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REPORT ON LEARNINGS FROM THE DESIGN, IMPLEMENTATION, USE AND REVIEW OF RISK BASED SUPERVISION BY PENSION SUPERVISORY AUTHORITIES

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June 2022

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REPORT ON LEARNINGS FROM THE DESIGN, IMPLEMENTATION, USE AND REVIEW OF RISK BASED SUPERVISION BY PENSION SUPERVISORY AUTHORITIES

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ABSTRACT

This public version of the RBS Learnings project report brings together experiences of pension supervisors and identifies learnings and good practices to support Members when designing, implementing, using or reviewing a risk based supervisory approach. Its content is drawn from a survey of 45 member jurisdictions and was supported by Member case studies, workshop discussions and a literature review.

The report identifies trends and learnings in risk based supervision that have evolved since the IOPS RBS toolkit was first created in 2010. It finds that risk models continue to evolve to account for revisions in risk focus and different approaches to assessing and responding to risks and issues. Supervisory activities to support risk based supervision have expanded though data and the application of supervisory judgement remain critically important.

The report describes common challenges that arise during the design and implementation phases of risk based supervision and offers insights on how pension supervisors have overcome these challenges. It observes that the assessment by authorities of their RBS approaches is a developing area and one where Members can particularly benefit from additional guidance.

The report makes a number of recommendations regarding how IOPS guidance, including the RBS Toolkit, could be enhanced to account for the identified learnings and observed better practices.

Finally, the report highlights that RBS approaches will continue to evolve and so it will be important that IOPS Members have opportunities to share experiences and better practices. Accordingly, there remains a critical role for the IOPS Secretariat to support Members by arranging regular training on key RBS topics and collating and sharing case studies, comparisons and other educational material from across the IOPS membership and other international organisations.

Keywords: risk-based supervision, pension supervision, risk management, pension funds, IOPS,

JEL codes, G-28, J-32, G-38, G32

* International Organisation of Pension Supervisors (IOPS).

Table of Contents

Tables

Figures

Boxes

Report on Learnings from the design, implementation, use and review of risk based supervision by pension supervisory authorities

Executive Summary

This is a public version of the report that presents the results of a survey of 45 IOPS jurisdictions. A majority of them are using risk-based supervision (RBS) or are in the process of implementing it. The respondents underlined the proactive nature of RBS supervision and expressed a desire for comparisons from others, along with training and education in this area. There was a close alignment of RBS being used in instances where there were more staff, which likely reflects the desire to use RBS to assist managing and directing resources.

The key benefits from applying a RBS approach relate to improved risk management and optimal allocation of resources. The report and the supporting literature review note that RBS is an effective supervisory approach for pension supervisors. But they also highlight that RBS for pensions will generally differ from the approach applied in banking or insurance given that there is not the same relationship between capital and future pensions for defined contribution pension schemes.
The significant challenges most often experienced in respect to the preconditions and RBS design, related to internal resourcing, data collection, stakeholder expectations and legislative & policy framework.

Supervisors were noted to assess the probability of an adverse event at the risk category and/or overall entity level. Some of them combined the probability rating with an assessment of the impact an adverse event may have to determine the overall level of supervision. Others used the impact assessment of an entity to determine the depth of analysis undertaken and used probability scores to rank entities and prioritise supervisory responses. Some jurisdictions measured probability at both the inherent and residual risks. The report also observes a broadening of factors used when determining an entity's impact.

The report notices some adjustment in risk focus with increased focus on governance risk, market conduct and member outcomes for defined contribution funds. ESG factors and cyber risk were observed to be considered within existing risk categories. The longer a RBS approach was in place, the more likely the risk factors were to be adjusted. Most of the integrated supervisors applied the same risk factors across the industries. The risk factors in integrated supervisors were generally (but not in all instances) high level. They were not as specific as some risk factors applied in jurisdictions where only pension funds were supervised.

Staff training and engagement becomes critically important during the implementation phase of the RBS framework. It can take up to three years for a newly implemented approach to come to full maturity. The significant or moderate challenges experienced during the design phase continue to exist during the implementation phase. Jurisdictions that took more than three years to implement are encouraging others to implement in a shorter timeframe. The implementation framework can depend on a number of factors (e.g. resource availability, industry ability to assimilate, size and quality of supervisory staff, legislation, external shocks).

The activities undertaken to inform a risk assessment vary, with a strong reliance on data collection and analysis, meetings with representatives of supervised entities and in-depth review and testing of a supervised entity's practices and operations. Supervisory judgement remains critical to the risk assessment process. Such assessments are undertaken with different frequency and are very often based on trigger events. The report finds that a number of respondents made changes to their entities' risk assessments whenever there was a change to an entity's risk profile.

The reporting of risk assessments externally is generally limited to the regulated entities. Information about the supervisory process is shared externally with stakeholders in almost ¾ instances but the breadth and detail of information provided appears to vary.

Whilst more than half of respondents are undertaking annual assessments of the outcomes achieved by their RBS approach, there is still a wide variation in timeframes and formality of assessments. The majority of respondents rely heavily on internal information sources to assess their RBS approach. Only in a few cases, has an assessment of a RBS approach resulted in a significant change to that approach. The impact of Covid-19 on the assessment of RBS approaches was low, though adjustments were observed in how supervisors undertook risk assessments of entities during this period.

The report found that the use of service providers was most prevalent during the design phase. For design and implementation, service providers supported training and assisted in the development of the RBS approach and the supporting legislative and policy framework.

The report highlights that RBS approaches will continue to evolve and so it will be important that IOPS Members have opportunities to share experiences and better practices. Accordingly, there remains a critical role for the IOPS Secretariat to support Members by arranging regular training on key RBS topics and collating and sharing case studies, comparisons and other educational material from across the IOPS membership and other international organisations.

The report provides a set of recommendations with regard to update of the IOPS Toolkit on risk-based supervision.

Introduction

Members identified research into risk-based supervision (RBS) as one of the key IOPS priorities leading to the establishment of the RBS Learnings Project at the November 2020 IOPS Technical Committee meeting.

The goal of the project was to improve and build on areas of good practice to support Members when designing, implementing, using or reviewing a risk based supervisory approach.

A questionnaire sent on 29 March 2021 was the key source of insights on the lessons learnt from designing, implementing, using and reviewing a risk based supervisory approach. Information collected from the questionnaire has been crucial to the preparation of this report and was supported by a literature review (Annex B): and case studies submitted by jurisdictions on their approach to RBS. There were also several one on one interviews with jurisdictions following questionnaire submissions to clarify or expand on information provided.

In total, 45 jurisdictions (i.e. just over 55% of IOPS Governing Members) responded to the questionnaire. This represented a strong contribution from Members and reflected the importance of gathering and sharing learnings on RBS for our Members.

Preliminary results of the questionnaire were shared at the June 2021 Technical Committee (TC) meeting with updated analysis and high level recommendations tabled at the October 2021 Technical Committee meeting. A workshop was also held in December 2021 at which many of the common issues and challenges identified via the questionnaire and literature review were discussed.

This is the public version of the report presenting the final results of the questionnaire and the subsequent analysis undertaken. It incorporates the feedback from Members following the October 2021 Technical Committee meeting as well as discussions and supporting papers and analysis shared at the 2021 workshop on risk based supervision.

There are a number of recommendations made with respect to enhancements to IOPS guidance. Most of the recommended guidance enhancements will be incorporated into revisions of the IOPS RBS Toolkit.

RBS-related literature

A literature review (Annex B) was undertaken to identify areas where the RBS Learnings Project could provide a meaningful contribution to pension supervisors' understanding and application of risk based supervision.

Overall, limited literature is available regarding RBS specific to the supervision of pensions. Much of the literature surveyed was written more than a decade ago and was already reflected in the IOPS RBS Toolkit. There were, however, a few recent documents that contained insights specific to the supervision of pension funds and some others that provided more general learnings and guidance.

Much of the literature reviewed emphasised that RBS is worth doing but that it needs to be adjusted from that applied in banking and insurance sectors. The reason is that there is generally not the same relationship between capital and future pensions for defined contribution pension schemes (Randle and Rudolph (2014, p10)).

The review did identify a number of areas where the RBS learnings project could support supervisors though the development of further learnings and examples specific to the supervision of pensions. These areas were similar to those identified from the preliminary analysis of the questionnaire results and are the focus of this report.

1. Background

1.1. What is risk based supervision (RBS)?

Box 1 – Background: Key findings and recommendations

Key findings

- Approximately 82% of respondents use, or are implementing, a RBS approach
- Key benefits sought by Members from the use of RBS were management of risks to better enable early detection and resolution and to optimise the allocation of resources. Generally, the benefits sought from RBS were achieved.
- Some respondents used a different definition of RBS than that contained in the IOPS RBS Toolkit. The main difference was an emphasis on the proactive and timely nature of RBS.
- Members expressed strong interest in comparisons and training regarding RBS and a significant proportion of members also wish to contribute case studies.

Recommendations

- The IOPS definition of RBS be expanded to include a reference to its timely and proactive nature. (**Recommendation 1**)
- The approach to creating and updating case studies be simplified and supported by an index page maintained by the Secretariat based on information provided by the relevant jurisdiction. (**Recommendation 2**)

The IOPS Risk Based Supervision Toolkit[1] currently defines risk based supervision 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 manage and mitigate those risks. This process then allows the supervisory authority to direct its resources to the issues and institutions which pose the greatest threat'*

This definition is less specific than that used for the banking and insurance sectors on the basis that, as highlighted within the literature review, defined contribution pensions do not have the same relationship between capital and future pensions.

The questionnaire sought to understand whether there were other definitions of RBS used by Members. The consistent theme from respondents with a different or varied definition of RBS was that **RBS**

[1] RBS Toolkit - Organisation for Economic Co-operation and Development (iopsweb.org)

should be proactive and focused on prevention of risks and shortcomings, lead to timely action and escalation, and should support the optimisation of supervision resources to the areas of greatest need.

At the October 2021 meeting, Members were asked to consider whether the IOPS definition of RBS should be expanded to reference the *timeliness* or the *proactive nature* of RBS supervision. There were no objections to the proposed adjustment.

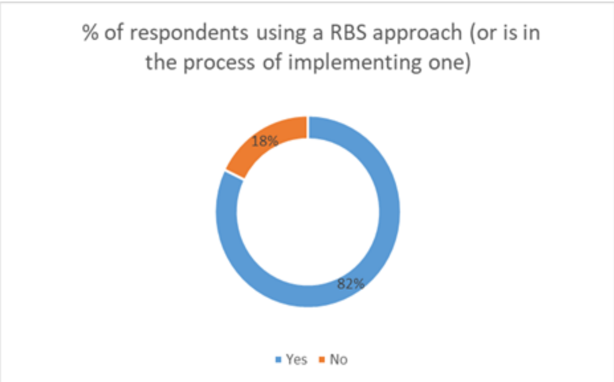
Recommendation 1

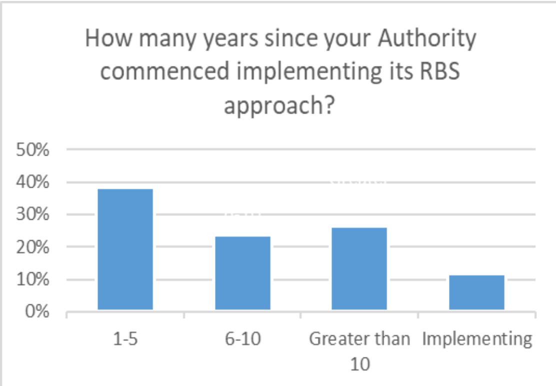
The definition of RBS contained within the IOPS RBS Toolkit will be amended to (variations highlighted in bold):

> *'…a structured approach which focuses on the* ***early*** *identification of potential risks faced by pension plans or funds and the assessment of the financial and operational factors in place to manage and mitigate those risks. This process then allows the supervisory authority to direct its resources to the issues and institutions which pose the greatest threat* ***thereby supporting timely action and escalation where determined necessary****'*

1.2. Use of RBS

Figure 1 Percentage of respondents using a RBS approach / How many years since the Authority commenced implementing its RBS approach?



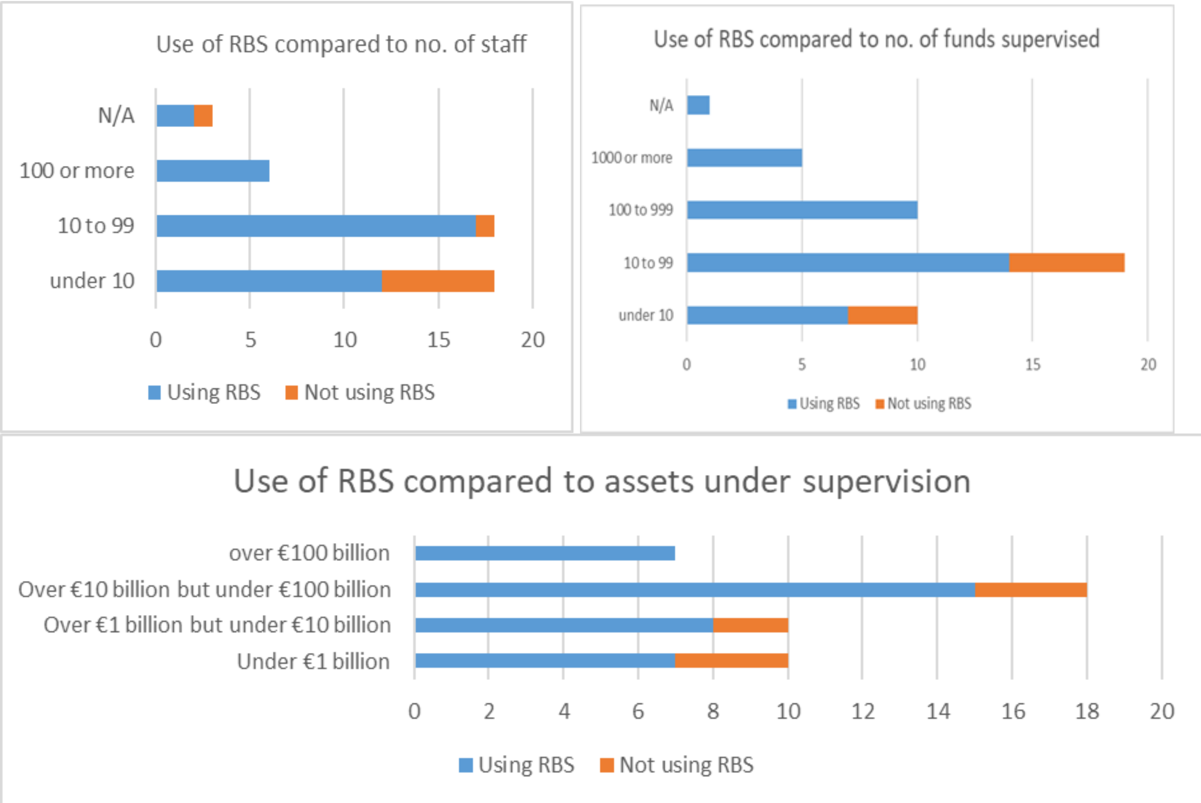


Source: Members' reponses to the IOPS RBS questionnaire 2021

A majority of respondents (82 %) are using RBS or are in the process of implementing it for the first time. There was also a good level of responses from jurisdictions not currently using RBS ensuring that we are getting the broad spectrum of insights on the needs of members in this area.

In addition, there was a good mix of timeframes in which a RBS approach has been used, ensuring that there is a wide range of insights and experience from which the project can draw upon.

Figure 2 Use of RBS compared to staff/funds supervised/assets under supervision



Source: Members' reponses to the IOPS RBS questionnaire 2021

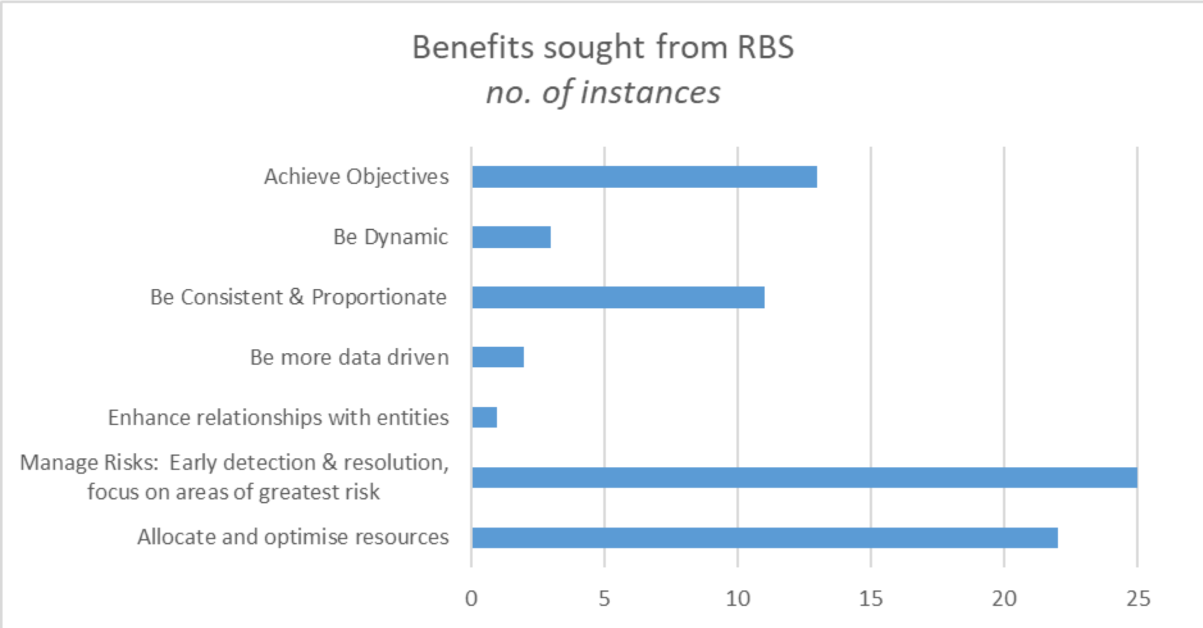
In terms of the characteristics of respondents, there was a strong linkage between the number of pension funds supervised and the use of RBS. It is more likely to be used where there are a larger number of funds under supervision. Similarly, RBS was more common in jurisdictions that had more assets under supervision.

The close alignment of RBS to higher numbers of staff does not necessarily reflect that RBS requires greater staffing levels. Rather, and consistent with the benefits sought by respondents, it is likely that jurisdictions with larger staff numbers have applied a RBS approach in order to more efficiently allocate their resources to the areas of greatest need[2].

[2] See 1.3 for further details regarding the benefits sought and realised from RBS.

1.3. Benefits sought and realised

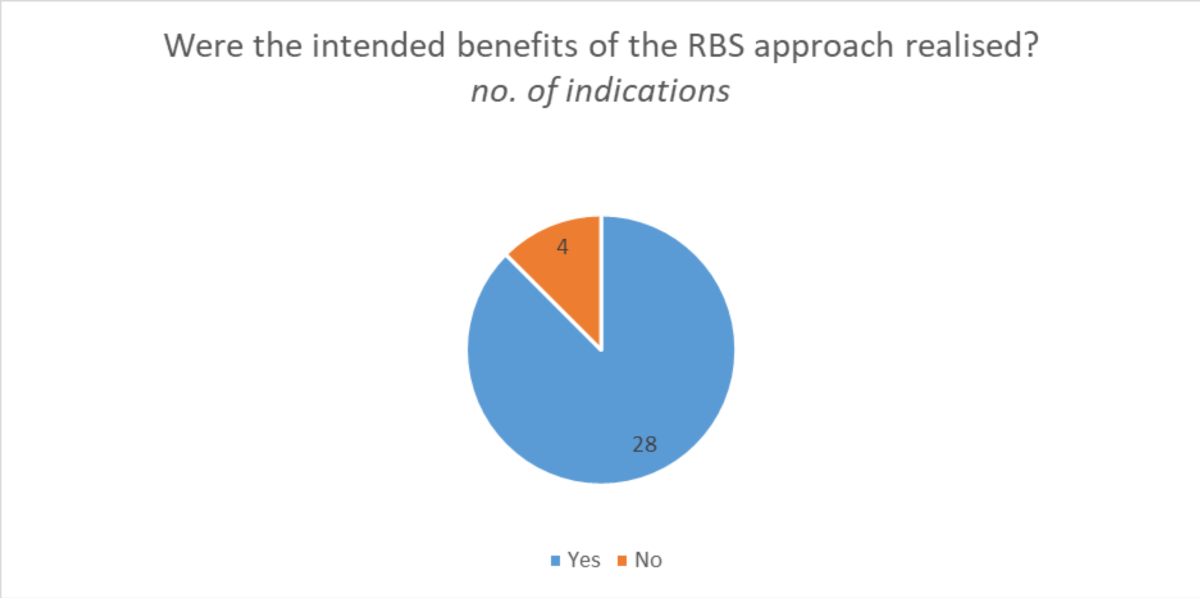
Figure 3 Benefits sought from RBS



Source: Members' reponses to the IOPS RBS questionnaire 2021
Note: Respondents provided free-form responses, which were categorised by the Secretariat. In many instances there were multiple benefits sought.

Overall, **key benefits sought by most jurisdictions from the use of RBS were management of risks to enable early detection and resolution (25 responses) and optimal allocation of resources** (22). Consistent and proportionate supervision were also key benefits for 11 jurisdictions and 13 Members emphasised the desire for RBS to support them to achieve their objectives.

Figure 4 Were the intended benefits of the RBS approach realised?

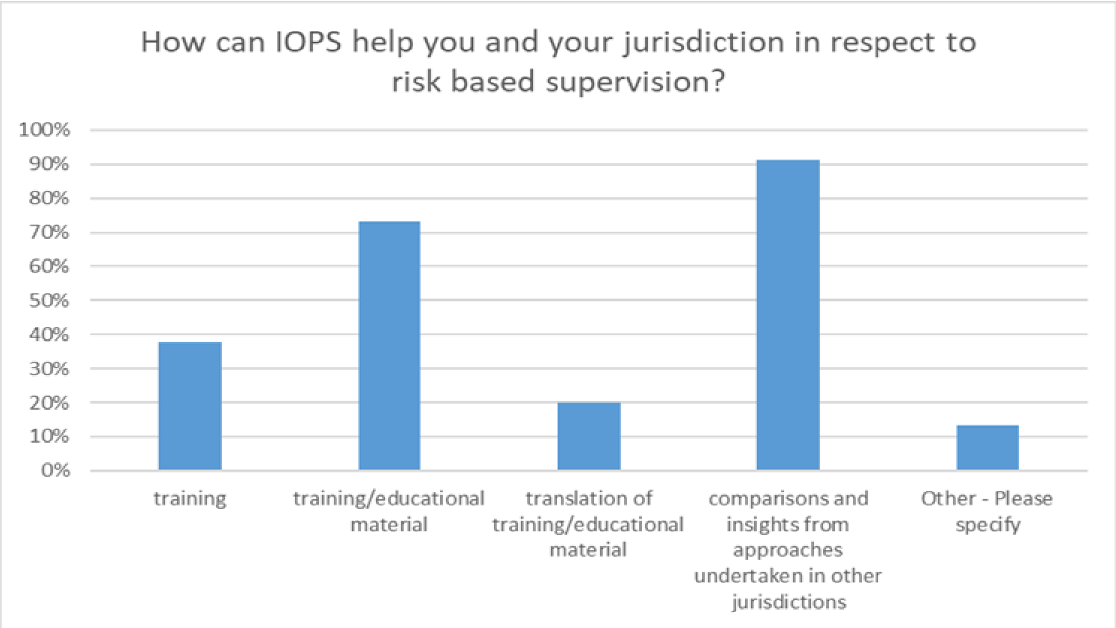


Source: Members' reponses to the IOPS RBS questionnaire 2021

In general, jurisdictions reported that that they achieved the benefits sought from their RBS approach. Where **jurisdictions advised that they had not realised the benefits sought, it was in all but one instance due to the RBS approach was still in the process of being implemented.** The other jurisdiction advised that Covid-19 had caused a delay in some of the benefits being realised.

1.4. How IOPS can support Members in respect to RBS?

Figure 5 How can IOPS help you and your jurisdiction in respect to risk based supervision?



Source: Members' reponses to the IOPS RBS questionnaire 2021
Note: Respondents were able to select multiple options.

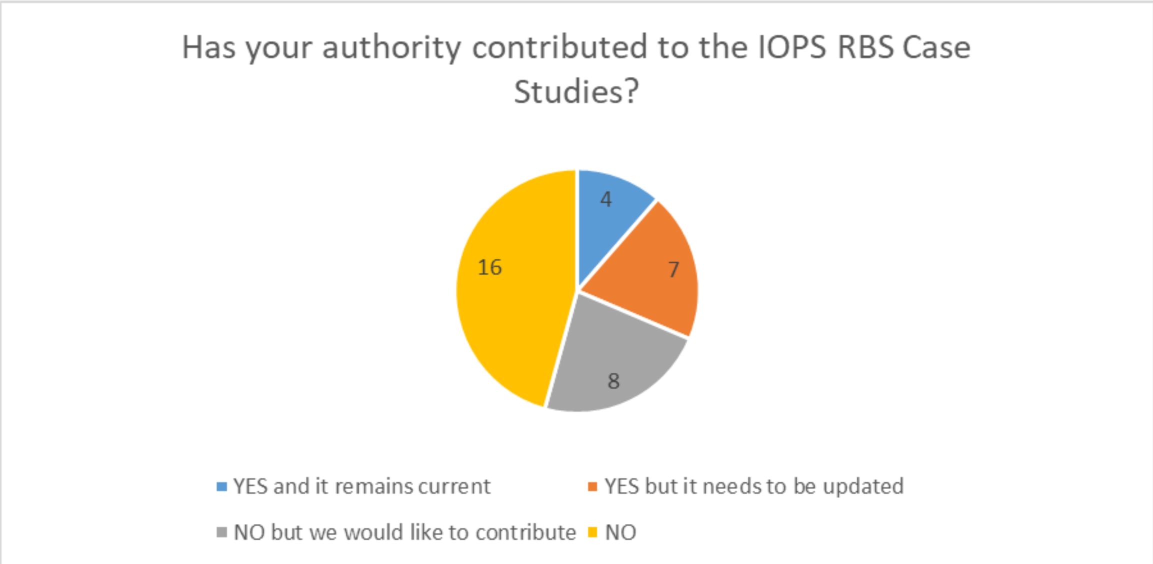
There is a strong desire from Members for comparisons and insights from other jurisdictions as well as training and educational material. In response to that interest, a workshop on RBS was organised in December 2021.

The workshop was supported by a series of papers on key topics including risk factors, design and implementation learnings, as well use and assessment of RBS. The workshop also helped further develop the learnings that are reflected within this report and will contribute to the development of revised guidance.

The approach to compiling and maintaining case studies, further detailed below at section 1.5, is also expected to help improve access to meaningful comparisons of RBS approaches.

1.5. Case Studies

Figure 6 Has the authority contributed to the IOPS RBS Case Studies?



Source: Members' reponses to the IOPS RBS questionnaire 2021

There was **a strong expression of interest in providing case studies** with over half of respondents either having already submitted a case study or offering to provide one. This will constitute a considerable expansion from the 11 case studies at the commencement of the project.

The case studies allow for very good comparisons and it will be beneficial to have a broader group of examples to support Members. It is important, however, to ensure that the case studies remain up to date and that updating them is not overly burdensome on Members. For example, at present, there are a number of outdated case study references within the IOPS RBS Toolkit that need to be refreshed.

While there is a case study template, recent case study submissions have not necessarily followed the template format. Some of these case studies are publicly available documents that describe the RBS approach. This approach works well in ensuring timely access to current information on RBS. However, it may not make it easy for jurisdictions to find the specific information they are seeking.

Recommendation 2

To ensure that Members can locate relevant current material for comparative purposes the approach to case studies that support the RBS Toolkit should be adjusted whereby an index of case studies is maintained by the IOPS Secretariat. As a case study is received, or an existing case study revised, the index page will be updated based on information provided by the relevant jurisdiction. Existing case studies can be transitioned across to the new approach during 2022 with new case studies added as they are received.

2. Preconditions and Design[3]

Box.2. Preconditions and design: Key findings and recommendations

Key Findings

- Challenges were observed during the design phase in relation to internal resourcing, data collection, stakeholder expectations and legislative and policy framework.
- Broadly, the challenges experienced were overcome by leveraging off other jurisdictions and specialists, strong project and stakeholder management and staff training.
- There has been some change in how impact and probability are being used within some RBS designs. There is also a broadening of factors considered when determining an entity's impact.
- A majority of the risk factors captured in RBS designs could be categorised within the existing categories in the RBS Toolkit. However, there were some changes in focus observed in respect to governance risk, cyber risk, ESG, member outcomes and market conduct.

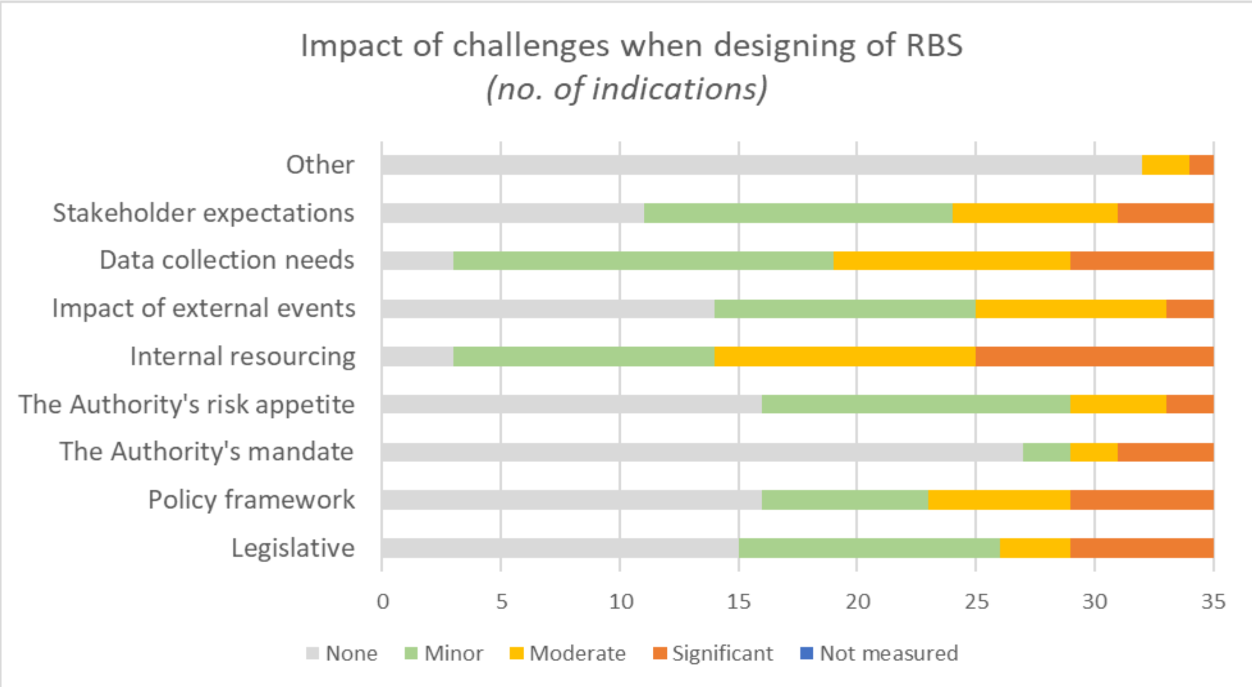
Recommendations:

- The RBS Toolkit be enhanced to remove outdated examples and case studies and include:
  - additional insights on data collection, and technology (**Recommendation 3**); and
  - guidance on the various quantitative and qualitative factors jurisdictions have considered when determining an entity's impact; and further examples of differing uses of impact within RBS designs (**Recommendation 4**)
- The Risk Factors table in Module 3 of the RBS Toolkit be enhanced to:
  - include governance risk as a risk factor category (**Recommendation 5**);
  - reference cyber risk, and more broadly, information security, within IT Risk (**Recommendation 6**);
  - reference ESG factors, as well as climate change risks, within 'Investment and market risk' category (**Recommendation 7**); and
  - rename 'Agency Risk' as 'Market Conduct' and expand its definition to incorporate more details regarding member outcomes and market conduct. (**Recommendation 8**)

[3] Section 2 of the questionnaire was only completed by 39 respondents. These were authorities undertaking or implementing a RBS approach or intending to implement a RBS approach in the coming 12 months. Of those respondents, four were still designing aspects of their RBS approach and, therefore, not all questions were answered within section 2.

2.1. Overcoming precondition and design challenges

Figure 7 Impact of challenges when designing of RBS



Source: Members' reponses to the IOPS RBS questionnaire 2021

Respondents advised that they overcame significant challenges experienced in respect to the preconditions and RBS design by:

- **Internal Resourcing** (32 indications, including 21 moderate or significant ones) – seeking financial support to acquire a new IT system to anchor the risk based supervision. Reprioritising some supervisory activities to increase staff allocated to RBS;
- **Data Collection** (32 indications, including 16 moderate or significant ones) – requesting supplementary information via questionnaires[4];
- **Stakeholder expectations** (24 indications, including 11 moderate or significant ones) - Proactive engagement with stakeholders and promoting benefits of RBS. Targeted one on one engagement with specific organisations and broader industry forums;
- **Legislative & Policy Framework** (20 indications, including 9 moderate or significant ones) – making the changes necessary to legislation and policy framework to support a RBS approach.

More broadly, respondents also highlighted the benefits of:

- leveraging off other jurisdictions and specialists (e.g. using the systems, tools and techniques developed within other jurisdictions to arrive at a tailored approach and/or engaging with peers

[4] This finding reinforces the need for a research on what data pension supervisors are collecting, including for RBS purposes. IOPS has initialised a project on data collection by pension supervisors.

to learn from their experiences, or engaging service providers with expertise in designing and implementing RBS);

- strong project management;
- stakeholder engagement, particularly when seeking legislative change, and
- staff training.

Additional analysis was undertaken and shared with Members ahead of the RBS workshop in December 2021 and a series of questions posed for Members to consider. The additional analysis in relation to staff training and stakeholder engagement is discussed further in section 3 of this paper. The additional analysis and learnings in respect to legislation and policy framework, data collection and technology are discussed further below.

2.1.1. Legislation and Policy Framework

Respondents highlighted that, when introducing a RBS approach, changes were needed to the legislation and policy framework to:

- Enable a RBS approach to be undertaken;
- Embrace the principles of RBS (including the principle of proportionality); and
- Capture the supervisor mandate.

Respondents also noted that there were a number of significant or moderate challenges arising when seeking to update the legislation and the policy framework but that these could be overcome by:

- Being clear on what specific legislative requirements are needed for the jurisdiction;
- Obtaining buy in from stakeholders to support legislation changes;
- Having the resources with the necessary capability to focus on developing and introducing new legislation; and
- Preparing the industry to respond to the change in legislation.

The Toolkit contains general guidance on the legislation needed to support RBS and notes that the specific requirements will be dependent upon the nature of the pension system and supervisory objectives. Respondents highlighted that in some instances they had sought support from consultants to ensure that their legislative changes addressed their specific needs.

Republic of Ireland also emphasised **the importance to ensure that stakeholders understood the changes proposed and what the move to a RBS approach would mean for them**. Clarity around the impact of the change for supervised entities can result in entities not only accepting the change but also championing it.

It is also worth noting from the literature review that there was emphasis on the need to **ensure that the legislation not only gave the powers necessary for the jurisdiction but was unambiguous,** thereby ensuring that the supervisor had both the authority and the will to act. Clear unambiguous legislation can influence the will to act by ensuring supervisors have confidence in the powers they have been given.

Based on the limited feedback received from Members, no more specific guidance on legislative requirements will be added to the Toolkit. However, there can still be benefit obtained from sharing experiences on how other industries, such as the banking industry, have tackled the legislative requirements. Accordingly, we will seek out examples and experiences for inclusion in case studies as well as discussions at future meetings.

2.1.2. Data Collection and technology

Challenges with data collection and technology were noted to be prevalent throughout the implementation and design phases and were often interconnected[5]. Respondents mentioned challenges with respect to:

- Access to and availability of data to support RBS. This was particularly noted in respect to more granular data to monitor certain areas (e.g. investments, asset data for sub portfolios);
- Entity ability and capacity to provide data;
- Quality of data.

The Toolkit contains several suggestions to support supervisors designing data collections as part of their RBS approach, including the consideration of the costs to both the supervisor and entity when collecting the data. Many of the learnings from the RBS questionnaire are similar to those in the Toolkit. However, there were **some additional insights and learnings from jurisdictions regarding technology and data to support a RBS approach** as noted below:

- Look for new ways to use existing data;
- Depending on the magnitude of the change in data requirements, supervisors may require a separate project on data collection to ensure adequate focus;
- Consider running a pilot exercise and/or testing the data collection process and systems with a small group of funds prior to rolling it out to all entities;
- In addition to making data submissions electronic, consider how the analysis and validation of the data might also be automated;
- Stakeholder and entity training can be beneficial to improving data quality; and
- Be cognisant that data needs will evolve and consider establishing a process for ongoing review and improvement.

Feedback from Members also reinforced the importance of automation of the data collection and analysis process. One Member also suggested that the automation process should be stated in legislation and that stakeholders be required to provide data in an automated manner.

In addition to the learnings identified above, it is also noted that data collection and technology remain key areas of focus for IOPS's ongoing work program. Therefore, some future work might be undertaken with regard to these areas as well as possible workshops and training.

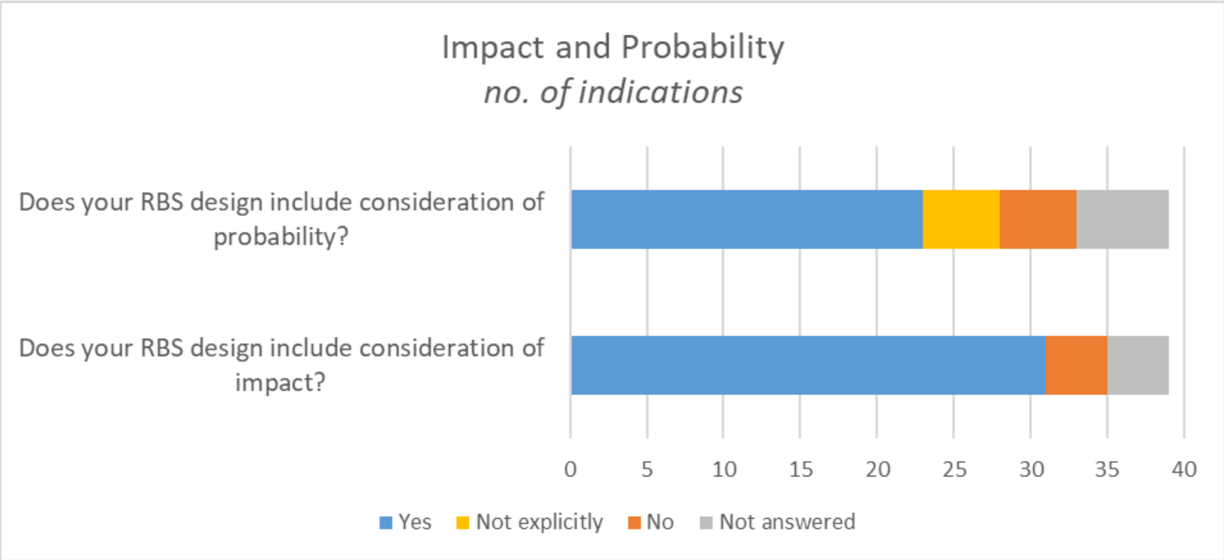
[5] See https://community.oecd.org/docs/DOC-204453 for further details regarding observations from the questionnaire in respect to data and technology during the design and implementation of an RBS approach.

Recommendation 3

The RBS Toolkit be enhanced with the additional guidance and insights on data collection and technology.

2.2. Consideration of Impact and Probability[6]

Figure 8 Impact and Probability



Source: Members' reponses to the IOPS RBS questionnaire 2021

Note: Four of the jurisdictions that did not answer questions on impact and probability were still designing aspects of their RBS approach and, therefore, not able to answer these questions.

The preliminary questionnaire results had noted a potential evolution in **how impact and probability were being used** with different approaches to the traditional impact/probability matrix observed. Further analysis was undertaken of the case studies and the additional information provided within questionnaire responses to better understand if there were any trends developing in this area and, if so, what were they.

2.2.1. Impact

The IOPS RBS Toolkit notes that impact assessments have been a key determinant of a pension entity's relationship with the supervisory authority. Such assessments will often influence the level of supervisory attention an entity receives including when a supervisor might increase or decrease the level of oversight.

Responses to the questionnaire reinforced the use of impact assessments to assist in determining the level of supervisory attention. However, there does appear to be a broadening of factors

[6] Probability and impact refer to the probability of risks occurring and the importance and impact on the goals of the supervisory authority See Module 4 of the IOPS RBS Toolkit for more details.

considered when determining an entity's impact and, in some instances, impact is no longer combined with probability in a risk matrix to determine the level of supervision attention.

A number of respondents noted that impact, in isolation would influence depth of analysis undertaken. For example, Australia, Austria, and the Netherlands all noted that more in-depth analysis would be undertaken for the more impactful entities. The Netherlands stated that this use of proportionality can make supervision of small, less complex institutions more straightforward but not necessarily less stringent.

In terms of how impact is determined, it is noted within the IOPS RBS Toolkit that the size of a pension fund has been a common basis for the assessment. However, respondents have listed a number of **other qualitative and quantitative factors** they now consider including[7]:

- Market share of the entity/pension fund;
- Number of beneficiaries/clients;
- Number of contracts with employers;
- Impact of adverse events measured through stress testing;
- Importance of the pension entity/level of influence over industry;
- Complexity;
- Provision of critical products;
- Substitutability;
- Interconnectedness; and
- Resolvability.

In addition, the Netherlands also noted that it distinguishes between prudential and integrity impacts due to the various statutory frameworks that apply.

A number of the factors listed above, such as substitutability and resolvability, are similar to the factors considered when determining systemically important banks and insurers. There is further discussion on the approaches to identifying such entities in IOPS Working Paper 30 on Macro and Micro dimensions of supervision of large pension funds[8].

2.2.2. Probability

Probability was noted by a number of jurisdictions to form part of their RBS approach and was generally defined as the likelihood of a risk or adverse event occurring**. Probability was observed to be assessed at the risk category and overall entity level.** Some jurisdictions combined the probability rating with an impact rating to determine the overall level of supervision. Others used probability scores to rank entities and prioritise supervisory responses.

[7] This reinforces the need for conducting research into how pension supervisors are collecting data, at least in the context of RBS. IOPS has initialised a project on data collection by pension supervisors.

[8] http://www.iopsweb.org/WP-30-Macro-Micro-Dimensions-Supervision-LPFs.pdf

Some jurisdictions measured probability at both the inherent and residual risks[9]. While there continues to be a focus on supervisory judgements, some jurisdictions highlighted the use of quantitative indicators to help inform the probability assessment.

The IOPS RBS Toolkit includes some guidance and examples on assessing probability. While the guidance remains appropriate, the examples used are now outdated and will need to be refreshed.

Recommendation 4

The IOPS RBS Toolkit be updated to include:

- the additional guidance on the various quantitative and qualitative factors jurisdictions have considered when determining an entity's impact; and
- further examples of differing uses of impact within RBS designs and removal of outdated examples relating to probability and impact.

2.3. Supervisory Objectives and Risk Focus[10]

The Toolkit states that the first step in designing a risk-based supervisory approach is establishing what risks the pension supervisory authority will focus on. A number of matters can influence that decision including:

- Supervisory objectives;
- Nature of pension system;
- Risk appetite;
- Resourcing and capacity.

The Toolkit also sets out a number of common supervisory objectives. Respondents were asked to outline their supervisory objectives. Due to the free-form nature of responses, it was not possible to neatly categorise all supervisory objectives to those objectives set out in the Toolkit. However, it was apparent that the various types of supervisory objectives set out in the Toolkit remain appropriate.

Some supervisory objectives reported by respondents were observed to be **functional in nature and related more to the process of supervision rather than the outcomes sought.** Functional supervisory objectives may reflect a jurisdiction's legislative or policy framework. The World Bank has encouraged supervisors to establish outcomes based objectives[11] and, if deemed useful, there may be an opportunity for the Toolkit to give further emphasis to the outcomes that are sought from supervision.
Within the Toolkit, three specific risk focus areas are described[12]:

- Funding and solvency;

[9] Includes Albania, Uganda, and North Macedonia.

[10] For further details, please refer to RBS workshop paper https://community.oecd.org/docs/DOC-204454

[11] The Outcomes Based Diagnosis and Assessment Handbook, World Bank, June 2016

[12] Table 1 of module 3 of the IOPS RBS Toolkit.

- Risk management systems;
- Conflict of interest.

Once the risk focus has been determined, the underlying risk factors and risk indicators are set. There is also a need to consider the balance between systemic and industry/entity level risk.

2.4. Risk Factors

Members were invited to provide details of the risk factors included in their RBS design. Responses were free-form and Members provided both the name and definition of each risk factor included in their RBS design. Over 100 different risk factors were reported.

Risks can generally be identified by taking a 'bottom up' approach and attempting to identify risks at the level of individual supervised entities, or by taking a 'top down' approach and looking at the systemic risks across the industry or sector.[13]

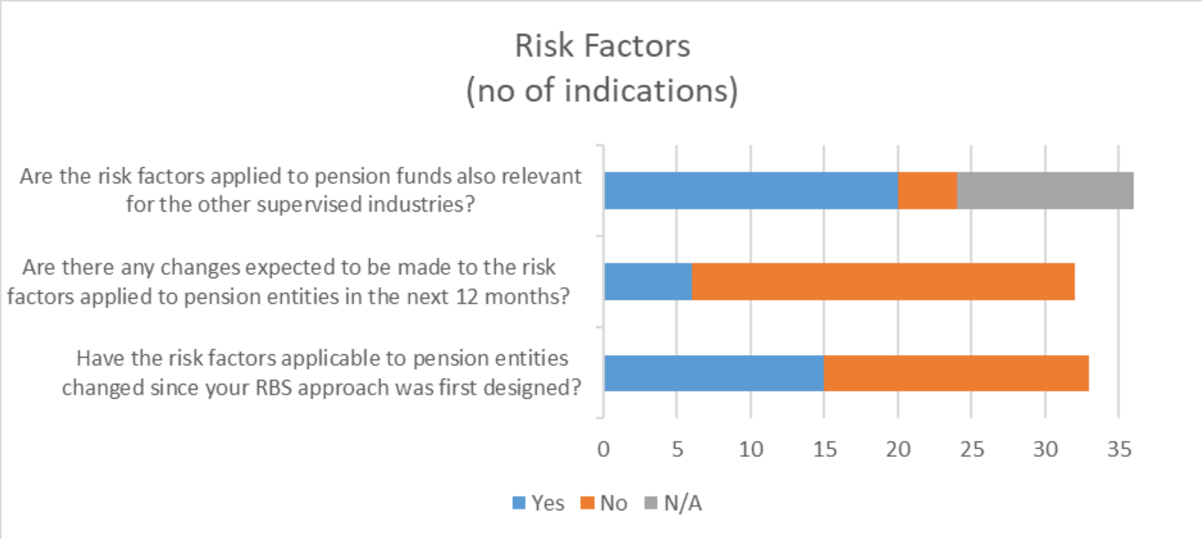
For entity level risks, responses from the questionnaire were categorised, where possible, into the risk factor categories set out in the Toolkit (see Table 1 in Annex A). **A majority of the risk factors provided by respondents could be categorised within the existing categories in the Toolkit.** This, however, is not an exact science and it is acknowledged that actual risks may belong to several risk factor categories. There were also several instances where respondents had reported several risk factors that fitted within the one category (e.g. a category for both investment and market risk), emphasising the focus their RBS approach had on that particular risk. There were also cases where multiple risk factors were captured within the one risk factor category. For example, mismatch risk was, in some instances, considered as part of investment or market risk and IT risk was considered by some jurisdictions as part of Operational Risk.

Respondents also highlighted in a number of instances that their risk factors also **included systemic risks**. For example, Mexico included the risk that the Pension System will not be able to incorporate all Mexican workers due to the structure of the labour market, particularly the high informality in the country. Albania included 'the systemic risk from lack of participation within voluntary/occupational pension funds that leads to inadequate retirement provisioning'. The systemic risks have not been captured within the analysis in Annex A as it focusses only on the 'bottom up approach' and the identification of risks at the entity level.

The information set out in Annex A is based on the definitions provided by jurisdictions in their questionnaire responses. Prior to being finalised, table 1 in Annex A was shared with relevant jurisdictions and subsequently updated to reflect the feedback received.

[13] IOPS RBS Toolkit Module 3

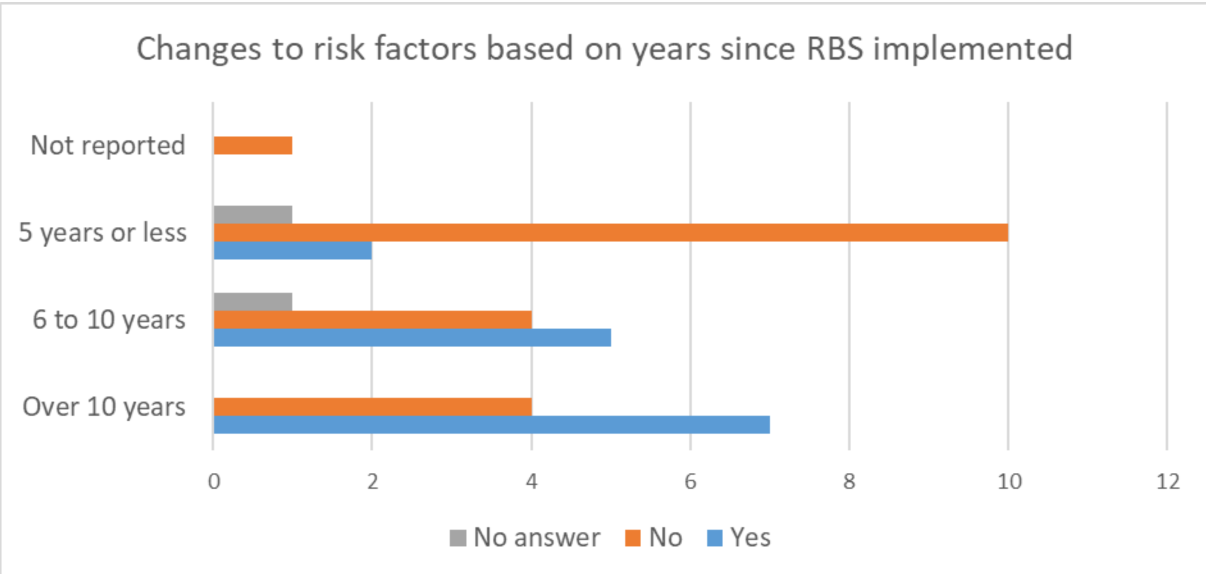
Figure 9 Risk Factors



Source: Members' reponses to the IOPS RBS questionnaire 2021

It is apparent from the responses and subsequent feedback to Annex A that there are many ways in which risks may be described and categorised. Some of the differences may reflect the nature of the pension system and supervisory objectives whereas for others, the approach may be influenced by other industries supervised by the regulator. For example, as highlighted in the chart above the same risk factor categories are applied across the industries in a majority of instances where multiple industries are supervised by the one regulator.

Figure 10 Changes to risk factors based on years since RBS implemented



Source: Members' reponses to the IOPS RBS questionnaire 2021

It was also observed that **the longer a RBS approach was in place, the more likely the risk factors were to be adjusted.** However, there continued to be some jurisdictions where no adjustment had been made to their risk factors for 10 or more years.

Other key observations include themes discussed in the next three subsections.

2.4.1. Governance Risk

While most risk factors reported could be allocated to the risk categories defined within the current IOPS RBS Toolkit, **there was one common risk factor (Governance)** included in 32% of respondents' risk design that is not defined in the IOPS RBS Toolkit risk factor table.

Governance can mitigate risks but governance can also create risks such enabling poor risk culture leading to inappropriate decision making. The IOPS RBS Toolkit has always made reference to governance risk as a risk factor category. However, governance risk was not included in the table of risks that should be considered when designing a risk based approach. Inclusion within the table would prompt Members to consider it within their RBS design but would not obligate them to do so especially where it is not relevant or reflected in another way.

Recommendation 5

The Risk Factors table in Module 3 of the RBS Toolkit be enhanced to include 'Governance Risk' as a risk factor category. The text box below provides a proposal based on the definitions provided by respondents.

Box.3. Governance Risk – Proposed definition

The risk that inadequate management, oversight, and controls may adversely impact the effective administration of the plan. It encompasses:

- the governance structures and processes designed to inform prudent decisions and actions;
- the behaviours, skills, knowledge and motivation of staff and trustees;
- the culture within the institutions that are charged with administrating and managing all or part of the pension funds and schemes; and
- the risk management framework of those institutions.

2.4.2. Cyber risk

Cyber risk is noted as an emerging risk and an area of increased focus for a number of jurisdictions. However, it is not clearly reflected in the risk factors within the Toolkit. Both Mexico and Australia have incorporated a reference to cyber risk within their definitions of IT Risk[14]. Chile has noted that it is currently reviewing its risk factors to consider how to incorporate cyber risk. A number of jurisdictions have also highlighted that they consider IT risk as part of Operational risk and one jurisdiction has suggested a broader reference to information security should be noted within the risk factors.

Recommendation 6

The Risk Factors table in Module 3 of the RBS Toolkit be enhanced to reference cyber risk, and more broadly, information security, within IT Risk. A proposed enhancement to the existing IOPS definition of IT Risk is highlighted in bold in the text box below noting that IT risk is not always established as its own risk factor category and can be often combined with other risk factors such as operational risk.

Box.4. IT Risk – Proposed revision to definition

IT risk is the risk arising from inadequate information technology and processing in terms of manageability, exclusivity, **information security (including cyber risks)**, integrity, infrastructure, controllability and continuity. IT risk also arises from an inadequate IT strategy and policy and from inadequate use of the information technology.

2.4.3. Climate Risk and ESG Factors

While respondents did not specifically refer to ESG within the definitions of their risk factors, some noted that **they were reviewing their risk factors to determine how climate change risk and ESG factors should be reflected within their RBS design.** Chile, for example, has incorporated ESG factors and climate change risks into the RBS guidelines and methodology. Chile has required regulated entities to consider them as relevant financial variables in the investment management process.

The IOPS supervisory guidelines on ESG factors[15] set an expectation that they are considered within the investment and risk management of pension funds.

Feedback from Members has been mixed with some indicating ESG factors are worthy of their own category and others suggesting the ESG factors are a consideration within other risk factor categories such as the investments and market risk.

It is therefore proposed that consideration of ESG factors be incorporated within the existing risk factors noting that it remains open for a jurisdiction to create a separate category specific to it within their own risk model. In addition, an example will be added to the Toolkit to highlight how ESG factors may be considered within existing risk factor categories.

[14] Australia captures the management of IT Risk as a sub category of Business and Central Functions.

[15] http://www.iopsweb.org/IOPS-Supervisory-guidelines-integration-ESG-factors.pdf

Recommendation 7

The Risk Factors table in Module 3 of the RBS Toolkit be enhanced to reference ESG factors as well as climate change risks within the investment and market risk categories. A proposed enhancement to the existing definition of investment or market risk is set out in bold in the text box below.

In addition to addressing ESG factors, some minor wording adjustments are proposed to expand on the risks associated with diversification and concentration risk.

Box.5. Investment or market risk – Proposed revision to definition

The risk of losses due to adverse movements in interest rates and other market prices leading to underfunding in DB plans and low balances in DC accounts. The problem may materialise due to ‘concentration risk’ (i.e. the risk that the investment portfolio is not sufficiently diversified and/or is too concentrated on one asset or issuer).

The risk may also arise due to investment in unregulated / unlisted products. In developing economies the range of investments available to pension funds may be highly limited (due to under-developed capital markets and / or restrictions on overseas investments). In such cases, the investment portfolio as a whole would be far from ideal and the supervisory authority should consider investment risk for all supervised entities within the high risk category.

Investment risk can also be systemic in nature when all pension plans are affected by financial meltdowns or other economic catastrophes (as was the case in 2008/9). ‘Concentration’ risk is also possible – i.e. risk that the pension fund’s portfolio is not adequately diversified and is too exposed to one asset, or issuer, industry or geographic region.

ESG factors, can give rise to an array of risks including investment and market risk and should be considered and integrated within the investment and risk management of pension funds.

2.4.4. Agency Risk, Member Outcomes and Market Conduct

A number of jurisdictions have included risks that pension benefits may be lower than they otherwise would be due to, among other things, excessive fees and charges, conflicts of interest, fraud and/or misappropriation. When allocating risks to the categories defined in the RBS Toolkit, these risks were categorised as Agency Risk in Annex A on the basis that this risk category includes such issues in its definition. This definition of agency risk also describes it as competition risk or competition failure.

Some of the names given by respondents to these risks include: "fiduciary risk"[16], "member outcomes"[17], "company/fees related risks"[18], "market conduct"[19]and "financial risk (fees, charges and costs)"[20]. While a couple of jurisdictions made specific reference to competition[21], **the term 'Agency Risk' was not directly used by any jurisdiction when defining or naming their risks.** An exception to this was observed in Kenya's document describing its RBS approach. Kenya uses the term when referring to a group of risks within its risk model that include risks relating to excessive fees and expenses, conflicts of interest and fraud, misappropriation and misallocation**.**

Feedback from Members was mixed on whether agency risk should be renamed. There were some suggestions that it be renamed Market Conduct. Accordingly, it is proposed that Agency risk be renamed 'Market Conduct' and that the definition be expanded as highlighted below.

Recommendation 8

The Risk Factors table in Module 3 of the RBS Toolkit be enhanced to rename 'Agency Risk' as 'Market Conduct' and expand its definition to incorporate more details regarding member outcomes and market conduct. A proposed enhancement is set out in bold the text box below.

Box.6. Agency/Market Conduct Risk – Proposed revision to definition

These could otherwise be described as 'competition risk', 'competition failure' or '**members outcomes'**. Issues include excessive fees, conflicts of interest, fraud misappropriation and misallocation, **failure to promote the financial interests of members, poor quality or inadequate disclosure to members and beneficiaries, and inadequate complaint handling**. Agency risk can arise from simple ignorance of law and best practices, unwillingness to adopt best practices, or through wilful negligence and corrupt practices. One significant risk in both defined benefit and defined contribution plans is that of non-payment of contributions.

[16] Guernsey

[17] Australia

[18] North Macedonia

[19] Kenya and Chile

[20] Republic of Ireland

[21] Hungary and Australia

3. Implementation[22]

Box.7. Implementation: Key findings and recommendations

Key findings

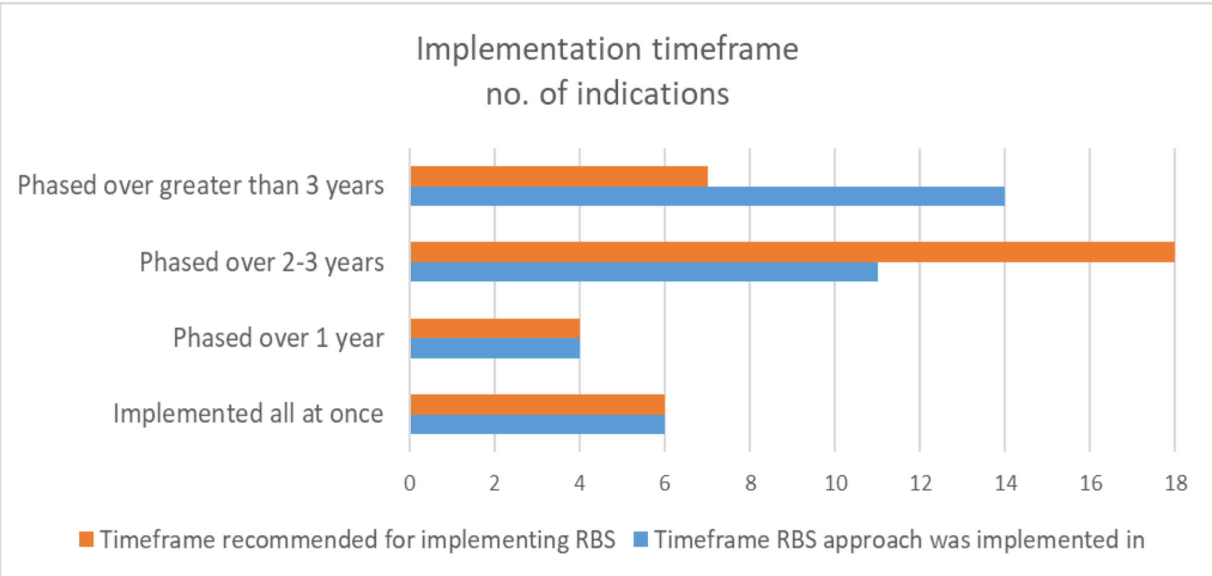
- Challenges identified in design phase often continue to be experienced during implementation phase particularly in the areas of internal resourcing, data collection and stakeholder expectations.
- Staff training and stakeholder engagement becomes critical during the implementation phase.
- While there were variations in the time taken to implement, it was observed that those that took more than 3 years to implement encouraged others to implement in a shorter timeframe.

Recommendation:

The RBS Toolkit be enhanced to include additional insights on implementation preparation and timing, project management staff training and preparation and stakeholder engagement (Recommendation 9).

3.1. Timeframe for implementation

Figure 11 Implementation timeframe



Source: Members reponses to the IOPS RBS questionnaire 2021

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[22] Section 3 of the questionnaire was only completed by 35 respondents. These respondents were undertaking or implementing a RBS approach or they were intending to implement a RBS approach in the coming 12 months.

Some differences were observed between the timeframes in which the jurisdictions introduced their RBS approach and the timeframe they would recommend to others. In particular, **jurisdictions that took more than three years to implement are encouraging others to implement in a shorter timeframe.**

Some of the variation in proposed timeframes appears to relate to the interpretation of 'implementation' where some respondents have included the transition period after commencing implementation and others have considered implementation as having ended from the time that the RBS approach is first used.

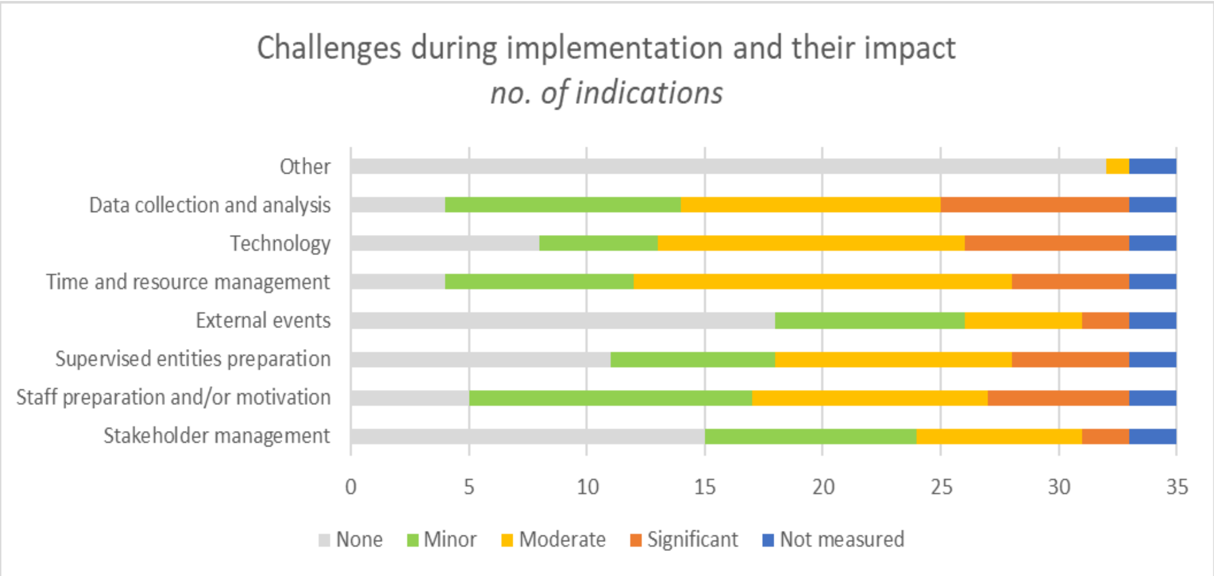
Respondents noted that **the timeframe for implementation can be dependent on a number of factors** including:

- Resource availability;
- Ability for industry to assimilate;
- Size of supervision team and ability to train staff and engage specialist skills;
- Legislative requirements;
- External events (such as Covid-19).

Respondents also noted that it can take up to three years for a newly implemented approach to come to full maturity.

3.2. Overcoming implementation challenges

Figure 12 Challenges during implementation and their impact



Source: Members' reponses to the IOPS RBS questionnaire 2021

Note: "Not measured'' represents authorities that have not yet completed the implementation of their RBS approach and, therefore, have not yet measured the impact of challenges experienced.

Overall, **the significant or moderate challenges experienced during the design phase continue to present significant or moderate challenges during the implementation phase**. Similar issues are observed in respect to data collection, technology and stakeholder management and expectations. From further analysis of the questionnaire responses, it is noted that generally the design and implementation phases happen very close to each other and, in some instances, at the same time. This is particularly true where there is a long period of implementation and ongoing development and design of the RBS approach.

It is observed, however, that **staff training and engagement becomes critically important during the implementation phase.** It was emphasised in nine responses that it was important to prepare staff and support the necessary change in mindset. Other common responses included:

- ensuring that supervised entities were aware of, and understood the changes occurring and had the capacity to make any necessary changes particularly in respect to data requirements (7);
- strong project planning and management (3); and
- ensuring necessary resources were available (2).

Further analysis on staff training and stakeholder engagement was included in a paper tabled at the 2021 RBS Workshop. Key observations within that paper are presented in the following subsections.

3.2.1. Staff training and preparation

In addition to what is already reflected within the Toolkit, staff capabilities needed to support a RBS approach were observed to include:

- teamwork and information sharing;
- flexibility and adaptability;
- stakeholder management (including tact and diplomacy); and
- being innovative and open to new approaches.

Members have also subsequently emphasised the importance of providing staff with adequate time to adapt and ensuring that there is a clearly documented methodology to support supervisors.

3.2.2. Stakeholder engagement

Techniques observed to support stakeholder engagement during the implementation process included:

- early proactive engagement will help to increase awareness and buy in from stakeholders;
- targeted one on one engagements with specific organisations can be beneficial;
- ensure that there are avenues and opportunities for stakeholders to give feedback in order to ascertain the level of understanding and awareness and whether further engagement or communication is required;
- provide regulated entities with training;
- finding the balance between the need to adapt against the capacity of supervisors and stakeholders to take on the change.

Subsequent feedback from Members also reinforced the benefits to stakeholder engagement from conducting a pilot exercise and by engaging with professional associations of the pension funds.

Recommendation 9

The RBS Toolkit be enhanced to include additional insights on implementation preparation and timing, project management staff training and preparation and stakeholder engagement.

4. Use of RBS[23]

Box.8. Use of RBS: Key findings and recommendations

Key findings

- A combination of thematic and entity specific work is applied by most supervisors with respondents noting many benefits from combining the two.
- While data is increasingly relied upon to guide supervisors, supervisory judgement remains critical to the risk assessment of entities.
- Communication of risk assessments is generally limited to the regulated entity and the breadth and detail of information can vary. Communication is being used strategically as a supervisory tool.
- Generally, the activities undertaken to inform risk assessments remain consistent with observed practices set out in the good practice guides though some opportunities for enhancement were identified.

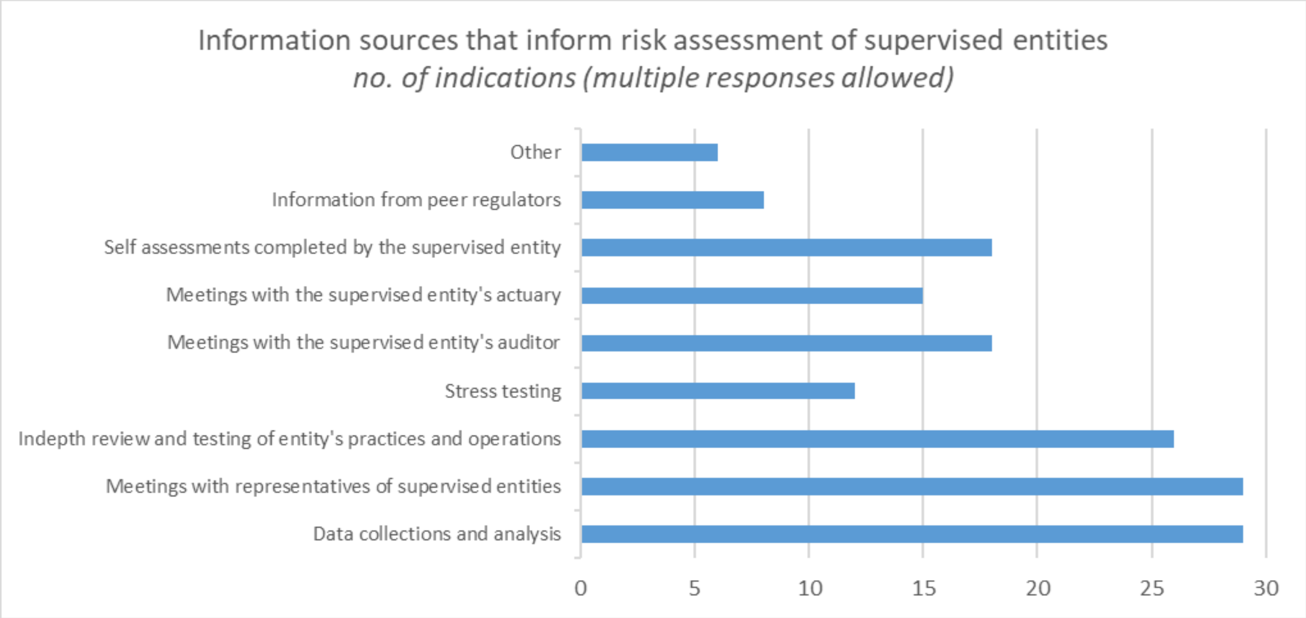
Recommendation:

- IOPS Good practice guide and the IOPS Toolkit to be enhanced to include:
    - practices for assessing behavioural risks and member outcomes (including quality of services provided), monitoring small or low risk entities and conducting self-assessments and stress tests;
    - use of engagement and communication as a strategic supervisory tool;
    - evolution in risk assessment process;
    - interaction between industry and entity level supervision;
    - opportunities for utilising service providers (**Recommendation 10**).

[23] Section 4 of the questionnaire was only completed by 31 respondents that had fully implemented their RBS approach or had commenced using components of the RBS approach.

4.1. Supervision Activities to inform risk assessments

Figure 13 Information sources that inform risk assessments of supervised entities



Source: Members' reponses to the IOPS RBS questionnaire 2021

The activities undertaken to inform a risk assessment are varied.

It is apparent that **there is a strong reliance on data collection and analysis** emphasising the importance of the IOPS project on data collection by pension supervisors. Other main supervisory activities used to inform risk assessments include meetings with representatives of supervised entities and in-depth review and testing of supervised entities' practices and operations.

IOPS good practice guidance has been developed for the supervisory assessment of pension funds[24] and covers the supervisory process including monitoring, analysis and in depth investigations. The guidance was initially developed in 2008. It covers all forms of supervision, i.e. is not limited to just a RBS approach. The RBS questionnaire results and case studies suggest that there is generally consistency with observed practices within that paper. There are, however **some areas identified in which enhancements could be made** to the RBS Toolkit including additional information regarding:

- the activities that can support the assessment of behavioural risks;
- the use of entity engagement beyond in-depth evaluations to include monitoring and information sharing engagement;
- good practices for monitoring small or low risk entities such as, but not limited to, the use of thematic reviews;
- other types of engagement, other than entity engagement, that can support risk identification and monitoring;

[24] IOPS (2008). IOPS Guidelines for the supervisory assessment of pension funds

- self-assessments undertaken by entities;
- evolution in the risk assessment process;
- the interaction between industry and entity level supervision and how these initiatives can best support each other;
- options to support appropriate resourcing of supervisory activities such as the use of service providers.

Members also indicated an interest in more information for undertaking stress testing and investment analysis that is currently within the RBS Toolkit but was not incorporated into the guidelines for the supervisory assessment of pension funds.

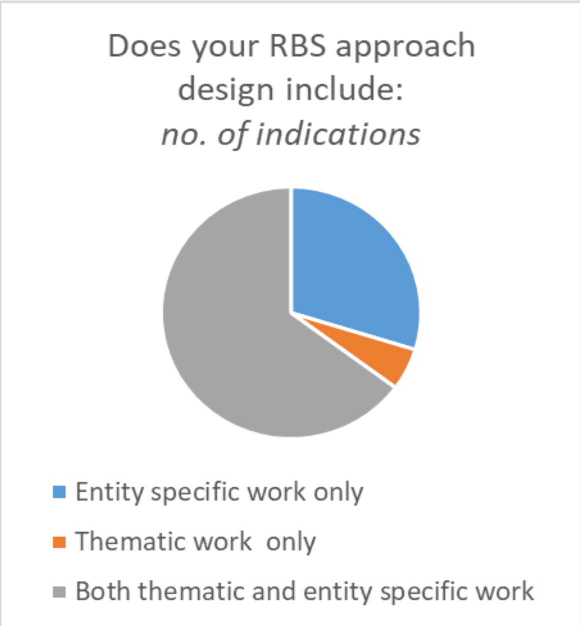
Recommendation 10

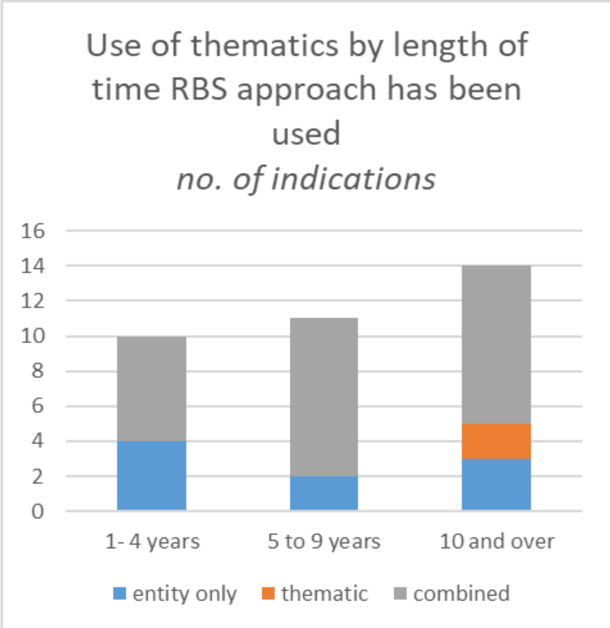
The IOPS Good Practice Guide and the RBS Toolkit to be enhanced to include:

- practices for assessing behavioural risks and member outcomes (including quality of services provided), monitoring small or low risk entities and conducting self-assessments and stress tests;
- use of engagement and communication as a strategic supervisory tool;
- evolution in risk assessment process;
- interaction between industry and entity level supervision;
- opportunities for utilising service providers.

4.2. Thematic[25] vs Entity specific supervision

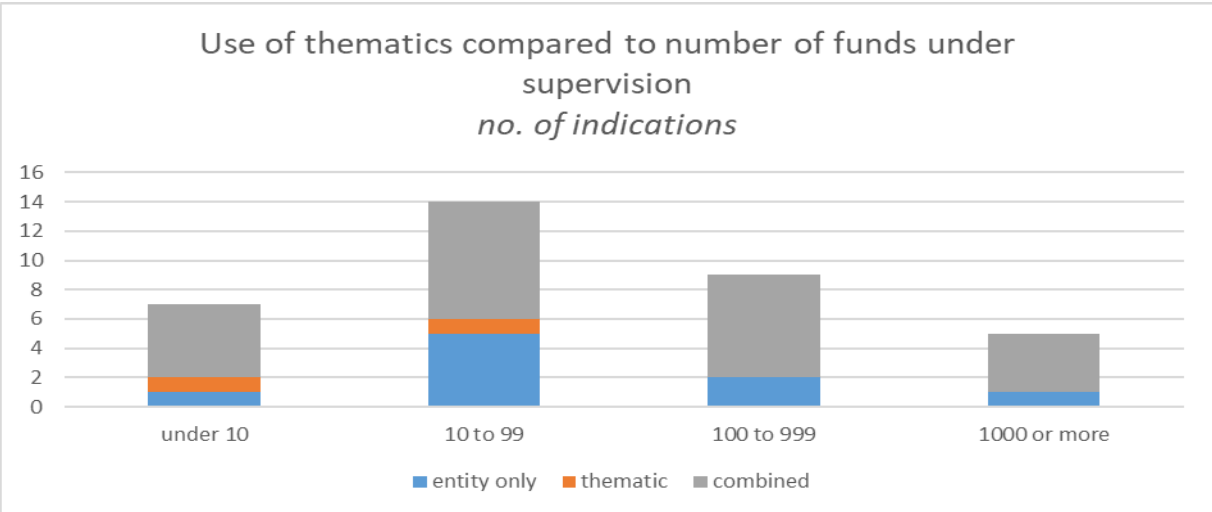
Figure 14 Use of thematic and entity specific work/use of thematics by length of time RBS approach has been used





Source: Members reponses' to the IOPS RBS questionnaire 2021

Figure 15 Use of thematics compared to number of funds under supervision



Source: Members' reponses to the IOPS RBS questionnaire 2021
Note: Due to the questions on thematics being asked within section 2 of the questionnaire, there were 37 respondents who addressed the question.

[25] **Thematic work** is coordinated supervisory activity targeting multiple institutions to evaluate the practices of a representative sample of entities in a specific risk area.

Almost two thirds of respondents use **both thematic and entity specific work**. In a couple of instances where the number of funds under supervision was less than 100, respondents noted they relied on thematic work only.

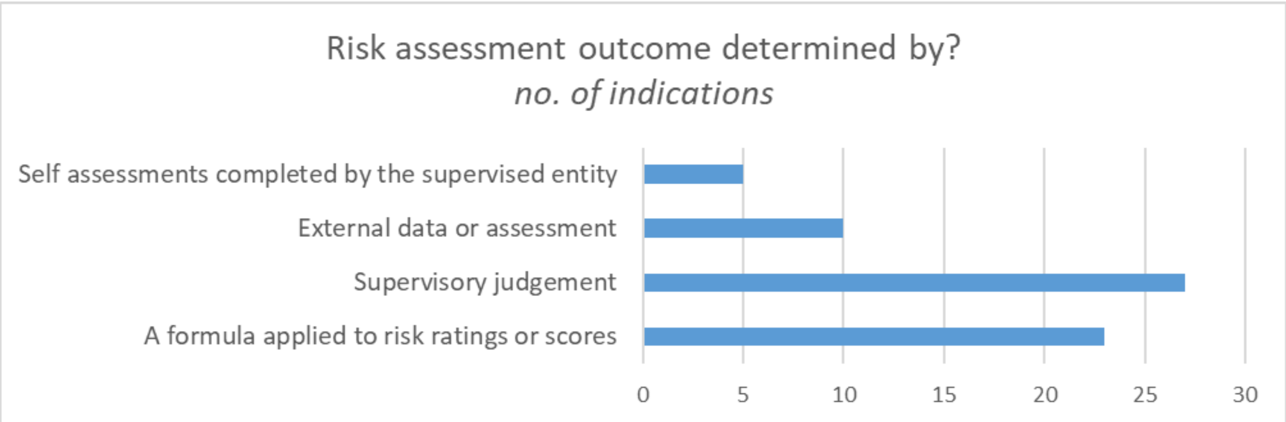
Respondents indicated **a number of benefits from the use of thematic supervision in combination with entity specific supervision**. These included:

- Risk identification that allowed for supervisory actions to be better directed. Risks could be identified across peers, industry and/or sector, and within outliers or entities with heightened risks in a particular area thereby enabling supervisory responses to be more targeted;
- More standardised and consistent supervision through the same approach being applied to entities included in the thematic;
- A means of bolstering supervision for smaller entities that are mostly subject to responsive supervision;
- A useful tool when undertaking joint supervision with peer regulators;
- Provides an opportunity to identify any needs for additional industry guidance or changes in the way risk is assessed.

Croatia also noted that when they undertake thematic reviews, they use specialists on the particular topic.

4.3. Risk Assessments

Figure 16 Basis for determining risk assessment outcome

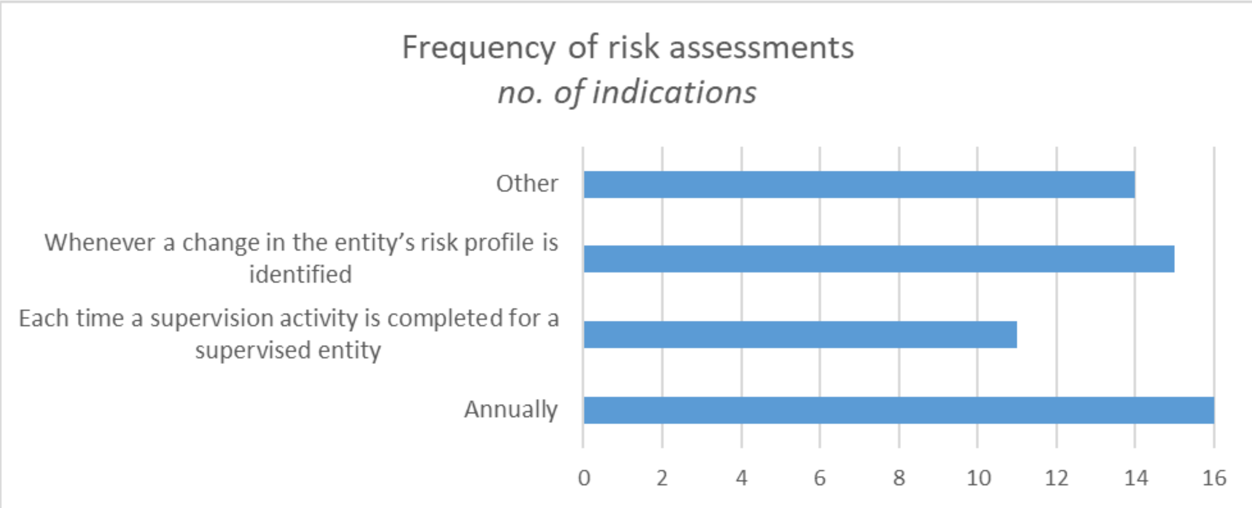


Source: Members reponses' to the IOPS RBS questionnaire 2021

Supervisory judgement remains critical (27 indications) to the risk assessment process. Jurisdictions could give multiple answers to this question, so further analysis would be needed to understand if there are mechanisms such as formulas that support the application of supervisory judgement or if risk assessments are solely judgement based.

4.4. Frequency of entity risk assessments

Figure 17 Frequency of risk assessments



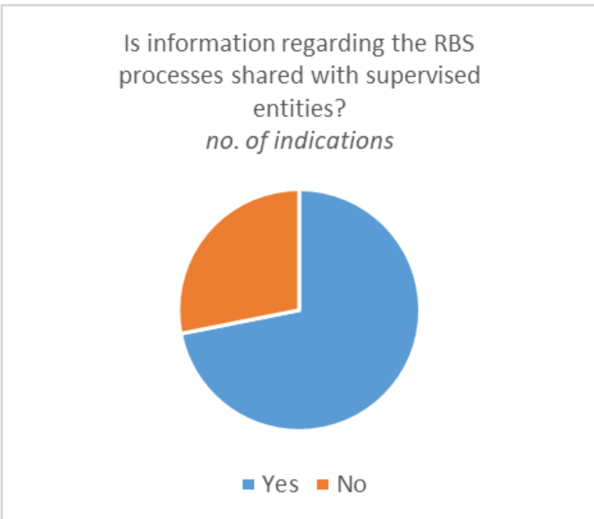
Source: Members' reponses to the IOPS RBS questionnaire 2021

The frequency of risk assessments were varied but, again, as multiple responses were allowed, **there are instances where supervisors complete risk assessments based on numerous frequencies and trigger events**. 'Other' category typically represents jurisdictions that update risk assessments more frequently than annually, in most instances, quarterly.

One clear change observed when comparing the results with the preliminary analysis is **the increased number of respondents that made changes to risk assessments** whenever there was a change to an entity's risk profile. This further emphasises the dynamic nature of RBS approaches.

4.5. Communication

Figure 18 To whom the outcomes of risk assessments are reported and whether information regarding the RBS processes is shared with supervised entities



Source: Members reponses to the IOPS RBS questionnaire 2021

The reporting of risk assessments externally is generally limited to the regulated entities. Information regarding supervisory process is provided in almost ¾ of instances (23 jurisdictions) but **the breadth and detail of information provided appears to vary.**

When interacting with entities in respect to their risk assessment, pension supervisors communicated:

- Overall assessment outcome;
- Specific areas of concern, though not necessarily the risk rating given for a particular risk;
- The actions to be taken because of the assessment (e.g. what steps the entity is required to take and/or what implication the assessment would have on the supervisory actions).

In addition, Chile had recently commenced sharing a comparative analysis of the results of the assessment that set out where the company was in comparison with other players.

In respect to broader communication with stakeholders regarding supervisory processes and outcomes, respondents reported using the following communication channels:

- Annual report;
- Industry forums;
- Industry presentations and events;
- Website;
- Formal communications such as letters to industry.

The annual report was reported to be the most common periodic communication tool used to communicate both supervisory processes and outcomes. Industry forums were utilised by Republic of Ireland, Guernsey and Canada to update stakeholders on key matters and/or to communicate the outcomes of supervisory engagements. Poland also posts information about the assessment process, including the methodology of evaluation on its website annually.

Australia has three types of communication: cyclical (regular communications on supervisory priorities and outcomes), tactical (targeted communications on the outcomes of thematic reviews or enforcement actions) and enduring (e.g. publications that describe the supervisory objectives and approach).

While there were varied practices in communicating with stakeholders observed from the questionnaire results, it was difficult to gauge the impact of these approaches and whether there were any specific learnings that could be drawn upon.

5. Review of RBS approach[26]

Box.9. Review of RBS approach: Key findings and recommendations

Key findings

- Approximately 60% of respondents undertake regular reviews and/or assessments of their RBS approach.
- A review or assessment of the RBS approach enables the timely identification of opportunities for improvement and can ensure that the RBS approach remains appropriate

Recommendation:

- Principle 5 (Risk-based Supervision) of the IOPS Principles of Pension Supervision should be expanded to include a reference to ensuring that the RBS approach is subject to review, whether that be regular or on an ad-hoc basis as the result of a trigger event (**Recommendation 11**);
- The Toolkit be expanded to include guidance and better practices for the review or assessment of a RBS approach (**Recommendation 12**).

Risk-based supervision requires ongoing evolution to ensure that it remains appropriate for the changing environment in which it operates. Black and Baldwin (2010, p186) noted that if regulators cannot modify and adapt their operations and strategies in the light of performance assessments, they will be saddled with poor delivery and may be incapable of dealing with new challenges as they arise (Black and Baldwin, 2010). Accordingly, it is important to understand, review and assess what aspects of a RBS approach are working effectively and where there could be opportunities for development.

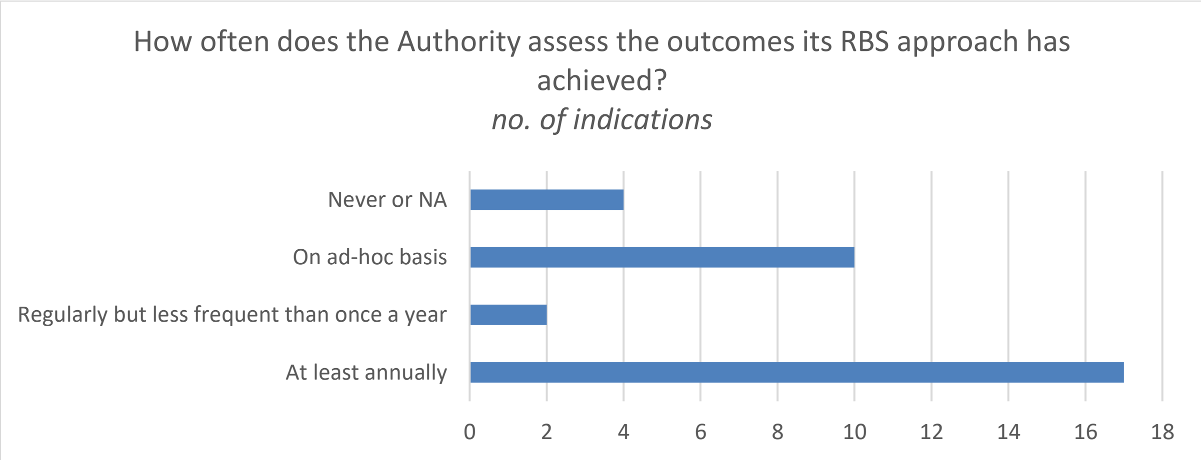
Module 4 of the RBS Toolkit provides some guidance and insights on achieving consistency in the scoring within risk models used to support a RBS approach. However, there is minimal guidance overall to support jurisdictions when undertaking a review or assessment of their broader RBS approach. **Furthermore, there is currently no specific reference within the Principle 5 (*Risk-based Supervision)* of the IOPS Principles of Pension Supervision[27] for there to be a framework in place for assessing the effectiveness or the outcomes of the RBS approach.**

[26] Section 5 of the questionnaire was completed by 30 respondents that had fully implemented their RBS approach or had commenced using components of the RBS approach. Of those, only 28 respondents answered questions 5.2 to 5.11.

[27] IOPS-principles-private-pension-supervision.pdf (iopsweb.org)

5.1. Frequency of assessment of outcomes

Figure 19 How often the Authority assesses the outcomes its RBS approach has achieved



Source: Members' reponses to the IOPS RBS questionnaire 2021

Whilst **more than half of respondents (17) are undertaking annual assessments** of the outcomes achieved by their RBS approach, there is still **a wide variation in timeframes and formality** of assessments.

Two jurisdictions, the Netherlands and the Czech Republic, reported undertaking both regular annual assessments and ad-hoc assessments when monitoring of the outcomes triggered the need for a further review and assessment.

For jurisdictions undertaking ad-hoc assessments, triggers for the assessment included:

- Number of instances where supervisory judgement overruled automatic scores determined by the risk model or there is structural overuse of budget[28];
- Results achieved by supervised entities and international developments relating to RBS[29];
- Where a change is introduced (e.g. to regulations and/or processes or industry)[30];
- Where the entity's risk assessments are implausible[31].

[28] The Netherlands

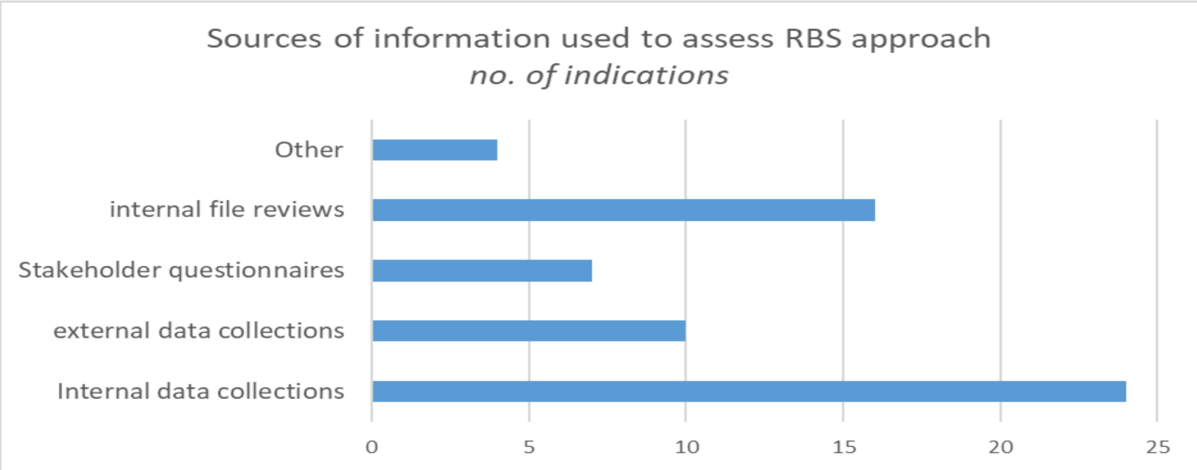
[29] Bulgaria

[30] Mexico, Portugal

[31] Liechtenstein

5.2. Information source for assessment

Figure 20 Source of information used to assess RBS approach



Source: Members' reponses to the IOPS RBS questionnaire 2021

The majority of respondents rely heavily on internal information sources to review or assess their RBS approach. The other data sources noted relate to interviews and feedback with supervised entities and risk assessments.

5.3. Criteria for assessing the outcomes of a RBS approach

Some of the criteria noted by jurisdictions when assessing the outcomes of their RBS approach included:

- Prevention of violations by increasing the role of the preventive component of the supervisory process, reducing the number of license revocations for violations and thereby stabilizing the market[32];
- Evaluation of the results of the model and analysis of the criteria to ascertain whether any adjustments are required;
- Appropriateness of the outcomes achieved[33];
- Feedback from entities and staff's experience[34];
- Application of RBS principles, established methodologies and procedures. Assessment of the characteristics, performance and effectiveness of the governance of the RBS[35];
- Performance against supervisory objectives[36].

Canada also noted that it utilises a first set of criteria to measure how well the components of its risk based regulatory process are meeting their original design objectives. This helps to understand how key

[32] Russian Federation

[33] Lithuania, Guernsey, Austria

[34] Poland

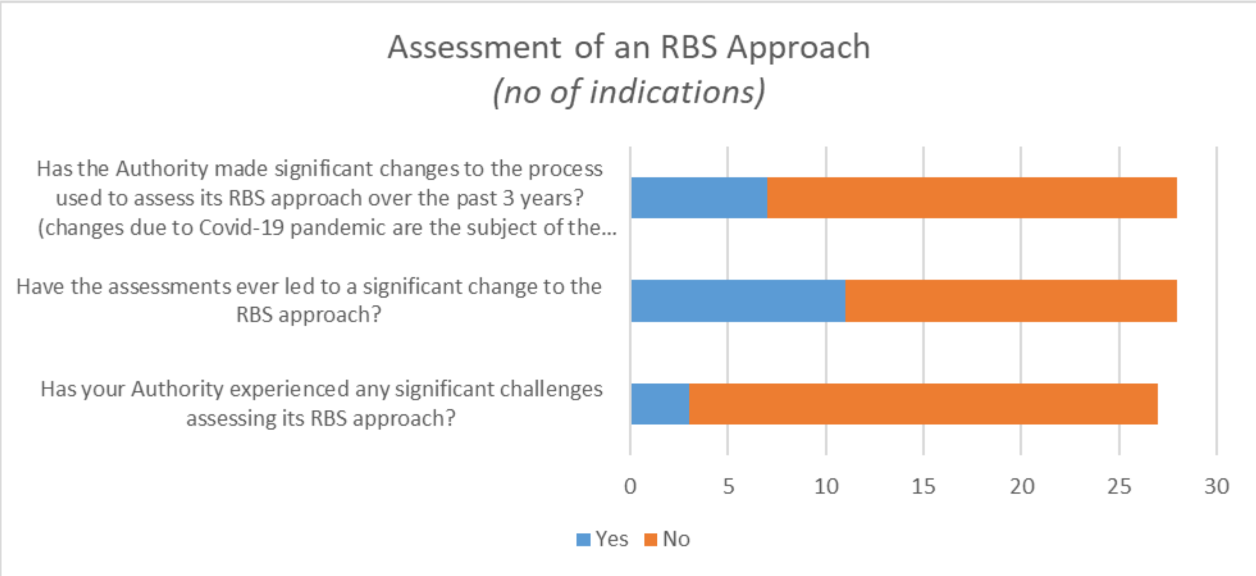
[35] Costa Rica

[36] Romania

components can be modified over time to improve effectiveness. A second set of criteria then measures the success of the framework in achieving regulatory objectives.

5.4. Challenges and outcomes of assessments

Figure 21 Assessment of a RBS Approach



Source: Members' reponses to the IOPS RBS questionnaire 2021

Overall, **there have only been a few instances reported where an assessment of a RBS approach has resulted in a significant change to that approach**. While the numbers are small**, it is apparent that benefits are obtained from assessing a RBS approach.** Respondents reported making significant changes following an assessment of a RBS approach to:

- their risk assessment model (4);
- the pension system (1); or
- the risk assessment metrics (1).

There were also few instances where **significant challenges** have been experienced when assessing a RBS approach. Such challenges were addressed by seeking support from external consultants.

Recommendation 11

IOPS Principle 5 (*Risk-based Supervision*) of the **IOPS Principles of Pension Supervision** should be expanded to include a reference to ensuring that the RBS approach is subject to review, whether that be regularly or on an ad-hoc basis as the result of a trigger event.

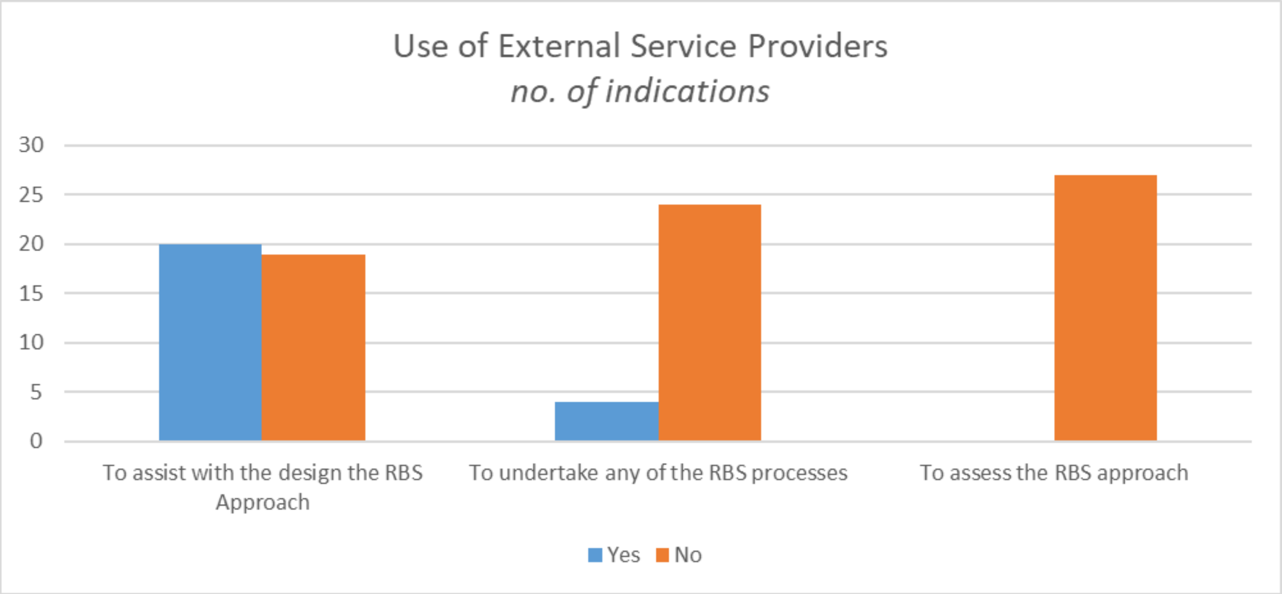
Recommendation 12

The Toolkit be expanded to include guidance and better practices for the assessment of a RBS approach.

6. Other matters

6.1. Use of external service providers

Figure 22 Use of external service providers

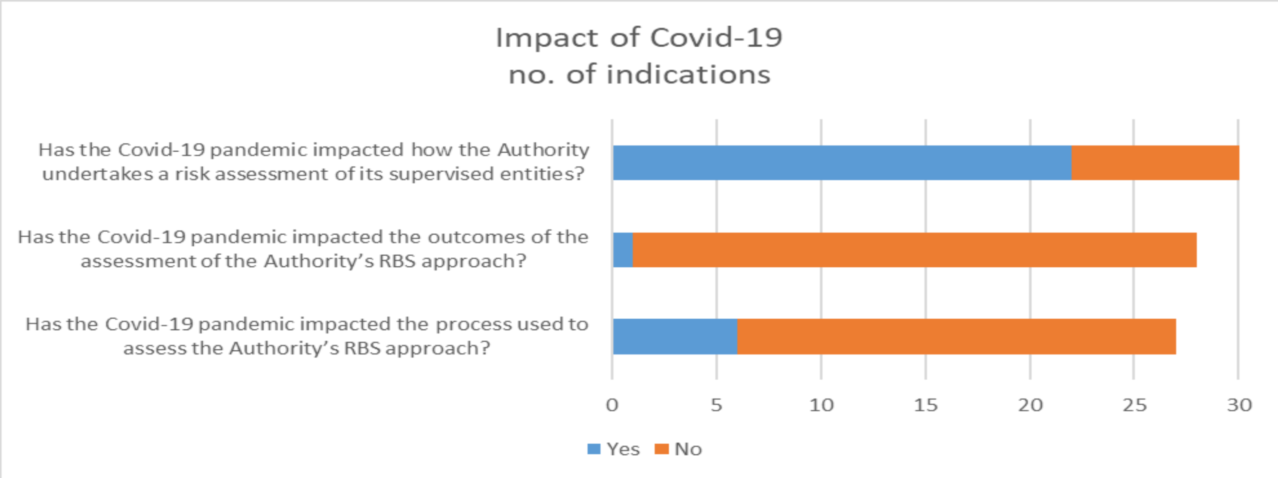


Source: Members' reponses to the IOPS RBS questionnaire 2021

Use of service providers is most prevalent during the design phase than once it has been implemented. For design and implementation, service providers supported training and assisted in the development of the RBS approach and the supporting legislative and policy framework. The questionnaire responses did not contain any explanation of why service providers were *not* used in other settings. There has been no subsequent feedback to questions posed at the October 2021 Technical Committee meeting. Accordingly, while the observation is noted, no further work will be done on the use of service providers.

6.2. Impact of Covid-19

Figure 23 Impact of Covid-19



Source: Members reponses to the IOPS RBS questionnaire 2021

The impact of Covid-19 has been mostly felt in the assessments of entity risk assessments. In response to Covid-19[37], respondents noted that they:

- Moved to virtual meetings with supervised entities but at increased frequency on specific issues;
- Made a shift towards offsite analysis;
- Placed greater reliance on technology and data;
- Developed specific reporting on key issues;
- Incorporated new risks into the planning process and intensified supervision in specific risk areas;
- Enhanced use of thematic reviews;
- Adjusted assessment questionnaires;
- Adopted the principles of their intended RBS approach while deferring the implementation of system changes.

At the RBS workshop, it was also highlighted that some jurisdictions needed to put greater focus on liquidity risk due to policy changes that enabled members to gain early access to their pension funds. **The impact of Covid-19 has not been as prevalent in the review and assessment of RBS approaches.** However, this is likely to be due, in part, to such assessments occurring on less frequent basis and, therefore, less likely to have been impacted up until the time of the questionnaire in March to April 2021.

[37] See also IOPS statement on pension supervisory actions to mitigate the consequences of the Covid-19 crisis (May 2020), http://www.iopsweb.org/IOPS-statement-on-pension-supervisory-actions-Covid-19-crisis.pdf

The impact of Covid-19 continues to be felt across the world and the timing of the questionnaire has meant that the longer-term impacts are not yet known. Given the short-term impacts noted above in respect to risk assessments, there may be longer-term changes to how supervision is undertaken and these will be further considered as part of the pension supervision's resilience project.

Conclusion

Overall, there remains strong interest from across the IOPS membership for comparisons of RBS approaches and training on RBS in order to support jurisdictions develop their own RBS approach. It is therefore, important to ensure that the Toolkit and supporting guidance and examples remain current.

The valuable contributions from Members through questionnaire responses, case studies and one-on-one interviews have identified insights and learnings from which the Toolkit can evolve in order to draw out learnings in respect to

- i) overcoming challenges through the design and implementation phases;
- ii) reflecting changes in the risk environment;
- iii) different supervisory tools and techniques (including technology developments);
- iv) use of service providers;
- v) assessing a RBS approach.

Feedback from Members on the recommendations contained in this report will inform revisions to the Toolkit and supporting guidance and provide meaningful information to Members seeking to introduce, adapt or review a RBS approach.

The report also highlights that RBS approaches will continue to evolve and so it will be important that IOPS Members have opportunities to share experiences and better practices. The IOPS Secretariat will continue to work with Members to seek out training opportunities in respect to RBS and to make available case studies, comparisons and other educational material from across the membership and other international organisations to further support Members develop and enhance their RBS approach.

References

Ashcroft, J, and Stewart F (2010) "Managing and Defining Risks in Defined-Contribution Pension Systems" IOPS Working Paper 12, IOPS, Paris.

Black, J (2010), "Risk-based Regulation: Choices, Practices and Lessons Being Learnt", in Risk and Regulatory Policy: Improving the Governance of Risk", OECD Publishing, Paris

Black, J (2004) "The development of Risk Based Regulation in Financial Services: Canada, the UK and Australia" ESRC Centre for the Analysis of Risk and Regulation, London

Black, J and Baldwin, R (2010) "Really responsive risk-based regulation". Law and Policy, 32 (2). pp. 181-213. ISSN 0265-8240

Brunner, G, Rocha, R, and Hinz, R (2008) "Risk-Based Supervision of Pension Funds: Emerging Practices and Challenges. Directions in Development: Finance. Washington, DC: World Bank.

Cikoja, T (2012) "Structure of Pension Supervisory authorities and their approaches to risk based supervision" IOPS working papers on effective pensions supervision No 16" IOPS

Davis, EP (2013) "Evolving Roles for Pension Regulations: Toward Better Risk Control?" PRC WP2013-26 Pension Research Council Working Paper, Pension Research Council

Hutter, BM (2015) "What makes a regulator excellent?" London School of Economics and Political Science Paper, Prepared for the Penn Program on Regulation's Best-in-Class Regulator Initiative A risk regulation perspective

IOPS (International Organisation of Pension Supervisors) (2008) "Guidelines for the Supervisory Assessment of Pension Funds." IOPS, Paris.

IOPS (International Organisation of Pension Supervisors) (2008) IOPS Guidelines for supervisory intervention, enforcement and sanctions

IOPS (International Organisation of Pension Supervisors) Principles-private-pension-supervision.pdf (iopsweb.org)

IOPS (International Organisation of Pension Supervisors) Risk Based Supervision Toolkit (2010)

IOPS (International Organisation of Pension Supervisors) Statement on pension supervisory actions to mitigate the consequences of the Covid-19 crisis (May 2020),

OECD (2016) Core principles of Private Pension Regulations (Core principle 6: Supervision)

Park, KG and Stańko, D (2017) "Macro- and micro-dimensions of supervision of large pension funds" IOPS Working Papers on Effective Pensions Supervision, No.30

Price, W, Ashcroft, J, Hafeman, M (2016) "Outcomes Based Assessment for Private Pension: A Handbook" The World Bank

Price, W, Rawlins, M, and Stewart F. (2016) "Lessons for Pensions from FIRST Projects." Forthcoming Washington, DC: World Bank Group.

Randle, T (2009) Risk Based Supervision' Primer series on insurance issue 14, The World Bank

Randle, T and Rudolph, HP (2014) "Pension Risk and Risk-Based supervision in Defined Contribution Pension Funds" Policy Research Working Paper 6813 the World Bank

Viñals, J and Fiechter, J (2010) "The Making of Good Supervision: Learning to Say 'No.'" IMF Staff Position Paper SPN/10/08, International Monetary Fund, Washington, DC.

Annex A. Risk Factors categorised

Table 1 Annex A. Risk Factors categorised

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
***Investment or market risk*:**	The risk of losses due to adverse movements in interest rates and other market prices - leading to underfunding in DB plans and low balances in DC accounts. The problem may materialize due to 'concentration risk' (i.e. the risk that the investment portfolio is not sufficiently diversified and is too concentrated on one asset or issuer). The risk may also arise due to investment in unregulated / unlisted products. In developing economies the range of investments available to pension funds may be highly limited (due to under-developed capital markets and / or restrictions on overseas investments). In such cases the investment portfolio as a whole would be far from ideal and the supervisory authority should consider investment risk for all supervised entities within the high risk category. Investment risk can also be systemic in nature when all pension plans are affected by financial meltdowns or other economic catastrophes (as was the case in 2008/9).[39] 'Concentration' risk is also possible – i.e. risk that the pension fund's portfolio is not adequately diversified and too exposed to one asset or issuer.	**95%** **Jurisdictions:** Albania, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Czech Republic, Georgia, Guernsey, Hungary, Indonesia, Jamaica, Kenya, Liechtenstein, Lithuania, Mauritius, Mexico, Netherlands, Nigeria, North Macedonia, Poland, Portugal, Republic of Armenia, Republic of Ireland, Romania, Russian Federation, Seychelles, Spain, Uganda, Zimbabwe

[38] Based on a total of 37 responses to the questionnaire that provided details of risk factors.

[39] This risk can be measured quantitatively (as described in Module 2 of the IOPS RBS Toolkit) – with stress tests etc. showing the level of risk undertaken by the fund (the worse the results the higher the inherent risk generated by market/ investment factors).

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
***Counterparty default risk / credit risk*:**	The risk of loss from the failures of a counterparty to meet its obligations (this might arise if derivative instruments are being used for "liability driven investment"). Credit risk arises from an obligor's failure to meet the terms of any contract with the institution or otherwise fail to perform as agreed, including the possibility of restrictions on or impediments to the transfer of payments from abroad	**65%** **Jurisdictions:** Albania, Brazil, Bulgaria, Canada, Chile Costa Rica, Czech Republic, Guernsey, Hungary, Indonesia, Jamaica, Kenya, Liechtenstein, Mexico, Netherlands, Nigeria, North Macedonia, Poland, Portugal, Republic of Armenia, Russian Federation, Seychelles, Uganda, Zimbabwe
Funding and solvency risk:	The risk that a pension fund does not have sufficient assets to meet its liabilities.	**46%** **Jurisdictions:** Australia, Austria, Belgium, Canada, Czech Republic, Guernsey, Hungary, Indonesia, Jamaica, Kenya, Liechtenstein, Mauritius, Netherlands, Portugal, Russian Federation, Slovak Republic, Zimbabwe
Liquidity Risk:	The risk that an institution will not be able to meet its payment obligations as they fall due without excessive cost or the total inability to recover funds or only with significant delay.	**24%** **Jurisdictions:** Albania, Australia, Brazil, Bulgaria, Chile, Costa Rica, Czech Republic, Guernsey, Hungary, Indonesia, Jamaica, Kenya, Liechtenstein, Mexico, Netherlands, Nigeria, North Macedonia, Poland, Portugal, Republic of Armenia, Romania, Russian Federation, Seychelles, Uganda

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
Mismatch risks:	The risk arising from volatility in investment returns in relation to those necessary to meet liabilities, For example, adverse movements in interest rates, bond prices, stock and commodity prices, or exchange rates having a differential effect on assets and liabilities (for example a drop in interest rates which increases the value of liabilities by more than the increase in the value of assets – naively, an increase in asset value would otherwise be considered a positive development, but not if liabilities increase even more).	**16%** Costa Rica, Guernsey, Hungary, Liechtenstein, North Macedonia, Russian Federation
***Actuarial risk*:**	Including inappropriate actuarial valuation methods and assumptions (e.g. mortality, longevity, disability, inflation, liquidity) as well as insurance type risks within the pension plan. This can have a considerable impact on actuarial liabilities. If not assessed accurately there is a danger of overestimating, or more problematically, underestimating the value of the liabilities. Likewise, inappropriate methods (departing from market value) that consistently over-estimate the values ascribed to assets could lead to actuarial risk. Again, inconsistent or inaccurate assumptions may be a systemic problem within developing economies and this risk may need to be placed in the highest category for all entities which pension supervisory authorities in such jurisdictions oversee. Insurance underwriting risk is the risk that insurance cover will not be available as expected when needed (which might occur if there are significant life insurance or disability benefits in the pension plan that should be reinsured, but for which no market might exist in the country). Also under this heading would be various guarantees, such as relative or absolute rates of return for defined contribution plans	**38%** **Jurisdictions:** Australia, Belgium, Brazil, Bulgaria, Canada, Costa Rica, Guernsey, Jamaica, Kenya, Liechtenstein, Netherlands, North Macedonia, Portugal, Russian Federation, Seychelles, Uganda

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
Agency risks	These could otherwise be described as 'competition risk' or 'competition failure'. Issue include excessive fees, conflicts of interest, fraud misappropriation and misallocation. Agency risk can arise from simple ignorance of law and best practices, unwillingness to adopt best practices, or through wilful negligence and corrupt practices. One significant risk in both defined benefit and defined contribution plans is that of non-payment of contributions.	**30%** **Jurisdictions:** Albania, Australia, Chile, Colombia Hungary, Kenya, Liechtenstein, Lithuania, Mexico, North Macedonia, Republic of Ireland
Operational Risk:	The risk of losses resulting from inadequate internal processes, people and systems – whether these are internal to the regulated entity or in a service provider. Operational risk arises from failures in transactions with counterparties, ineffective decision making, and inadequate or insufficient human and technical resources. Examples include transaction processing (correct, complete and in time), outsourcing and cooperation (assessment of mandates), expenses (levy in premium), staff (quality and quantity) information management, product development (innovation) material: (pre-) acceptance (transfer of pension rights), payment & settlement. More serious risks may also be involved, such as the risk of fraud and general natural disaster risks (e.g. damage to buildings due to fire or natural disasters, burglary or theft of fund property). Causes include internal fraud, external fraud, employment practices, clients, products and business practices, damage to physical assets, business disruption and system failure or process management.	**95%** **Jurisdictions:** Albania, Australia, Belgium, Botswana, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Czech Republic, Georgia, Guernsey, Hungary, Indonesia, Jamaica, Kenya, Liechtenstein, Lithuania, Mauritius, Mexico, Netherlands, Nigeria, North Macedonia, Poland, Republic of Armenia, Republic of Ireland, Romania, Russian Federation, Seychelles, Slovak Republic, Spain, Uganda, Zimbabwe

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
IT Risk	IT risk is the risk arising from inadequate information technology and processing in terms of manageability, exclusivity, integrity, infrastructure, controllability and continuity. IT risk also arises from an inadequate IT strategy and policy and from inadequate use of the information technology.	**30%** **Jurisdictions:** Albania, Australia, Chile, Hungary, Mexico, Netherlands, North Macedonia, Poland, Republic of Armenia, Russian Federation, Zimbabwe
External and strategic risk:	These are the inherent risks with regard to the sensitivity of the fund to external factors. These risks arise from adverse strategic decisions, improper implementation of decisions or lack of responsiveness to changes in surrounding environment. These include risks related to demographics, competition, technology, reinsurance, conjuncture, interested parties, infection, and political stability. Strategic risks include the continued viability of an entity as a result of change in the operating environment, including internally driven change such as merger, or the coverage of a new group of participants in the pension plan (such as part-time employees – who might have significantly different characteristics and challenges from existing members). Some of these risks would not be applicable to the pension fund itself, but might be applicable to the plan sponsor and its ability to provide capital support (pension accumulation funds are more similar to commercial enterprises, so might be subject to these kinds of risk directly).	**57%** **Jurisdictions:** Australia, Austria, Bulgaria, Canada, Chile Costa Rica, Guernsey, Hungary, Indonesia, Jamaica, Liechtenstein, Mauritius, Mexico, Netherlands, North Macedonia, Nigeria, Republic of Armenia, Russian Federation, Seychelles, Uganda, Zimbabwe

Risk Factor	Definition within IOPS RBS Toolkit	Included in the RBS design of respondents[38]
Legal and Regulatory Risk	The likelihood of adverse consequences arising from the failure to comply with all relevant laws and regulations. Risks concerning changes in legislation in future may also be considered. Risks of complying with inappropriate or unclear regulation should also be put in this category.	**51%** **Jurisdictions:** Australia, Canada, Chile, Costa Rica, Croatia, Georgia, Guernsey, Hungary, Indonesia, Jamaica, Lithuania, Mauritius, Nigeria, Republic of Armenia, Romania, Russian Federation, Seychelles, Uganda, Zimbabwe
Contagion and related party/ integrity risk	Risks to an entity's business as a result of close association with another entity – the risks may be direct through financial exposure or indirect through reputation damage. Integrity risk is the risk arising from ethical standards. For example injury of third parties liability, an ambiguous relationship of the fund with other financial institutions in the same group; insider trading, tax evasion, money laundering, fraud.	**54%** **Jurisdictions:** Albania, Australia, Bulgaria, Chile Croatia, Georgia, Guernsey, Indonesia, Jamaica, Liechtenstein, Lithuania, Mauritius, Mexico, Netherlands, North Macedonia, Poland, Republic of Armenia, Romania, Russian Federation, Slovak Republic

Annex B. Literature review

Introduction

Research into risk based supervision (RBS) is a key priority for IOPS resulting in the establishment of the RBS Learnings Project at the November 2020 IOPS Technical Committee meeting. The purpose of this paper is to set out the learnings from the review of available literature[40] and identify areas where the RBS Learnings Project can provide a meaningful contribution to supervisors' understanding and application of risk based supervision.

Overall, there was limited literature available regarding RBS specific to the supervision of pension funds. Much of the literature surveyed was written more than a decade ago and is already reflected in the IOPS RBS Toolkit[41]. There were, however, several recent documents that contained insights specific to the supervision of pension funds and some others that provided more general learnings and guidance.

The review of available literature has identified a number of areas where the project may be best able to support supervisors by drawing out further learnings and examples specific to the supervision of pensions. These areas are also identified in the preliminary analysis of the questionnaire results and are set out in the Preliminary Questionnaire results report. They were considered further in the final report and include:

- **Preparation and Design** – identifying risk focus areas, determining what data is necessary, the types of technology utilised by pension supervisors to support their RBS approach
- **Implementation** – initiatives and techniques applied to support supervisors adjusting to RBS, experiences and lessons learnt when implementing or making a change to an RBS approach
- **Use** – the balance and interaction between industry and entity supervision, different approaches taken to identify emerging and changed risks (including those relating to member outcomes, climate risk and ESG factors), forward looking indicators related to the assessment of behaviour or culture, evolution in supervisory tasks and activities including the impact of Covid19, communicating with entities and using communication as a strategic supervisory tool
- **Assessment** – assessing the outcomes of an RBS approach

1. What is risk based supervision?

Hutter (2015, p3) notes that there is no definitive definition of risk-based regulation. Randle (2009, p3) described RBS as a dynamic process where emphasis is placed on understanding and anticipating possible risks and, thereby, looks beyond the current financial position. Generally, the literature regarding RBS made reference to three common elements: capital requirements, supervisory review and market discipline

[40] Excluded from the literature review were publications specific to a singular jurisdiction's RBS approach on the basis that such papers may not provide all relevant information, due to confidentiality, and that more relevant and timely jurisdiction specific information would be obtained via questionnaires and case studies.
[41] IOPS RBS Toolkit - Organisation for Economic Co-operation and Development (iopsweb.org)

(Randle and Rudolph, 2014, p3). Randle and Rudolph (2014, p10) noted that the definition in the IOPS Risk Based Supervision Toolkit is less specific than that used for the banking and insurance sectors on the basis that there is not the same relationship between capital and future pensions for defined contribution pension schemes.

Much of the literature has promoted the benefits of RBS with Black (2010, p222) stating that, despite its challenges, it is worth doing. Brunner et al (2008, p ix) noted that a risk-based approach encourages supervised entities to place a greater focus on risk management in their daily operations and observed that an RBS approach promotes a stronger pension system with more effective outcomes for the members of the system.

Motivations observed for adopting RBS are set out in the IOPS RBS Toolkit and are consistent to those described by Brunner et al (2008, pp55-56). Randle and Rudolph (2014, p22), warn against introducing RBS simply to mitigate operational risks and suggest that, in such circumstances, good institutional design and a basic package of regulation would be a viable alternative.

The IOPS RBS Toolkit notes that there is no need for an “either/or choice” between RBS and rules based supervision. Viñals and Fietcher (2010, p7) also note that there is benefit in having an element of compliance monitoring and enforcement powers to ensure that essential minimum standards are met and that, overall, the regulatory and supervisory regime has credibility.

What is apparent from all the literature reviewed is that the supervisory approach within a jurisdiction will need to be designed, implemented and applied in a manner that best suits the specific needs and circumstances of that jurisdiction.

2. Preconditions and design of RBS

The considerations and learnings in respect to the preconditions and design of a RBS approach are relatively consistent across the literature reviewed. Most of the literature, however, related to other industries and was not necessarily specific to the supervision of pension funds.

An RBS approach will generally reflect the particular circumstances of the jurisdiction, the strategic choices of the regulator and the industry being supervised. Black and Baldwin (2010, p183) have observed that no two risk based system is the same. Therefore, the RBS Learnings project will be able to draw out specific examples and provide insights to pension regulators who can then determine the suitability of different approaches to their own jurisdiction.

Notwithstanding the need for more pension specific guidance, the literature did highlight a number of learnings regarding the preconditions and design of RBS for pension funds which are outlined below.

2.1 Legislative Framework

It is important to have well designed market structure and good laws and regulation to support RBS (Price et al 2016 p14 and Viñals and Fietcher 2010 p14). **Regulators need to be given powers** to collect data, determine their inspection policies and be able to intervene when required (Black, 2010, p221). Viñals and Fietcher (2010, p15) explain that regulators also need to have adequate legal protection for staff. Furthermore, Viñals and Fiether (2010, p15) argue that without sufficient powers and a clear legal mandate that is well understood, supervisors may lack the ability and the will to act resulting in risks remaining unresolved.

When considering the legislative framework, Black (2010, p221) also encourages regulators **to be cognisant of other regulatory or government policies** that may contradict or hinder the adoption of RBS. Ambiguity in scope and powers between regulators should also be removed wherever possible (Viñals and Fietcher 2010 p15).

2.2 Supervisory Objectives and Risk Appetite

The consensus across the literature reviewed is that **it is important for regulators to be clear about their supervisory objectives and risk appetite** as both can, and should, have an impact on the design and outcomes sought from the RBS approach.

Black (2010, p186) states that the fundamental question for a regulator when establishing an RBS approach is how much risk the regulator is prepared to tolerate. Black (2010, p186) emphasises that a RBS approach requires regulators to take risks and that they must choose which risks or levels of risk they are willing to accept and, therefore not devote resources to preventing.

Supervisory objectives and risk appetite also need to be established in the context of:

- The **pension system**; noting that objectives are likely to be different for defined benefit pension systems and defined contribution systems (Randle and Rudolph, 2014, p2).
- **Supervisor mandate**; i.e., the supervisory objectives should be aligned to the supervisor's purpose and scope and the risk appetite should be also considered in that context (Black and Baldwin, 2010, p184 and Viñals and Fietcher, 2010, p16).
- **Stakeholders' expectations**; including both internal and external stakeholders. In particular, stakeholders need to understand the supervisory objectives and accept that there will be some risk exposures (Black, 2010, p194).

Viñals and Fietcher (2010, p16) also note that supervisory objectives should be realistic and that any potential conflicts between objectives (for example potential conflicts between prudential and consumer protection objectives) should be identified .

Clearly understood supervisory objectives and risk appetite will enable better informed decisions regarding the design of the RBS approach. When linked to an unambiguous legal mandate, the supervisory objectives and risk appetite will also help create the will to act within staff; an important element of an effective RBS approach (Viñals and Fietcher, 2010, p16).

2.3 Risk areas for focus

The IOPS RBS Toolkit suggests that the first step in designing an RBS approach is **to establish which risks the regulator will focus on** [42].The literature provided a number of key insights and learnings in respect to identifying the risk areas for focus within an RBS approach:

- Consistent with the IOPS RBS toolkit, Black (2010, p188) notes that the starting point is to identify the risks to achieving the regulator's objectives.
- Price et al (2016, p13) argue that '…*one can only assess the right risks if you have a clear statement of the outcomes that you want to achieve*.' Accordingly, whilst having a clear supervisory objective is important, being explicit about the outcomes that are sought from the supervisory effort is also necessary to ensure that supervision focus on the 'right risks'.

[42] IOPS RBS Toolkit, Module 3 p8

- Randle and Rudolph (2014, p11) note that, for defined contribution schemes, there can be too much focus on processes rather than outcomes achieved by the pension scheme. Accordingly, they suggest the RBS approach should focus on outcomes, objectives and minimising pension risk.
- Viñals and Fietcher (2010, p13) also warn regulators to not confine their focus to only the risks facing the regulated entities but, rather, are encouraged to look to the broader industry and macro-environment. The need to look beyond the entity risks to the broader industry and macro-environment is also highlighted as a key learning from the Global Financial Crisis (GFC) in several papers (Black 2010 p219 and Cikoja, 2012 p6)
- Black and Baldwin (2010, p189) also encourage regulators to consider what the risks are to achieving the outcomes of the supervisory tasks. For example, if a supervised entity is not forthcoming with information or is resistant to the regulator's requests, there may be a heightened risk that the regulator may not identify a material risk within the entity. Black and Baldwin (2010 p189) recommend capturing such risks within the broader risk assessment.
- Regulators are also encouraged to understand the crossover of risks with other peer regulators whether they be domestic or international. Viñals and Fietcher (2010 p15) also note that the effectiveness of supervision can be strengthened through cooperation with peers, pursuing clear agreements on specific information to be shared through efficient communication channels, and working together for a common supervisory approach to improve joint monitoring of the main risks facing the financial system.

A question sometimes posed is whether there should be common risk areas for focus across all pension regulators. The IOPS Toolkit provides a summary of risk factors that can be considered by regulators[43]. The literature reviewed, however, did not identify any firm list of area of focus applicable for all pension supervisors.

As regulators are likely to have different supervisory objectives, it can be expected that there may be differences in the risk focussed on. The analysis of the questionnaire results and supporting case studies will seek to draw out if there are commonalities in risk factors and will also seek to draw out any changes in the risk focus areas since the IOPS RBS toolkit was first established.

2.4 Data

RBS requires regulators to have adequate information to ensure that they can make judgements on the level of risk posed by and on supervised entities.[44] If the data is inadequate or inappropriately analysed, the potential impacts include inappropriate or inconsistent application of judgement and supervisory outcomes, misuse of supervisory resources, failure to identify or respond to key risks and a loss of trust amongst stakeholders for the RBS approach.

Key points highlighted within the literature reviewed are:

- the challenge in respect to data is twofold; having the data needed as well as making use of the data that is available (Black, 2010, p219).
- the data challenge can be minimised by having clarity around what data is needed and how to access it in a cost effective manner; noting that these questions should be addressed during the

[43] IOPS RBS Toolkit (2010) Module 3 p 18-19

[44] IOPS RBS Toolkit (2010) Module 1

design phase but also need to be kept front of mind as the industry and the supervisory needs evolve (Black, 2010, p203)

- some jurisdictions have designed the RBS approach around the data that they had available to them (Black 2010 p204). This may overcome some of the challenges relating to data but the authority needs to be cognisant of the resulting limitations and factor those into the RBS design.
- when deciding if additional data is required, regulators need to determine whether the cost of additional data will be beneficial or if it is possible to achieve the outcomes sought by designing an approach that maximises the use of data that is available. It is suggested that such decisions would need to be revisited over time, particularly as technology, data access and supervisory requirements evolve and is a matter that may be considered as part of the assessment of the RBS approach (Black 2010 p204)

Noting the key points relating to data from the literature reviewed, it is apparent that supervisors can benefit from understanding techniques for determining what data is necessary versus what data is “nice to have”. Further exploration of some of the learnings and observations within the questionnaire responses and case studies is expected to help draw out learnings for IOPS members in this area.

2.5 Culture and mindset

RBS requires a different mindset as compared with a compliance based approach. Viñals and Fietcher (2010, pp12-13) describe risk based supervision as being intrusive, sceptical and proactive, comprehensive, adaptive and conclusive. Randle and Rudolph (2014, p5) also note that supervisors need to be forward looking.

Black emphasises that supervisors need to accept that **not every risk can be, or should be, addressed** (Black 2010, p 222). While much of the literature has spoken about the importance of clarity in objectives, it is also acknowledged that RBS is not always clear cut and that supervisors will need to make decisions based on the information they have available.

Irrespective of how well designed an RBS approach is, without the appropriate culture and supervisory mindset, it may not be successful in its implementation or application (Black 2010, p220).
Training is discussed further in section 3 of this paper and, together with having the right foundations in terms of objectives and legislative framework, is considered very important to enabling supervisors to understand RBS and adjust their mindset.

Black and Baldwin (2010, p204) also highlight the role played by senior management emphasising that senior management must demonstrably “buy in” to the risk-based process and accept that **mistakes will be made and that things will be left undone**. Black and Baldwin explained that if senior management do not buy in, staff may lose confidence in the approach leading them to take self-protective steps whereby their decisions are influenced by other factors than risk analysis (such as perceptions of political risks to themselves) (Black and Baldwin 2010, p 204).

Quality assurance initiatives are also important in supporting and reinforcing the culture and mindset required of a RBS approach (Black, 2010, p220). The extent to which judgement and discretion are applied within the RBS approach will influence the need for quality assurance as well as the training requirements for staff (Black, 2010, p208).

2.6 Resource Requirements

Another key challenge observed within the literature is determining and accessing the necessary resources to support a RBS approach. Randle (2009, p5) has suggested that, for pension supervisors, **the ability to direct resources to areas of greatest need** is a key drawcard for adopting a risk based approach. Black and Baldwin note that all regulators need to prioritise their use of resources and should ensure that they understand the implications of doing so (Black and Baldwin, 2010, p199).

The design of the RBS approach will influence the costs involved and so the availability of resources must be a consideration when designing the RBS approach. Black and Baldwin (2010, p199) note that there is a balance to be made. For example, the processes overseeing discretionary decision-making can prove excessively costly in staff time and resource whereas centrally-administered controls, checks and structured procedures can render the agency slow to respond to changes in the regulatory challenges that they face. Accordingly, regulators need to consider what is best for their jurisdiction but also remain open to feedback and change should it become necessary.

Additionally, Viñals and Fietcher (2010, p14) highlight that there needs to resources to enable regulators to undertake legal action when required and to also carry out their mandate in both the good and bad times. The literature reviewed only contained very high level commentary on technology. It is apparent that there is a strong desire among Members for further insights on the types of technology available to support a risk based supervisory approach.

3. Implementation of RBS

Effective implementation is critical to the success of an RBS approach with poor implementation often identified as a cause for an RBS approach failing to achieve its intended outcomes.
Some of the literature provided insights regarding effective implementation of an RBS approach. Price et al (2016, p18) proposes that implementation be considered from the start of the project to develop an RBS approach. Most literature, however, relates to other industries or has become relatively dated. Therefore, while we can draw upon the general learnings in respect to implementing an RBS approach, the RBS Learnings project can also provide specific examples, learning and insights relevant to pension supervisors. Across the literature reviewed, there were, however **two key general areas emphasised that are applicable to the supervision of pension funds** as outlined below.

3.1 Staff Training

An RBS approach will only be as good as the people who implement it (Black 2004, p51). Training is particularly important to helping support staff transition to a risk based supervisory approach and, as discussed earlier, **staff training is critical** to supporting the culture and mindset required of an RBS approach.

Black (2010, p206) notes that successful RBS training program will focus on supporting supervisors to:

- understand and apply revised supervisory processes; and
- apply consistent judgement

Training needs to be broad and should also focus on what it means to be risk based and how that differs from a compliance based approach (Black, 2010, p207). Cikoja (2012, p6) also encourages supervisors to be trained on risk management techniques.

Black (2010, p214) also notes that many regulators have admitted to spending too little time on training or focussing on areas such as the IT system or how to complete the risk assessment form

Randle (2009 p 7) also emphasises **the importance of guidance to assist supervisors in undertaking consistent risk assessments**. However, even after transitioning to risk based supervision, guidance and training need to be reinforced as do the expectations of supervisors. Ongoing training will also be required to support supervisor understanding of emerging risks (Cikoja, 2012, p14).

Inadequate training will likely result in supervisors applying the RBS approach inconstantly and would mean that the benefits of RBS may not be realised, the outcomes not achieved and support and trust from stakeholders may be lost or diminished (Randle, 2009, p19).

Given the importance of staff training to the successful implementation of an RBS approach, there is an opportunity for the Project to support supervisors by collating insights and examples of successful training techniques from the case studies and questionnaire responses.

3.2 Timeframe and planning for implementing

While there was no clear cut consistent view, the literature suggests that **a move towards a RBS approach may be best undertaken over time.** Black (2010, p221) notes that implementing can take time and that it may require adjustment once it comes into practice. Randle (2009, p19)noted that a hasty transition, without proper planning, comes with risk and that most regulators introduced RBS gradually and in tandem with existing compliance approaches, until they were confident in supervisors' ability to become entirely risk based. The specific timeframe, however, would need to be determined by the regulator taking into account the significance of the change and the implications for stakeholders, both internally and externally.

Irrespective of the timeframe, **having a clear project plan for implementing a RBS approach** was considered important for setting the expectations for all stakeholders and ensuring that the approach had the greatest chance of a success (Randle, 2009, p19).

There is an opportunity the project to further delve into the experiences of supervisors to draw out learnings and guidance to support jurisdictions plan to implement an RBS approach or make significant change to their existing approach.

4. RBS in practice

Over the years, a number of comparisons of RBS approaches have been undertaken. However, some of these are quite dated and many do not relate to the supervision of pension entities which, as highlighted earlier, require an adjusted approach. The case studies that form part of the IOPS RBS Toolkit, and material gathered from the questionnaire, provide a good comparison of pension supervision in practice and the updated case studies may also give further credence to the general messaging from the literature review.

Examples of current practices, as well as those practices in place up to 10 years ago, are captured within the RBS Toolkit case studies[45] and it is possible to see some of the evolution of risk based supervision through these materials. For example, the Netherlands, Canada, Mexico and Chile have all updated their case study to reflect the evolution of their RBS approach and early indications from the questionnaire suggests that other case studies require updating as well.

[45] https://www.iopsweb.org/rbstoolkit/#d.en.408992

From the broader literature review, there are also some insights that can be expanded upon via the analysis of the questionnaire and updated case studies.

4.1 Industry vs entity supervision

As highlighted in section 1, it is important for regulators to look beyond the risks specific to a regulated entity and considering the broader industry risks (Black 2010 p201). In practice, this requires regulators to develop a way in which **to balance entity level supervision with industry level supervision:**

- Black (2010, p201) highlights one issue that must be balanced is gaining sufficient visibility of entities where only low risks have been identified and proposes three strategies in response; namely information campaigns, random inspections and thematic reviews to combat this issue.
- Randle and Rudolph (2014, p19) argue for portfolios within defined contribution funds to be benchmarked.
- Viñals and Fietcher (2010, p15) emphasise the importance of having a clear strategy for supervision that accounts for the nature of the industry, resources available and the institutional framework.
- Black and Baldwin (2010, p194) advise that '*supervisors need to couple their entity level supervision with an analysis of risks arising across the financial system as a whole'*.
- Cikoja (2021, pp10-20) draws out different internal structures within regulators to undertake a mix of entity and industry level analysis.

Further insights regarding industry and entity supervision is expected to be drawn from the questionnaire responses and subsequent follow up enquires.

4.2 Risk Assessments

Risk assessments are a core part of a risk based approach and there have been several comparisons of approaches over the years that have highlighted **matters for regulators to be cognisant of**:

- Ensure that there is focus on the right risks and be cognisant that these **may change over time and new risks can emerge** (Black 2010, p219-220 and Black and Baldwin, 2021, p206). Moreover, Viñals and Fietcher (2010, p6) emphasise that supervisors need to be proactive in dealing with emerging risks and adapting to change. Accordingly, it is important to have a mechanism to identify and capture and respond to emerging risks. There is an opportunity to draw out from the questionnaire and case studies, examples of different approaches taken and this could potentially include specific case studies in respect to climate risk and ESG factors.
- Whilst recognising the potential benefits, there were some challenges observed when regulators sought to incorporate behavioural and cultural matters into risk based assessments. Specifically, challenges were observed due to some culture and behaviour assessments being reactive whereas the broader risk assessment needed to be forward looking (Black and Baldwin 2010 p188).
- Striking the right balance between ensuring that staff apply a healthy level of sophisticated and informed qualitative judgement in their risk assessments and controlling those judgements for the sake of consistency was also noted as a particular challenge (Black and Baldwin, 2010, p190).
- **Weaknesses in risk scoring** were also observed in some jurisdictions. Examples included:

- instances where weightings were added to particular risks and, if not appropriate for the particular situation, led to some matters not being escalated in a timely manner (Black and Baldwin, 2010, p201 and Black, 2010, p199).
- an issue of 'reverse engineering' during risk assessments was observed when there was a more systemic approach to risk assessments. In these instances, the supervisor inputted scores into the risk assessment that would give the outcome they were seeking (Black, 2010, p199).

4.3 Supervisory Activities

Different examples and approaches to supervisory activities were highlighted in a couple of papers but these are quite dated. The IOPS Guidelines for the assessment of pension funds[46] provides some insights on good practice from when they were first created in 2008; noting that at this time risk based supervision was in its infancy for pension funds.

Accordingly, the case studies and questionnaire will provide an opportunity to draw out current examples of activities undertaken. Particular emphasis will be placed on the evolution of activities that have occurred in response to the Covid-19 period and the extent which current good practices may differ from the IOPS Guidelines for the assessment of pension funds.

4.4 Escalation of risks and issues

A number of challenges were observed in ensuring timely escalation of risks and issues. Key observations included:

- Risk assessments may identify high risks but **may not be able to identify the best approach to resolving those risks** – relying on risk scoring could lead to misapplication of resources (Black and Baldwin, 2010, p190),
- Some risks may not be properly prioritised through the risk assessment where there are issues with weightings or risk scoring (Black and Baldwin, 2010, p190)
- **RBS can focus more on diagnosis than cure** and it is, therefore, important for regulators to monitor not only how the supervised entity responds to an issue but the outcome that response achieves (Black 2004, p51).
- A broader issue was establishing the right culture and framework that provides supervisors with the ability and will to act. The design may be right but if supervisors do not feel they have the power or will to act, escalation may not occur in a timely or appropriate manner (Viñals and Fiechter, 2010, pp14-17). The need for **a clarity and well defined strategic supervisory goals for intervention** is also reinforced in the IOPS Guidelines for supervisory intervention, enforcement and sanctions[47].

The project can provide a refresh of examples of RBS in practice and can also provide insights in how it is evolving. This could include trends observed from the experience through the Covid19 period.

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[46] http://www.iopsweb.org/principlesguidelines/IOPS-Guidelines-Supervisory-Assessment-Pension-Funds.pdf

[47] http://www.iopsweb.org/principlesguidelines/IOPS-Guidelines-Supervisory-Intervention-Enforcement-Sanctions.pdf

4.5 Communication

Communication is an important and effective tool for supervisors. Hutter (2015, p8) notes that **regulators need effective communication skills to communicate their decisions**. Black (2010 p 222) emphasises the importance of being open with the industry and supervised entities about what risk ratings mean and the influence it will have on interactions between the regulator and supervised entity. Clear communication helps to ensure that the entity takes the necessary action to address the identified risk and can also be used more broadly to assist in setting stakeholder expectations and ensuring awareness across the industry.

From the literature, it was noted that there were differences in the level of detail communicated to entities by regulators particularly in respect to their RBS approach, risk assessments and outcomes achieved. Some differences may be due to, for example, legislative restrictions, but they also may reflect a strategic decision on the part of the regulator. Black (2010, p217) suggests that **financial regulators may be concerned that public disclosure might be misunderstood or damage market confidence**. Black (2004, p52) also observed that how an RBS approach, and its implications for entities, is communicated could potentially alter the incentives of supervised entities. In respect to broader communication, Viñals and Fietcher (2010, p15) noted that regulators need to consider and decide on a strategic approach to supervision and communicate it internally and to institutions.

Accordingly, there is an opportunity to further explore the communication approaches taken by regulators. The strategic use of communication is another area that will be drawn out via the analysis of questionnaire responses and case studies.

5. Assessment of an RBS approach

Generally, there was limited material regarding the way in which regulators may assess their RBS approach. However, there are some instances where the literature compares and assesses various approaches across a number of jurisdictions. Recent literature also emphasises the importance of assessing an RBS approach. Black and Baldwin (2010 p186) point out that if a regulator cannot assess the performance of their regimes, they cannot know whether their efforts (and budgets) are having any positive effect in furthering their objectives.

Black and Baldwin (2010, p208) note that **risk frameworks can tend to lock regulators into a certain mode of analysing risks**, a certain position on identifying which risks are important and a particular position on the thresholds for acting to control risks. For this reason, regulators are encouraged **to undertaken a robust, regular assessment of their RBS approach** where the regulator remains open to change. Moreover, Black and Baldwin (2010, p186) note if regulators cannot modify and adapt their operations and strategies in the light of performance assessments, they will be saddled with poor delivery and may be incapable of dealing with new challenges as they arise.

Other observations drawn from the literature review include:

- Price et al (2016 p7) encourage consideration of the assessment approach during the design phase and has developed a handbook to support the development of an outcomes based assessment for private pensions. The handbook emphasises the importance of having clear supervisory objectives and linking the assessment of the RBS approach to the objectives and outcomes sought.
- Access to data was noted as a challenge when to assessing the RBS approach. In addition, some challenges were also observed in how available data was used. For example, Black and Baldwin (2010, p208) noted that regulators should be wary of using the comparison of risk scores over time as a means

of measuring performance. Such an approach may be prey to ‘gaming’ by officials. Furthermore, Black and Baldwin (2010 p 208) notes that **comparing risk scores has limitation** as it only tests the model within its existing parameters and will not identify emerging risks or threats.

As noted earlier, much of the literature reviewed was either dated or related to other industries. More timely and relevant insights regarding the assessment of RBS approaches are expected to come from questionnaire responses and case studies. Therefore, there is an opportunity for the RBS Learnings project to draw out areas of good practices when assessing RBS approaches specific to pension supervision.

Conclusions

In conclusion, the literature review has identified some insights in respect to risk based supervision but most of these are general insights from across other industries or are over a decade old. Consistent to the preliminary findings of the questionnaire, the literature review has highlighted that there are opportunities to fill the gaps within the existing literature in a number of key areas.

Members were asked to give further consideration to the identified areas for further exploration as part of the broader consideration of the preliminary questionnaire findings. Feedback received was incorporated into the final project report.