almost all pension supervisory authorities stated that it is the specialisation of knowledge and the high level of expertise within each unit that provides a key benefit of the Functional approach to internal organisation.

Supervisory authorities believe that the availability of highly skilled and specialised resources provides greater rigor to the subjective nature of risk assessments under RBS. Further, respondents indicated that during the GFC it was due to the level of specialised technical resources that allowed for the timely identification of sources of risks associated with pension funds.

The survey results also noted that the Functional approach through this specialisation of skills enhances the effective adoption of RBS as it allows for the optimisation of resources where personnel can solely focus on their core role. During the GFC, supervisory authorities indicated that this also promoted consistent treatment of regulated entities.

However, a key challenge to the Functional approach cited by a significant majority of respondents is the coordination of multiple supervision teams over a number of functional units to achieve a high degree of coherence in the risk assessment process of pension funds. The coordination issues, which were acutely highlighted during the GFC, relate to difficulties in the timely communication between units regarding the sharing of pertinent risk exposure information.

Further, it was noted that the Functional approach could lead to the possibility of a ‘silo’ mentality where personnel only focused on their responsibilities within the unit. Given the blurring of risk boundaries during the GFC, responding supervisors indicated that this could result in some gaps occurring within the supervision of pension funds. Also, where pension funds were part of a financial conglomerate, identification of potential risk exposures for the same reasons, proved to be more challenging under a Functional approach.

To alleviate the potential for this situation many authorities had in place, or established as a result, a ‘Supervision’ or ‘RBS’ Committee. Such committees would coordinate and evaluate the various risk assessments from each unit to arrive at a consolidated view of the pension fund. In addition, authorities indicated that during the GFC, these committees played a crucial role as they increased the frequency and depth of evaluations to ensure that present and emerging risks were adequately captured.

Just as it was observed in the lesson learnt highlighted earlier in the paper, coordination and communication mechanisms prove to be a crucial element to the efficient supervision of pension funds, both during the GFC, and in the current post crisis environment.

Some authorities suggested that given the implementation of an on-line risk assessment system, coordination amongst Functional units is somewhat less difficult and also provides for additional accountability measures for each unit. However, in order to prevent a ‘mechanistic’ approach, such a system is often supplemented with regular meetings of a coordination committee, like that of a RBS Committee. This committee would discuss and arrive at a consensus amongst each of the Functional units with respect to the various inputs into the risk assessments.

Nevertheless, it should be noted that one of the lesson learnt and identified earlier in the paper was the need to have sufficient technical resources to support RBS. This would be particularly relevant with the establishment and maintenance of an online risk assessment system. In this regard, supervisory authorities also suggested that a challenge of the Functional approach was incorporating methodological changes in a timely manner across all units.

Another approach which was additionally cited by pension authorities was the release of frequent risk based information, such as a monthly RBS newsletter to all units of the organisation. These information releases provide personnel within each unit details regarding potential and emerging risk exposures as identified by Supervision or RBS Committees, to then consider this information in a timely manner and incorporate it within their risk assessments.

Finally, the IOPS survey results also revealed that some pension authorities experienced situations where some specialists would have more expertise than others, therefore some aspects of pension fund supervision might be more thorough or accurate than others. Consequently, this can affect the accuracy of the assessment of the pension fund's overall risk.

However, authorities suggested that this situation is best mitigated through ongoing training of staff. Whilst designing adequate training programs for specialised professionals was also cited as a particular challenge, it supports the results in the previous section of the paper, where continual education with respect to risk management improves the risk awareness of the authority and its subsequent assessments.

Lesson Learnt

The analysis gleaned from the results of the IOPS survey above demonstrated that a supervisory authority employing a Functional approach faced a number of predominately coordination challenges during the GFC.

However, the observations highlighted that whilst various logistical issues arose, they all stemmed from the same central premise. That is, the pension authority's attempt to improve its risk awareness through accurate and timely identification of risk exposures in order to disseminate and collate this information effectively to and from the various function units. Therefore, meaningful lessons can be drawn from the experiences of IOPS members as noted below:

- Moving towards a risk-based approach within each functional unit can assist authorities in more efficient use of their resources, whilst allowing them to be more responsive in their supervisory actions;

- A risk-based approach can be facilitated through the creation of a risk analysis role within each Functional unit, or through the establishment of a primary 'Risk Management' committee charged with identifying risks at both a domestic and international level and subsequently distributing this information to the various units;

- The timely sharing of risk information amongst functional units is of necessary importance for effective supervision. Thus, the use of a common (on-line) risk management platform across the authority for the input of pertinent risk information provides an effective mechanism to disseminate and share relevant risk analysis;

- Difficulties in producing a holistic risk assessment of a pension fund as result of operating separate and distinct functional units may be alleviated through the establishment of a 'Supervisory' or 'RBS' committee. Such a committee is able to assist in both coordinating and evaluating the various risk assessments emanating from each unit; and

- Determining and developing appropriate ongoing risk management training for specialist supervisory professionals will supplement the above lessons by continuing to strengthen the supervisory authority's risk awareness.

Hybrid Approach

As noted earlier, in a Hybrid approach an authority arranges its supervisory resources into portfolios where particular pension funds are grouped together, whilst the authority still maintains separate functional units for specific supervisory tasks within its internal structure.

The IOPS survey highlighted that the configuration of the supervisory portfolios often followed the structure of the pension industry. That is, portfolios were determined by either pension benefit type (i.e. defined benefit, defined contribution), and / or the classification of the pension fund (i.e. single-employer/multi-employer, public/private sector).

Following this, the way in which pension funds were grouped into portfolios was generally determined by the size of the pension fund in terms of assets. However, a number of authorities noted that when developing portfolios, significant consideration was given to the complexity of the pension fund and consequently the technical knowledge of the supervisor / analyst. As such, the level of perceived risk associated with a pension fund also plays an important aspect.

The survey suggested that in general two to four supervisors were assigned to a portfolio. On average a portfolio consisted of five to seven pension entities. However, there were a number of distinct variations depending on the nature of a jurisdiction's pension fund industry. Once again, authorities noted that more supervisory resources were often devoted to larger pension funds due to their relative size and complexity.

In jurisdictions where there is a large active pension fund industry it was typically observed that supervisory portfolios consisted of 35 – 55 entities on average. It was interesting to note that in these circumstances a number of pension supervisory authorities indicated that more senior supervisors would generally have few entities within their portfolios, or on the lower end of the average, as often their portfolios contained more complex institutions.

With respect to the supervisors responsible for the various portfolios, the IOPS survey noted that, along with expected financial and economic skills, the most often cited expertise is actuarial and legal. Respondents also confirmed that in general more supervisory resources are devoted to prudential supervision than that of market supervision.

As with the Functional approach, the IOPS survey highlighted that a number of similar functional units were established within the Hybrid arrangement, such as specialist risk units, statistical analysis, actuarial advice and authorisation / licensing.

Respondents to the survey also confirmed that in Hybrid arrangements, as in Functional structures, there is a corresponding separation of the units responsible for authorisation and licensing from that of consumer protection, and portfolio supervision. Thus each unit preserves clear lines of accountability, so as to maintain appropriate transparency and governance arrangements.

However, a distinct difference emerged from the survey results regarding the supervisory responsibilities of the functional units within a Hybrid approach as compared to the Functional approach.

Within the Functional approach a number of functional units undertook direct supervision activities of pension funds as it related to their area. However, in the Hybrid approach this was not generally the case. Under a Hybrid arrangement the functional units often provide the portfolio supervision unit with assistance in undertaking their supervisory tasks, as opposed to engaging in such supervision activities itself.

One identified exception was prevalent - the statistical unit responsible for pension fund financial data collection usually also conducted the analysis of such data, rather than simply processing and disseminating this information to supervisors for their analysis. In analysing the pension fund financial data, survey respondents often cited that the statistical unit is responsible for identifying risk exposures and/or highlighting areas of concern to be passed along to the supervision unit for further investigation. Thus, the results showed that off-site supervision is generally conducted by a separate unit to that of the portfolio supervision teams which undertake on-site inspections.

As for the specialist risk unit however, a more collaborative approach with the supervision division was noted. While in some jurisdictions the risk unit has primary responsibilities for risk identification at both the fund and industry level, it most authorities the unit provides specialist risk analysis, advice and guidance for portfolio supervisors. The risk unit often conducted on-site inspections together with the supervision team as well.

Authorities indicated that a significant benefit of the Hybrid approach was that by having a portfolio structure, there are clear lines of responsibilities for the ongoing supervision of pension funds, thus providing for greater accountability, whilst at the same time building detailed knowledge regarding the operations of the pension fund. This internal structure then allows supervisors to draw on specialist expertise in areas such as statistical analysis, specialist risk and regulation / legislation, as and when needed.

During the GFC, the supervisor’s detailed knowledge regarding the operations of the pension funds within their portfolio proved to be crucial. Supervisory authorities indicated that it encouraged a more holistic global view of the pension fund, thus being better able to identify and determine the implications of various risk exposures emanating from the crisis.

Further, the GFC also highlighted the significant importance of the specialist risk unit in providing crucial risk exposure analysis. In many jurisdictions, the specialist risk unit undertook analysis of specific risks exposures at individual pension funds at the request of the supervision team, or as part of standard supervisory practice; and also provided risk analysis for the pension industry as a whole. However, the crisis highlighted the need for further specialist risk supervisory resources, as such resources were limited.

Supervisory authorities noted that as a response to the limited specialist risk resources, there was a need to develop appropriate training of supervisors with respect to emerging risks and risk management practices. This observation is supported by the earlier findings of this paper, which indicated that the improvement of an authority’s risk awareness relies substantially on the adequacy and quality of ongoing education and training.

Respondents to the IOPS survey also cited that as a consequence of portfolio supervisors being required to interpret and integrate significant amounts of supervisory information, they are provided with a vast degree of individual responsibility. As a result, akin to the partially subjective nature of risk assessments implicit in a RBS approach, issues of consistency and accuracy of pension fund supervisory analysis arise.

The need for consistent and accurate risk assessments was identified as imperative during the GFC particularly with respect to capturing emerging risks across the supervisory authority. This indeed remains relevant in the ongoing oversight in the post crisis environment. A number of supervisory authorities outlined various mechanisms which they employ to ensure conformity and exactness, these include:

- established procedures through a standardised risk assessment template / program;
- peer / management and /or panel review procedures of risk assessments
- formal protocols with respect to the approval and signing-off of risk assessments via delegated reporting lines;
- regular bilateral discussions between the supervision and specialist risk units; and
- established benchmarks for comparison obtained from the authority's risk assessment system.

Whilst greater individual supervisory responsibility through the Hybrid system may present challenges to aspects of risk assessments, many supervisory authorities suggested that such an internal structure consequently allows pension supervision to be more adaptable and flexible. This adaptability and flexibility proved to be particularly effective during the financial crisis.

It was suggested that when areas of heightened risk are identified by the portfolio supervision team during their constant oversight, they are able to access internal resources such as actuarial, legal, and specialist risk knowledge with effective immediacy.

Thus, the Hybrid approach through the use of portfolio supervision allows for the supervisory authority to be flexible in adapting its resources (i.e. human, technical, etc) when more focussed supervision is required as a result of the increased level of risk. As such, the expertise of specialist areas is not required for the supervision of pension funds at all times, as would be the case in the Functional approach, resulting in limited resources to be allocated efficiently and effectively.

However, despite this apparent benefit over the Functional approach, respondents in the IOPS survey indicated that one of the greatest challenges to the Hybrid approach is the same coordination and cooperation issues experienced in the Functional structure between the various supervisory groups.

The results of the survey showed that unlike in the Functional approach (where the coordination issues stemmed from attempting to arrive at one coherent risk assessment of a pension fund) in the Hybrid approach (where the portfolio supervision team predominately undertakes this task) the coordination difficulties arise from incorporating appropriate risk information.

In Hybrid arrangements where the statistical unit and on occasion the specialist risk unit are responsible for risk identification and assessment activities (as described earlier), the resulting cooperation with these units and incorporation of the information they provide is less problematic. Although, where these units act in more of a support and advisory capacity, coordination and cooperation in arriving at a consensus becomes more challenging.

In these circumstances, supervisory authorities indicated that they experienced difficulties during the GFC where there was a need for timely identification of emerging risks so as to subsequently determine the implications for the pension industry. Thus, survey respondents identified the need to establish effective processes for risk information sharing through a system of 'feedback loops'.

A number of authorities suggested that in order to overcome this challenge, regular cross divisional meetings were established. Or, within some authorities, an overarching 'Industry' group or in some cases a decision making group was developed.

During the GFC, authorities cited more frequent meetings of these groups had occurred. In particular, these groups are responsible for discussing the emerging and prevalent risk exposures to the pension industry in order to prioritise the supervisory responses of the authority. This information is then disseminated directly to the supervision teams. Such information can also be coordinated by a functional unit responsible for maintaining the integrity of the supervision methodology and framework in place, as noted in one supervisory authority. This ensures that necessary changes are implemented in a time manner.

Lessons Learnt

The results of the IOPS survey above highlights that in a Hybrid approach there is an increased level of supervisory responsibility provided to portfolio supervisors. This primarily stems from the fact that they are required to undertake the ongoing supervision of pension funds generally over a number of risk areas.

This situation is further perpetuated whereby functional units within the supervisory authority act in more of a support and assistance capacity, rather than being responsible for direct supervision activities. Thus, portfolio supervisors must determine the appropriateness of various risk information sources.

As such, the implications of this internal structure resulted in supervisory authorities experiencing some challenges during the GFC particularly with respect to pension fund risk assessments and incorporating relevant risk information. These challenges, however, provide useful insights in developing a more robust supervisory framework going forward, as noted by the following lessons learnt:

- Specialist risk resources are often limited within a supervisory authority, thus it is essential that additional and ongoing risk related training is implemented for portfolio supervisors. In addition specifically targeted risk development programs would assist in fostering the creation of risk specialists within individual portfolio supervision teams reducing the reliance on specialist risk resources;

- The establishment of a group which identifies and prioritises relevant risk exposures present can also assist supervisors in the interpretation and integration of various sources of risk information. This requires a coordinated and systematic process to encourage the continuous flow of risk information. Thus, an authority should consider the benefit of also creating a functional unit whose responsibility would be to maintain and improve the supervision risk assessment framework by incorporating such risk information in a timely manner; and

- A supervisory authority should review its current mechanisms for the production, review, comparison, and approval and sign-off of pension fund risk assessments to ensure that established processes support the integrity of authority's supervisory systems, to enable various portfolio supervision teams to develop consistent and accurate assessments across the one pension industry.

Pension Fund Life Cycle Supervision

A related way of thinking about how pension supervisory authorities structure their work is though the different aspects of a pension fund's 'life'. The supervision of a pension fund can be categorised by its life cycle, that is:

- Birth – Licensing or registration of a new pension fund
- Life – Ongoing monitoring and supervision of a pension fund
- Death – Exiting the industry due to either:
  - Voluntary exit – pension fund no longer wishes to participate in the industry for various reasons
  - Mandatory exit – supervisor insists pension fund exit the industry due to Solvency weakness or non-compliance of legislative/regulatory requirements

The supervisory responsibilities of each aspect of the pension fund's life cycle can be undertaken by a variety of approaches, as described above –i.e. one supervisor can take responsibility for the fund throughout its life-cycle (i.e. under a portfolio, or more practically hybrid, approach) or different supervisors handle the fund in its different stages according to their 'function' (licensing vs. on-site supervision etc.)

A pension supervisor's supervisory activities predominately arise from the 'life' portion of the cycle. As such, the internal structure in place to undertake the ongoing monitoring and supervision.

Further, the statutory objectives of the pension supervisory authority plays a role in the way each aspect of the life cycle is supervised. That is, whether the pension supervisory authority is responsible for just prudential supervision or whether it also includes market conduct supervision.

A majority of respondents to the IOPS survey indicated that the same internal structure exists for the supervision of each aspect of the pension fund life cycle. This suggests that no changes to the internal structure are enacted, for example via the establishment of special committees or taskforces, to undertake the supervision of particular aspects of the pension life cycle. Rather, supervisory tasks of all aspects of pension fund life cycle are carried out within the authority's current internal structure.

However, some clear patterns emerged from the respondents who did indicate changes to their internal structure, dependent on the various phases of the pension fund life cycle. Whilst a significant majority of these respondents adopted an overall Hybrid approach to their internal structure, and hence such an approach during the Life phase (or ongoing supervision) of the pension fund, the results show that the approach varied at the Birth and Death phase.

At Birth a significant majority employed a Functional approach. This indicates that a separate unit is responsible for the licensing or registration of a new pension fund. Whilst, at the Death phase the Functional approach still represented the preferred method, it was not as predominate, with the Hybrid approach making more of a contribution. This result would indicate that while the process for exiting a pension fund from the industry might be conducted by a separate unit, it would also involve the supervisors who had managed its ongoing or Life supervision.

These are observations are supported the findings on the two internal organisational structures previously discussed. Thus, the above results demonstrate that there is not a great deal of change to a pension supervisory authority's internal structure throughout a pension fund's existence. Although, where appropriate and necessary, a small number of authorities adapt their internal organisation accordingly to meet the various cycle phases of a pension fund.

IV. Conclusions

The GFC showed that due to the complex and interrelated nature of modern financial markets, risk exposures are no longer contained within distinct risk categories, but are often blurred, spilling over into a number of different risk types. Further, these risk exposures not only affect the financial sector from which they originated, but other financial sectors within the market. Consequently, pensions, as a significant participant of the financial services sector, were not immune to the fallout of the GFC.

Analysis of the contributing factors to the GFC suggests that there were identified weaknesses in the supervisory oversight of financial institutions. This was due in part to the inadequate identification of significant risk exposures at the supervised entity level, as well as within the industry, together with the broader systemic risks of the financial / economic environment.

The paper clearly demonstrated that during the GFC pension supervisory authorities were attempting to improve their risk awareness i.e. an authority's ability to identify the potential sources of risk, how such a risk might affect a pension fund and in turn the pension industry. Thus, the increased risk awareness would in turn assist in then developing appropriate remedial supervisory responses. A significant number of respondents to the IOPS survey noted that their risk awareness could be considerably improved through better RBS techniques and processes.

In particular, staff training in the area of risk management was seen as an area of focus, with specific emphasis on risk analysis, measurement and mitigation. In addition, in order to support a supervisory authority's bid to improve their RBS processes, the IOPS survey observed the necessity for technological resources to adequately meet the needs of the supervisor. Specifically, supervisory authorities highlighted systems for the collection and analysis of data, particularly related to investment risk, as being an area of concern. In obtaining such data for analysis, a significant portion of respondents cited either a lack of powers, or inadequate pre-existing methods, for gathering risk exposure information in a timely manner which was also appropriately detailed.

Further, the issue of systemic risk and its implication on pension funds was also identified as an area of concern for pension supervisory authorities. The IOPS survey suggests that internally authorities established and utilised over-arching supervisory councils, whilst externally a high-level grouping of financial services regulators was also employed.

Turning to the structure of pension supervision, it is interesting to note that, following the GFC, unlike other sectors (notably banking), the IOPS survey highlighted very minimal reorganisation at the broad structural level within the global pension supervision community. However, the IOPS survey found that at a 'micro' internal level of the authority, the GFC was a catalyst for a review of supervisory operations.

These internal changes were manifested as either reorganisation of internal structures, or via supervisory methodological changes, and / or through changes in resources, particularly human and technical resources. The IOPS survey suggests that supervisory authorities were making concerted efforts to better coordinate the outcomes of various pension fund risk assessments within their organisations. In addition, authorities were also mindful of the need for pension fund risk assessments to remain accurate and consistent within their internal organisational structure. Thus, initiatives were implemented to ensure risk assessments reflected appropriate risk information in a timely manner.

Adequate and continuous training of supervisors was also highlighted quite strongly from the results of the organisation of internal structure survey. Education of staff was seen as imperative to strengthening and improving the risk awareness of the supervisory authority. In turn, this would support the authority in implementing a more effective and robust supervision framework.

Therefore, these conclusions suggest that employing RBS techniques in identification, assessment and management of risk exposures assists in effective and efficient ongoing pension supervision in a post financial crisis environment. In turn, supervisory authorities are thus better able to fulfil the central premise of pension supervision – the protection of pension members' and beneficiaries' interests and the stability and security of pension funds.

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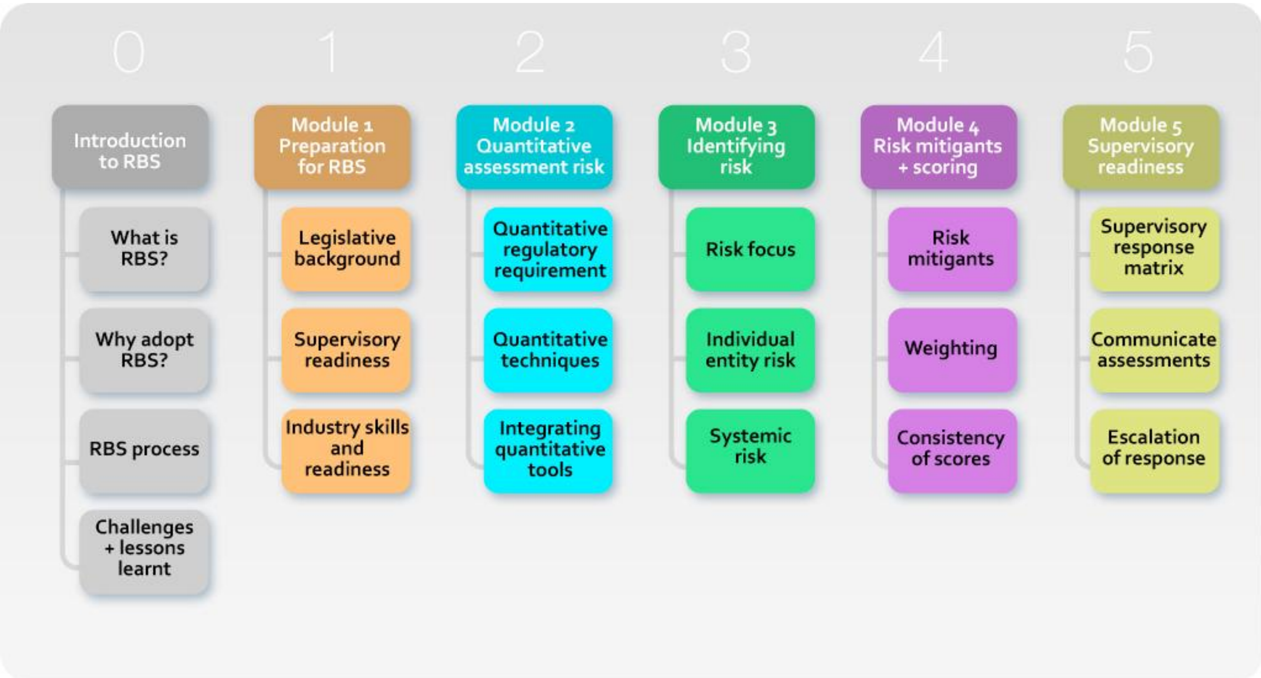
Appendix 1 - IOPS Risk-Based Supervision Toolkit

Risk-based pension supervision provides a structured approach focusing on identifying potential risks faced by pension funds and assessing the financial and operational factors in place to mitigate those risks. This process then allows the supervisory authority to direct its resources towards the issues and institutions which pose the greatest threat.

The IOPS Toolkit for Risk-Based Pensions Supervision provides a 5-Module framework for pensions supervisors looking to apply a system of risk-based supervision. The web-based format allows: a flexible approach to providing updates and additions; users to download each module separately as required; a portal offering users more detailed resources, case studies and guidance.

The website is accessible at www.iopstoolkit.org.

The IOPS Risk-Based Supervision Toolkit is structure in the following way:



Module 0: Introduction to RBS

This module provides an introduction to the principles and theory of risk based supervision. The module considers the specificities of RBS for pensions, whilst also exploring the reasons for adopting a RBS framework. The module also explores the practicalities of implementing RBS, highlighting some of the challenges experienced by IOPS members and the lessons learnt from the process.

Module 1: Preparation for RBS

This first module discusses some of the fundamental issues relating to RBS. It outlines some of the issues that should be considered before embarking on the implementation of RBS, notably relating to the legislative environment and the readiness of the pension supervisory authority and the pension industry. The modules is accompanied by a check list to help assess preparedness and to identify the critical path for implementation and the pace at which RBS can be rolled out.

Module 2: Quantitative Risk Assessment Tools

Module 2 discusses the tools that can be used by a pension supervisory authority in the quantitative assessment of risk. Such quantities assessments play an important role in the overall risk assessment process which is at the heart of risk-based supervision. Further, the module explores how the use of quantitative tools can provide a bridge between a more traditional rules-based and risk-based approach to supervision, as the two are not mutually exclusive by complementary.

Module 3: Identifying Risks

Module 3 provides guidance by assisting supervisory authorities indentifying appropriate risks. The module provides suggestions of risks which may be considered. The module also highlights the importance of how a supervisory authority's objectives provides supervisors with a risk focus, which subsequently assists the authority to identify the risk factors and risk indicators which are to be pursued. Details of this process are provided in the module, including examples of IOPS members which currently employ RBS.

Module 4: Risk Mitigants and Risk Scoring

The module discusses how a supervisory authority might construct its risk-scoring model which is to be used to guide their supervisory actions. The module canvas the supervisory authority's need to consider possible mitigants and controls so that risk is assessed on a net rather than a gross basis. The module then reviews methods of weighting these risks, taking into consideration the probability of their occurrence and their importance and impact on the goals of the supervisory authority. The module also explores methods for ensuring consistency of risk scores.

Module 5: Supervisory Response

The module provides an overview of how pension supervisors might determine, organise and tailor their supervisory response according to detected or suspected risks. Suggestions and examples of how to build a supervisory response matrix are also provided, along with an overview of how such supervisory responses might be escalated.