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NETWORK FOR PENSIONS IN
LATIN AMERICA AND THE CARIBBEAN

Technical Assistance Document Series

2

TECHNICAL ASSISTANCE ON THE APPLICATION OF RISK-BASED SUPERVISION BY CONSAR IN MEXICO

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Foreword

The Labor Markets Division of the Inter-American Development Bank (IDB) supports countries in Latin America and the Caribbean in building stronger pension systems by seeking to increase their coverage (support for the vast majority of the population in old age), sufficiency (pension benefits that facilitate a dignified life in old age) and sustainability (pension benefits financed in the present and in the future). To advance these objectives, in 2015, the IDB created the Network for Pensions in Latin America and the Caribbean (PLAC Network), a regional public good that serves as a platform for dialogue and learning among pension institutions and experts. It is one of the mechanisms through which the IDB supports the efforts of countries in the region to improve the institutional and technical capacity of their pension entities.

The PLAC Network funds many activities aimed at helping the region's pension institutions learn best practices from other countries not only within Latin America and the Caribbean, but also worldwide. In this context, during the period 2016-2017, the PLAC Network held three calls for proposals on technical assistance for its members. As a result, the Network supported 13 countries through nine technical assistance projects in areas such as pension supervision and regulation, coverage, financial sustainability, and non-contributory pillars. As a result of this effort, we have created the **PLAC Network Technical Assistance Document Series**.

This second document entitled **“Technical assistance on the application of risk-based supervision by CONSAR in Mexico”**, sets out some observations and questions regarding the implementation of risk-based supervision (RBS) by CONSAR in Mexico. The evidence was gathered from a desk review of papers and a visit from 1 to 9 June 2017 with meetings and conversations with management and staff of CONSAR and representatives of three pension fund management companies (AFOREs).

This document is the result of the technical assistance funds assigned to Mexico in May 2017. It was prepared by John Ashcroft (external consultant), whose work was supervised by Carolina Cabrita Felix, consultant of the Labor Markets Division of the IDB and coordinator of the PLAC Network, and Waldo Tapia, lead specialist of the Labor Markets Division of the IDB and team leader of the PLAC Network. We also invite you to review the other documents in the series.

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1▶ Introduction and executive summary

This paper sets out some observations and questions regarding the implementation of risk-based supervision (RBS) by CONSAR in line with the terms of reference (see Appendix 2). Evidence was gathered from a desk review of papers sent in advance of a visit on 1–9 June 2017. During that visit, meetings and conversations were held with management and staff of CONSAR and representatives of three pension fund management companies (AFOREs).¹ The author is grateful for the hospitality and cooperation provided by CONSAR and the AFOREs, as well as the financial support of the Inter-American Development Bank (IDB).

As requested by CONSAR, the focus of the review is on the financial vice-presidency, although some observations are relevant to CONSAR as a whole or may be relevant to the other (legal and operational) vice-presidencies. There is some rationale to this focus, as the split between financial and operational parallels fairly closely the split between prudential and market conduct supervision found in many other jurisdictions, with most international pensions literature in practice being relevant to the former.

The review drew on the international literature regarding best practice in pension supervision (summarised in Appendix 5). In the absence of any commonly agreed-upon assessment framework, the review considered what CONSAR does in relation to six key attributes of RBS, which provide the basis for structuring the remainder of this report, as follows:

- **Achieving outcome-focused objectives for the pension system.**
- **Focusing on key system-wide risks** to the achievement of these outcomes, especially to affiliates' benefits and the stability and reputation of the pension system.
- **Risk-based selection of entities and subjects for attention** so that the supervisor gives priority to identifying, checking and mitigating the greatest risks within the system rather than frequently checking all entities and all risks.
- **Promoting pension fund governance and risk management** so that entities take proper responsibility for leading on the mitigation of risks within their control.
- **Using quantitative risk assessment tools** to enable the seriousness of less transparent risks (such as insolvency and investment) to be assessed.
- **Prevention and remediation first, with sanctions only for the persistent or most serious issues** so that effort goes into preventing and remedying problems rather than punishment, which adds little value particularly for mistakes that are quickly rectified. That said, there will be cases where legal intervention or sanctions are needed for preventive or deterrent purposes.

1. A note of the meetings with AFOREs has been separately made available to CONSAR management in confidence.



In summary, CONSAR's supervision has in recent years become increasingly risk-based, with many of the key attributes of RBS evident in relation to objectives, risk identification and work prioritisation. Some specific issues relating to risk orientation remain:

- The on-site team has limited resources, and its mission in that context could be clearer;
- The overview of risk (as opposed to compliance) is not clearly documented or shared;
- Much time is spent on sanctions relating to process glitches, even though the legal interpretation may be disputed;
- There is too much detailed regulation, whilst CONSAR's expectations of how AFOREs should be run are not clearly communicated;
- Despite considerable analysis of investment risks, there is only limited measurement of the extent of these risks; and
- Assessment of entity governance is diffuse, with no formal mechanism to enable CONSAR to place reliance from it.

Underlying these issues are three more fundamental ones:

- The absence of an overarching structured model of risk and its mitigation means that in practice, the focus has been on entities' compliance with regulations that are intended to mitigate risk, with no formalised assessment of residual risk that transparently drives supervisory response, nor transparent assessment of inherent risk.
- CONSAR staff recognise that regulation can never suffice to describe its expectations of good behaviour and best practice. It should only set minimum standards and should not be too detailed as to inhibit operational flexibility (a line that may have been overstepped). The absence of documentation explaining what "good" looks like has been responsible for disputes with supervised entities and, probably, inconsistency of judgment. It also means that on occasion, the emphasis is on form rather than substance.
- There is a culture that appears to see the filing of sanctions as the main objective of supervision rather than mitigating risk (with sanctions being just a tool to that end).

The recommendations arising from these conclusions are explained in the sections that follow and are summarised in Appendix 1.



2► Objectives of the pension system and its supervision

While the law governing CONSAR is not very recent, the requirements it places on CONSAR have a strong risk orientation and are serviceable in relation to what CONSAR actually seeks to do. Articles 89 and 93 are not entirely clear in their English translation, but it was agreed with CONSAR that they could be interpreted to give the following objectives²:

- CONSAR shall undertake supervision so as to **evaluate and respond to risks** to the viability and stability of pension entities, their legal compliance, the adequate functioning of their systems and implementing best practice in their investment of funds.
- In doing so, CONSAR shall undertake the full range of supervision activities focusing on entity risk management [assessment], IT security and controls and governance. It shall use financial data to analyse the potential implications for viability and stability of pension entities and the performance of the pension funds. And it shall check for compliance with law, regulations and CONSAR directions.
- CONSAR shall take proactive action based on the conclusions from its supervision to ensure the stability and development of the pension system, both through interaction with the entities and strengthening the regulations and rules which the entities follow.

As paraphrased, it can be seen that supervision should be based on the evaluation of risks. The relevant clause³ refers to a slightly strange list of factors to evaluate, with a focus on the solvency of supervised entities themselves. In discussion, it was clarified that this is because the wording has origins in banking supervision and hence, CONSAR needs to be fairly flexible in its interpretation and apply it more to pension funds than their managers. The reference to best practices in financial markets is (possibly inadvertently) very helpful, as it provides explicit support for CONSAR's efforts to raise the standards of investment management (so long as CONSAR explains what it means).

The objectives derived above from the law establish in summarised form the principal objectives and risks that CONSAR is intended to address through entity supervision, along with three key cross-cutting aspects of mitigation: governance, risk management and IT). Indeed, it would be possible to design an RBS methodology just from these three bullets that would be similar to that of supervisors in other countries, except perhaps the strong emphasis on legal compliance, reflecting the culture in Mexico. But even then, it should be noted

2. In undertaking this paraphrasing, it is noted that "surveillance" appears to mean supervision in general at one point and off-site analysis of data etc. a bit further on. It would be standard to interpret "inspection" as meaning on-site. "Prevention" is assumed to mean reports and interventions intended to prevent negative consequences and "correction" is assumed to mean requiring supervised entities to put things right. Between them, these concepts are the mainstays of all pension supervision.

3. Article 89 actually states that [all] supervision "shall be based on risk assessment, their IT infrastructure and controls, [and] the quality of their management in order to ensure that they maintain adequate liquidity, are solvent and stable and compliant with the provisions governing them and the best practices of financial markets."



that the objective is for CONSAR to be selective in its legal compliance work according to the risk or existence of non-compliance.

Also important is the provision, from Article 93 of CONSAR's governing law, is that the supervisory measures taken will be preventive **to ensure the stability and correct development of the pension system** – this ties CONSAR's objectives into the objectives of the pension system as a whole. In particular, the stability of the system depends on public and affiliate confidence. This in turn depends on its demonstrable security, efficiency and good governance. Hence, CONSAR needs to identify and seek to mitigate system risks, most notably the mismatch between public expectations and pension adequacy identified in Section 3. There also needs to be supervisory attention to market dynamics, which cross-cut the financial and operational vice-presidencies in that excessive or ill-informed transfers between funds or marketing-driven excessive costs (and hence commissions) can affect net and gross investment returns as well as affiliate confidence. And, because high commissions (Mexico's are relatively high) eat into affiliate retirement income, there also needs to be an objective to facilitate cost reduction within supervised entities and avoid regulatory actions that impose additional cost without very good reason.

Turning to CONSAR's own articulation of its objectives, material from 2016⁴ states that “the aim of incorporating a model of risk-based supervision [RBS] is to carry out supervision in accordance with a structured approach to identify, quantify and minimize the potential risks faced by the AFORES in the process of investment of the resources managed by the investment companies”. It gives the following reasons for adopting RBS (roughly translated from Spanish):

1. To reinforce entities' search for efficiency, profit and adequate operational infrastructure
2. To take advantage of the increasing sophistication and complexity of the investment regime and markets, with rules designed to strengthen risk management and self-imposed proper internal controls
3. It is no longer feasible to monitor all of the operations of financial institutions.
4. To allocate scarce supervisory resources more efficiently
5. To quantify and minimize the potential risks faced by the AFPs in the process of investment
6. To direct resources towards the risks and entities representing the greatest vulnerabilities, hence preventing problems

These represent a direction of travel that fits well with the attributes of RBS outlined in paragraph 1.3 above; CONSAR will progressively move to relying on AFORE investment and operational governance that enable it to be more selective in the focus of supervisory activities. The objectives of its Risk Surveillance Department in the financial vice-presidency are also relevant and have been stated as (with amendments to the translation):

- Evaluate the level of performance of the supervised entities and evaluate the infrastructure used within the investment process.

4. Information provided in advance of an AIOS seminar in October 2016 relating in particular to financial supervision.



- Detect serious problems with the management of financial assets and foster market conditions for financial stability.
- Identify, through constant supervision based on risk factors, how pension funds address the various risks to themselves and evaluate the internal controls implemented to mitigate them.
- Using an RBS approach, the general director will focus their resources and IT infrastructure to the most vulnerable and relevant processes in the Mexican pension fund systems, considering issues detected on-site and off-site.

In summary, from the available material it is assumed that CONSAR is working towards objectives relating to:

- System stability (and threats to it)
- Viability of entities
- Governance of entities
- Performance of funds
- Systems and IT
- Best financial practices (in investment)
- Compliance (in a risk-based way)

Having established what might be the supervisory objectives, the next step should be to determine how performance can be measured against them. Some measures flow naturally from the off-site and on-site supervision process, but broader system objectives may require other metrics. Measures might include:

- The diversification and returns (ideally risk-adjusted) of supervised pension funds – already measured through the IRN and portfolio monitoring.
- The impact on risk and return of AFOREs' application of quantitative investment limits, taking into account the presumed risk tolerance of different age bands of affiliates – CONSAR has some overview of this, and the Regulation Department are undertaking some specific research.
- The level of fees in the context of what an efficient pension fund should charge to deliver a reasonable but not excessive rate of return – CONSAR is developing efficiency metrics to run alongside monitoring and approval of fee levels.
- The quality of AFOREs' governance and risk management – measurable from CONSAR's assessments.
- Determine public and affiliate understanding of and confidence in the pension system through opinion surveys, along with the volume of voluntary contributions
- (Maybe) Assess AFOREs' operational efficiency and effectiveness – which could be derived from data available to CONSAR, such as complaints.

More generally, there is a question regarding the extent to which CONSAR, as system regulator, should monitor the achievement of overall system outcomes, as is now the case with the UK Pensions Regulator (whose role is



principally supervisory), which included overarching system objectives in its 2016 annual report (Appendix 3). From conversations with senior management and CONSAR’s communications team, it is evident that CONSAR sees itself having a broader role, including in relation to adequacy and public understanding. Articulating such objectives could be within the context of the five desired outcomes of a pension system (coverage, adequacy, sustainability, efficiency and security).⁵ There is also a question as to whether CONSAR should have a stronger role in relation to occupational pension funds – the failure of which might cause reputational damage and instability to the whole pension system – and which also contribute to overall pension adequacy.

In any event, CONSAR does not currently publish its objectives or performance measures against them, as would be consistent with the International Organisation of Pension Supervisors (IOPS) principle of transparency and accountability.

In conclusion, CONSAR has appropriate objectives in legislation, which have been suitably expanded upon within the financial supervision vice-presidency. There could be value in CONSAR articulating some overarching priorities in relation to key aspects of the performance of the pension system and developing more formalised outcome measures relating to its key priorities. For instance, the legislative requirement for CONSAR to ensure the stability and correct development of the pension system could usefully be unpacked. CONSAR could consider public disclosure of its objectives and performance against them so as to enhance its transparency and accountability. **It is therefore recommended that** CONSAR prepare a public articulation of its methodology for RBS and how this implements its objectives.

5. These are taken from the World Bank’s Outcome-Based Assessment Framework for private pensions, published on the World Bank website June 2016.



3► Risks to CONSAR's objectives and how they are defined and assessed

There are several purposes to supervisory assessment of risks which need to be borne in mind when considering how CONSAR assesses risks and uses these assessments:

- Demonstrably conform with the requirements of CONSAR's governing law
- Inform CONSAR's strategy for achieving its objectives and thus help to determine resource allocation within CONSAR
- Ensure that the planning of supervisory activities is demonstrably risk-based
- Secure supervised entities' mitigation of the risks applying to them (through guidance and regulation)
- Enable supervisory response to problems found to be proportionate to risk
- Assess success of regulation/supervision

3.1► The risk landscape and CONSAR's strategic response

The starting point for considering risk is to understand and map the risks to CONSAR's objectives. At one of the review sessions, CONSAR managers and staff were asked to identify the major risks to CONSAR's objectives and indicate their positions on a risk landscape matrix. The results of this exercise (Appendix 4), coupled with other evidence gathered, especially the views of the AFOREs interviewed and CONSAR views expressed at a recent international conference, resulted in a risk landscape matrix (Figure 1 below). In this Figure 1, the (yellow and red) risks included, which are unlikely to be comprehensive,⁶ are as follows:

- **Adequacy:** The risk that the relatively low level of contributions⁷ and low retirement ages, and hence retirement benefits provided by the system that CONSAR supervises, coupled with poor affiliate understanding and little voluntary savings culture, will deliver a lower replacement rate than affiliates expect, or in many cases than could reasonably live on, which will seriously undermine confidence in (and hence stability of) the system. **This is generally considered to be the highest risk in the system.**

6. In particular, the focus is on the risks relevant to the financial vice-presidency rather than the operational vice-presidency. A complete analysis should also include risks relating to AFORE viability and market abuse.

7. The mandated low level of contributions is compounded by extensive informality that reduces individuals' contribution density.



- **Commissions/costs:** The risk that commissions charged to affiliates are greater than the efficient costs of an AFORE, such that affiliates lose significant retirement savings with the potential for reputational damage regarding “profiteering”. This is recognised to be the present case.⁸
- **Affiliate understanding/market dynamics:** Affiliates take poor decisions regarding their choice of AFORE or level of saving because they have a poor understanding of how the system works, resulting in reduced benefits at retirement. This is a real problem, although fortunately the level of such transfers is not that high, reducing the impact.
- **Investment strategy/governance:** The risk that, possibly due to AFORE director conflicts or lack of interest, investment strategy is not optimised for the target cohort of each fund, so that long term returns are less than they could be. This risk is mitigated by regulatory limits (but over-restrictiveness increases risk – see next bullet) Sophistication at the best run AFORES is also a mitigant, but performance of at least one AFORE has been poor. AFORE management capacity to obtain better returns with appropriate risk management is seen as in need of a strengthening of corporate governance, risk analysis and control, with particular issues regarding ethics codes being ignored and strategies being badly implemented due to ambiguity.
- **Investment diversification:** The limited supply of financial assets eligible for pension fund investment within existing regulatory restrictions – for instance, the 20% limit on foreign securities or barring of certain asset classes to some or all AFORES – results in restricted diversification, asset bubbles and reduced investment returns, and hence reduced affiliate benefits, in the longer term. The system has not reached this stage, but eventually will unless there is greater diversification from Mexican financial markets.
- **Derivatives/counter-party:** The risk that counter-party failure causes avoidable and reputationally damaging investment losses, which is heightened by the use of derivatives is mitigated by intensive supervision and allowing only the better AFORES to use derivatives.
- **Political:** The risk exists of a policy reversal that undermines the system. This has happened to similar systems elsewhere, and would be heightened by loss of public confidence.
- **Custodianship:** The risk that a custodian or sub-custodian fails and pension fund assets cannot be recovered, which would be immensely damaging to affiliates and system reputation – a real “black swan”, which is highly unlikely but cannot be ruled out.
- **Credit:** the probability and impact of this risk is reduced by a tight regime of regulatory limits that ensures diversification.
- **Fund accounting:** The risk that assets are incorrectly allocated to affiliates, resulting in some affiliates losing financially or being exposed to fraud. Custodial controls that substantially mitigate this risk in similar jurisdictions are not universal in Mexico, and in practice, there is a significant level of error.

8. Commissions of around 110 basis points compare with 50 or fewer for large funds in Sweden and the UK, and significantly under 80 in some comparable systems, such as Costa Rica’s and (the best funds in) Australia’s. The higher commissions largely reflect higher marketing costs, which add little value to the system.



- **Trading:** The risk that traders employed by the AFOREs manipulate the execution or settlement process to their own financial advantage and to the detriment of affiliates or financial system reputation or stability. Significant cases have been found.
- **Market/liquidity:** Taken together because of their similarities in practice. CONSAR puts considerable effort into mitigation, but the risk is inherently impossible to eliminate and may be compounded by the volume of inter-AFORE transfers.
- **IT:** The risk that failures in IT infrastructure or applications result in service failures that damage system reputation and could cause some affiliate hardship or loss – the operational vice-presidency is primarily responsible, but the financial vice-presidency seeks to mitigate failures of financial applications.
- **Legal compliance (regulatory controller):** The risk that the compliance systems of AFOREs, especially the regulatory controller, fail to secure legal compliance. This could have reputational impacts and possibly small impacts on affiliates, currently a serious concern of CONSAR.

FIGURE 1 ■ **CONSAR RISK LANDSCAPE**



It should be noted that limitations in the effectiveness of CONSAR powers was also seen as a risk.

CONSAR has not articulated an explicit strategic overview of the risk landscape, but it is clear that there is in practice a good understanding of the risks. From the above analysis, one would expect to see the following priority strategies involving the vice-presidency, some of which are clearly evident:

- **Adequacy:** The vice-presidency has an important role in providing some of the data that are needed to underpin the argument for changes in government policy and public communication. This can start addressing the adequacy risk before it impacts confidence in the pension system. Also, CONSAR is working with AFOREs to encourage voluntary contributions, although this could never provide more than limited mitigation.



- **Commissions/costs:** Provide data to support regulatory changes that drive down the level of fees using existing regulation, and to make the case for more effective regulation in this regard, might be coupled with restrictions on sales activities. The revised fee regulation might be tweaked to provide an incentive to be amongst the AFOREs assessed by CONSAR to be best run. Alongside regulatory change, CONSAR might use any influence it has on the social security institutes to encourage fee reductions by the two AFOREs they sponsor.
- **Affiliate choice/market dynamics:** Provide data to help build the case for changes in the market that reduce affiliate transfers between funds, especially to those delivering lower net returns, with consequential negative impacts on liquidity requirements and unhelpful investment incentives.
- **Investment strategy formulation and implementation:** Closely aligned with the previous two strategies, encourage improvements in the investment strategy design and implementation process, through the strengthening of governance and investment processes and the operation of RBS. Strengthening of incentives on AFOREs to be highly assessed by CONSAR in this respect could also help.
- **Investment diversification:** Work to encourage AFOREs to develop the sophistication that enables CONSAR to increase their flexibility to diversify their portfolios. This can be achieved by strengthening governance and investment process and the operation of RBS. This may also necessitate further regulatory liberalisation (for the better AFOREs).
- **Governance:** Work to improve governance so as to underpin improvements in investment strategies and management.
- **Compliance:** In particular, encourage AFOREs to strengthen their compliance culture and arrangements through the application of RBS, with a particular focus on raising the standards of the regulatory controllers. In this way, the other lower-level risks and legal compliance should be controlled by the entities themselves.

It should be noted that the communications team within CONSAR has been working hard to communicate key messages relating to the above risks to politicians, the media and affiliates regarding adequacy, political, and commissions risks (although the ability to apply tighter control over commissions would be desirable). The strong supervisory focus at AFOREs over the several investment-related risks, accounting, trading and regulatory compliance is also clearly evident, although not perhaps the means to reduce focus defensibly at those AFOREs that perform better (those with low residual risk). There is some awareness of custodianship-related issues, although more overt focus might be prudent. Furthermore, appreciation of risk is evident through the supervision process as follows:

- Decisions on on-site inspection of processes are based on identified risk vulnerabilities and a risk matrix;
- Risk assessment on supervisory response relates partially to unstructured assessment of impact;
- Data are available to measure success in risk mitigation, although there are no formal measures for this purpose.



- On the other hand, CONSAR's resource allocation is not explicitly risk-based, although resources are increasingly allocated to higher risks.

Nonetheless, a public statement (e.g., a regulation) on how CONSAR undertakes and applies risk assessment in line with its risk focus would improve clarity and potentially enhance stakeholder respect for CONSAR.

3.2 ▶ Risk definitions within the financial vice-presidency

In translating strategic imperatives into supervisory action, supervisors commonly translate their appreciation of high-level risks into more rigorously defined risk categories for more structured assessment, focusing on those that should be mitigated at supervised entities. For this purpose, it is important that risks be properly and consistently defined. This needs to be done in terms of an event (i.e. some kind of failure) and a consequence (the negative effect of that failure on the achievement of CONSAR's objectives). Clear objectives are key. A risk event is assessed in terms of probability and the consequence of it materialising in terms of impact. Both dimensions are necessary to assess the seriousness of risks and the priority to give their mitigation. There are three ways in which pension system risks are defined by pension supervisors globally:

- Starting with specific negative consequences that impact upon **outcomes** and considering how each entity activity/process contributes to or mitigates them
- Starting with underlying **risk mitigations** (e.g. governance), then considering the likelihood and consequences of each failing
- Starting with the different **activities/processes** in the pension system and considering what could go wrong and with what negative consequences

Each of these perspectives is legitimate and can be used to design a rigorous and defensible methodology for RBS. It is also quite common for different perspectives to be used for different elements within a risk methodology,⁹ so long as there is clarity about the different functions each perspective plays and their inter-relationship. Certainly, CONSAR has used a mix of perspectives in that:

- The explicitly identified risks relate to different types of negative **outcomes** from the pension fund investment process
- The risk matrix underpinning the risk-based approach, however, is based on compliance of a mixture of **risk mitigations** and **activities/processes** with regulation.
- On-site inspection now focuses on **activities/processes** where vulnerability has been identified.
- To the extent that supervisory response (size of fine) varies according to risk, this is based on informal assessment of impact (**outcome**).

9. In particular, inherent risk can have an outcome focus, while net risk assessment considers the risks from inadequate mitigation or the risks associated with activities. This distinction results in quite complex methodologies.



- Finally, to the extent that a CONSAR strategy can be discerned, this would appear to focus on improving **risk mitigation**, for instance by incentivising stronger investment risk mitigation processes and systems and promoting more effective regulatory controllers.

Starting with the **outcome** perspective, CONSAR¹⁰ has stated that the risks to the outcomes of pension fund investment are credit/counter-party risk, liquidity risk, market risk and investment operating risk. It might reasonably be assumed that the design of regulations and rules, which prescribe a wide range of analyses and actions to mitigate such risks, has taken the mitigation of these outcome-based risks into account. The risk definitions provided are not clear about the negative consequences (impacts) of each risk, which might constrain the assessment of impact, although some could be inferred. Possible definitions are considered further in the section on quantitative analysis below (Figure 5). Probability could be inferred from the mitigations identified, the presence of which should reduce the probability. Although it might be possible, these risks are not formally assessed in practice. They are used as inherent risk factors in support of the main risk model rather than as risks for assessment.

3.3 ▶ Compliance risk matrix

The explicit risk model used by the financial vice-presidency instead seeks to measure the risk from non-compliance with regulation and rules within four categories relating to the risk mitigation of an AFORE. These categories encompass a number of risk factors relating to regulatory requirements, and have varying weightings, as follows:

- Corporate governance: 33 factors, aggregate weighting of 35.56%
- Risk management: 56 factors, aggregate weighting of 27.22%
- Investments: 35 factors, aggregate weighting of 26.70%
- Back office: 27 factors, aggregate weighting of 10.52%

These four categories are used to provide a risk heat map to inform inspection planning, but do not appear to have been formally defined in risk terms. Some definitions could be attempted along the following lines:

- The risk that **corporate governance** is insufficient to ensure that the AFORE is run efficiently and effectively so as to enable good retirement outcomes and protect the system's stability and reputation.
- The risk that the framework and structure of **risk management** in an AFORE is insufficient to mitigate the risks to good retirement outcomes and the system's stability and reputation.
- The risk that processes of **investment** in an AFORE are not implemented so as to deliver optimal investment returns in affiliate accounts, mitigating the associated risks. This depends on the risk-return characteristics of each fund.

10. In its submission to the AIOS workshop.



- The risk that the processes of the **back office** in an AFORE are not implemented to mitigate risks to the safeguarding of assets and deliver effective recording. These practices would enable good retirement outcomes and protect the system's stability and reputation.

It can therefore be seen that this methodology is focused on the risks that key mitigations fail. Each of the 151 components within these categories described as risk factors, and indeed sub-components of some of these risk factors, are risk weighted, so that the impact of non-compliance with the risk factors reflects in some way the extent of likely damage to CONSAR's objectives. Altogether, this has involved weighting around 270 factors. The weightings are normalised to provide a percentage figure that ranges from 0.03% to 5.12%. This is a very wide range, although it does to some extent reflect the fact that the number of sub-risk factors within a given factor also varies. This means that some aspects of non-compliance have a much greater bearing on the aggregate scores than others – indeed, just 29 risk factors are responsible for 50% of the overall risk weighting across the model. Hence, the methodology for calculating the weightings is a critical input to the work of the financial vice-presidency.

The methodology for determining the weightings was for eight managers within the vice presidency to discuss their views on the criticality of each risk or sub-risk factor and agree on a weighting, reflecting their expert judgment. This process was evidently taken very seriously and proved very time-consuming. For this reason, there is understandably some reluctance to repeat it often. Applying a collegiate approach of this kind is good practice, but to be rigorous and defensible, it should be transparently structured. The judgments presumably encompassed the dimensions of impact and probability. In the absence of any written criteria for defining or calibrating impact and probability for this purpose, or combining the judgments on each, it has to be concluded that this process was not transparent and could prove difficult to defend.

Although the structuring of judgments could be improved upon, there were some underlying subjective criteria to inform them. These related in particular to the relationship each risk or sub-risk factor had to 11 items, as follows:

- 1. Incidents in inspection visits:** The number of incidents registered by the Financial Surveillance Team in different areas (i.e. accounting, risk, delivery of recordings, investments).
- 2. Portfolio diversification of the pension funds:** The extent of exploitation of the scope for diversification within the investment regime.
- 3. Financial Services Innovation:** The areas in which the pension fund is authorized to operate as described on the CONSAR website, whether they be derivative instruments, international custodians, etc.
- 4. Average Ranking (Performance):** The ranking that the pension fund has kept in each of its basic pension funds according to the returns net of fees (RNF), which has been filtered to make its trend more stable.
- 5. Investment Strategy:** The extent to which the investment horizon is suitable to the characteristics of the affiliate.
- 6. Incidents registered by surveillance:** The number of incidents registered by daily financial surveillance of the pension fund.



- 7. Corporate Governance Evaluation:** The frequency with which the board holds sessions, the number of independent counsellors, the technical capacity and moral integrity of the independent counsellors, etc.
- 8. Back Office:** The internal control evaluation and operational risk.
- 9. Investments Unit:** The analysis prior to determining the investment strategy, the compliance to the investment strategy defined by the committee, online alarms and position reports, regulatory compliance, infrastructure in general, trading and recording systems and qualified personnel.
- 10. Risk Unit:** The independence of the risk management division, models and benchmarks for measuring and monitoring the various types of risk, valuation methodologies, reports, contingency planning and guarantee monitoring.
- 11. Compliance Officer (regulatory controller):** The independence of the regulatory controller, the prevention of interest conflicts and misuse of privileged information, the depth of reviews and follow-up of observations from the auditors and CONSAR.

These are good criteria in terms of sources of evidence, both direct and relating to overarching mitigations such as corporate governance and risk management. It is curious, however, that the outcome-related risks referred to in paragraph 3.9 above are not explicitly factored in, except to the extent that their mitigation would be reflected in the assessment of portfolio diversification and average performance (at least). The evidence adduced under each heading should enable an assessment of the probability of compliance failures and some feel for the impact of such failures.

Currently, assessment is made across the system rather than for each AFORE. In that sense, therefore this is a weighting of system-wide inherent risk, although the model could be enhanced to enable different weightings to be applied to each entity. In that case, the weightings would not sum to the same figure.

The use of varied weightings means that CONSAR's assessment of inherent risk is far from transparent, with no clear linkage with risk. Indeed, the individual weightings are deliberately not shared with supervised entities to pre-empt gaming. It is not clear that this would be a problem. If entities understood which aspects received the highest risk weightings, they might be expected to put the most effort into rectifying the issues raised. Admittedly, they might focus on nominal rather than real compliance, but this unavoidable so long as assessment relates to compliance with legislation rather than best practice. In any case, if greater reliance is to be placed on the compliance scoring system, greater transparency will be needed.

The model is used to undertake a twice-yearly assessment of weighted regulatory compliance at each AFORE using a three-point scale (0, 1, 2), with zero indicating that the regulation is not implemented. This will automatically be the case for the regulations relating to investment sophistication for those AFORES that have not taken advantage of the legal provisions enabling such sophistication. More advanced AFORES are able to score better than the others, so the weighting is designed to drive AFORES to adopt what CONSAR considers best practices in their governance and investment and help achieve strategic objectives. It also gives the weighting some entity specificity: AFORES that have not been authorised to use derivatives score zero against this highly weighted factor because they cannot use derivatives as a risk mitigation tool. While providing a



powerful incentive, this approach means that the overall compliance scores do not give a reliable measure of non-compliance with the regulation applying to less sophisticated AFOREs.

An unusual feature of this approach is that it is not designed to provide a measure of residual risk, but of the extent of compliance. Most risk scoring systems start from the level of inherent risk and then reduce the level according to the extent of mitigation. This enables several different mitigating factors to be taken into account, such as off-site evidence of detriment and entity-wide assessments of aspects of governance. On the other hand, it could be said that a measure of risk-weighted compliance is more objective than reducing risk levels because of mitigation.

Crucially, in theory at least, the model relates only to regulatory compliance. In practice, CONSAR staff also look for best practice regarding the functions covered by such regulations and rules, which can go beyond the minimum legal requirements. It is unclear how much this is supposed to be taken into account in the grading of AFOREs using the model, but is a key element in on-site inspection. AFORE complaints about subjectivity of interpretation indicate that partially compliant scores may sometimes be given when only the letter but not the spirit of regulation is being implemented. It might be better for the model to encompass best practice assessment explicitly (see paragraph 3.23 below).

There is an issue regarding the allocation of risk factors to the four risk mitigation headings (paragraph 3.11). These headings are important as the scores under each heading are shown singly on the heat map of entity performance, and as such have presentational importance in seeking to change behaviour. Some of the items under corporate governance (77-93) might be considered more relevant to investment, although this would make that heading very broad. Perhaps it should be split between investment strategy and investment risk management. That said, items 4-5, 12 and 103 fall better under back office practices (at least if this is expanded to cover a wider range of processes associated with operational risk). Item 104 and some items under risk management relating to the relationship with senior management might be more appropriate under corporate governance. Items relating to liquidity fall under three separate headings, which does not feel right.

3.4► Proposals for refining the risk matrix

During the review, the senior manager responsible for financial RBS in practice (the acting general director of the vice-presidency) presented an analysis of challenges in the working of the model and proposed some changes. Challenges could be summarised as the need to raise standards of governance, internal policies and prudential parameters regarding risk exposure in supervised entities, recognizing the heterogeneity of AFOREs and the necessity of identifying the minimum acceptable score for an AFORE. At the same time, he foresaw the possibility of incentives for good performance through approval of greater investment freedoms and possible risk-related own capital, which would need to rest on a robust risk scoring system. He has therefore recommended using 18 main risk factors for assessment (see Figure 2 below).



FIGURE 2 ■ PROPOSED NEW RISK FACTORS

<ol style="list-style-type: none">1. Mechanisms to ensure best price execution of assets2. Analysis to define an investment strategy by asset class3. Portfolio leverage measures and controls4. Internal limits framework5. Liquidity risk and asset-liability management6. Credit (internal ratings and scoring models)7. Performance and risk attribution models and reports8. Internal limits of maximum exposure to each counter-party and issuer. These limits must consider internal credit analysis based on fundamentals.	<ol style="list-style-type: none">9. Investment strategy (compliance and transparency)10. Stock picking analysis based on fundamentals11. IT infrastructure to support all investment processes (capacities and connection among modules)12. Derivatives13. Analytical capacities (certifications and background of all personal involved in the investment process)14. Compliance officer (heat map of vulnerabilities detected by their surveillance process)15. Benchmark (compliance)16. Commodities17. Investment mandates18. Operational risk (controls, segregation, automation process, etc.)
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Adopting these risk factors should help resolve the problems identified above with allocating risk factors to headings by making the headings more precise. It is assumed that the existing 270 detailed factors and sub-factors would be retained to assist with definition, indicating what regulations may be broken if the risk factor mitigation is incomplete. A few other comments on the proposals are:

- The proposal focuses much more clearly on actions to mitigate risk (i.e. best practices) rather than legal compliance, which makes it more risk-based. This in turn means that a methodology that scores residual risk rather than compliance would be more appropriate. Because a description of bad, good and best practice against each factor could encompass several elements of regulation, interpretations of regulation and perhaps even expectations that are not included in regulation, there would be considerable merit in CONSAR issuing guidance on what it expects under each risk factor to provide transparent, agreed-upon criteria for assessment.
- Proper definitions would be needed for each risk in terms of event and consequence (probability/impact), to clarify what risks and mitigations are associated with more opaque risk factors, such as commodities. Such definitions would help with weighting each factor. The definitions could be supplemented by key questions related to each factor to focus the assessors and the assessed.
- The new factors provide a more obvious link to the four investment risks, with credit risk and liquidity risk management having their own factors. The management of market risk does not feature explicitly, but could sensibly be combined with liquidity risk: the tools used to manage them are largely the same, so long as the definition of market risk excludes bubble risk.
- There is a much stronger emphasis on investment governance, which fits well with CONSAR's strategy, although general corporate governance (including risk management structure and audit) is omitted –



this might be better considered as a cross-cutting (transverse) mitigation in any case, which might be assessed jointly with the operational vice-presidency – see Section 5.

- One or two risk factors such as commodities may be over-specific and might beneficially be combined with other similar risk factors. On the other hand, having only one risk factor for operational risk appears to be insufficient. Perhaps three factors centred on accounting, execution and systems might provide more appropriate granularity.
- 18 risk factors would be much easier to weight than 151, but a methodology would also be needed for combining sub-factor assessments into a score for each risk factor, at least judgmentally.
- The greater granularity represented by having 18 risk factors should enable the scores disclosed to supervised entities to have greater leverage over those improvements that CONSAR considers to be most necessary.

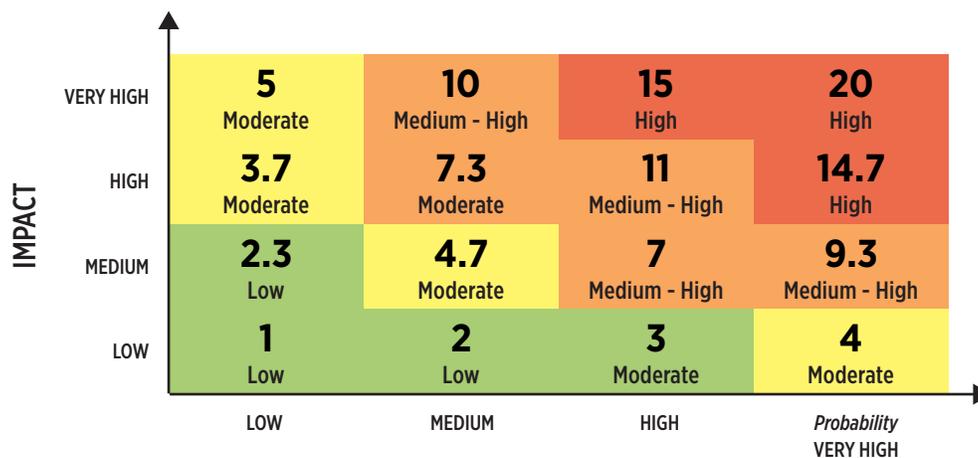
Adopting these risk factors would have considerable advantages, although some consequential evolution of the model would be desirable. In taking forward the weighting of the matrix, there would be merit in having a more transparent methodology. This could still be based on considering the probability and impact of the risk associated with each sub-factor to determine a rating for inherent risk. Consideration could be given to using 4-6 amended risks, as follows:

- **Credit risk**, as now, except that maybe counter-party risk could be separated out. Its impact is likely to be higher, and its relevance restricted mostly to AFOREs using derivatives.
- **Market and liquidity risk**. These are similar in that both relate to poor control over the volatility experienced by affiliates changing funds; hence, similar management techniques should be used. That said, the impact of market risk is primarily on the affiliate who exits the fund, while liquidity risk impacts those who remain, so there is also a case for keeping them separate.
- **Fiduciary risk** could cover the risk of sub-optimal strategies being implemented which do not balance risk against return optimally for different age cohorts, due to conflict or lack of interest. This category could also cover costs incurred implementing strategies that are not justified by returns.
- **Operational risk**, as now, focusing on losses affiliates suffer due to inadequate control over execution, settlement or accounting.

Criteria for assessing impact and probability in relation to each risk would need to be developed. For instance, high probability could be a risk that is commonly evident, medium one that is occasionally evident, and low one that is very rare. A matrix (example from Chile in Figure 3 below) could be used to provide the score for the relevance of the risks to each risk factor, as well as being a tool to assist discussion. The assessment could either be generic or entity-specific. If the final score of each risk factor were in terms of residual risk rather than degree of compliance, this would make it possible for different entities to have different starting points in terms of risk. It is highly desirable that the matrix be colour-coded, as that coding facilitates judgments. This is especially so as colours off the same matrix can be used to help determine supervisory response and plan future supervision. A 4x4 matrix is commonly seen as preferable to 3x3 because case assessments tend to be concentrated on the middle assessment level. (a 4x4 grid removes the middle).



FIGURE 3 ■ EXEMPLAR RISK MATRIX FOR ASSESSING INHERENT RISK



Note: Scoring is non-integral because an asymmetric approach has been taken to rating impact as opposed to probability. Scoring each axis 1-4 would simplify the scores but necessitate a change to the colour coding (to make that symmetric).

3.5 ► Conclusions on risk

In summary, the current risk focus of the vice-presidency is to ensure that supervised entities comply with regulations designed to ensure that they manage risk effectively, with those regulations weighted according to the inherent risk being mitigated. However, there is no one coherent set of risk definitions, nor a single risk model, let alone a clear articulation of how CONSAR perceives the risk landscape and uses this analysis to drive its supervisory activities. As it is possible to supervise in a risk-based way without a formal risk model, it is worth stating why CONSAR should make a further investment in improving its existing model and matrix:

- The current model does not readily enable conversations regarding risk, as the main focus of the matrix is on compliance with regulation and the linkage with risk outcomes is not transparent. In the absence of a single commonly understood language of risk, considerations of risk are less likely to be part of day-to-day processes. This is evident in the primary focus on sanctions referred to further in the rest of this report.
- The model, especially the absence of a formal net risk assessment, does not facilitate decisions on when enough risk mitigation has been achieved and no more mitigation is needed. Alternatively, it does not clarify when existing risk mitigation strategies are falling significantly short.
- The lack of transparency and defensibility constrains the use of risk matrix scores to only an influencing tool.
- The assessment of risk at supervised entities is one-dimensional and incomplete, especially regarding assurance from board/committee governance and regulatory controllers. This causes supervisory response to lack demonstrable risk focus and differentiation among AFOREs.



- The focus on compliance rather than supervisory expectation makes it harder to seek improvements in line with good practice that are not clearly specified in regulation. This leaves AFOREs uncertain and frustrated regarding what CONSAR expects of them.

The proposals made by the acting general director go far to achieve the necessary rigour and increased risk orientation, although they need to be accompanied by a more transparent process for determining inherent risk weightings. If the proposal is not adopted as suggested, it is nonetheless important that the risk factors in the matrix be redefined in terms of risk and preferably reduced in number, with items of compliance being sub-factors in support. If the assessment of risk factors is to be orientated more towards judgments regarding net risk, CONSAR might wish to consider moving from a three- to a four-point assessment scale for each risk factor, reflecting the very human tendency to drift to a score in the middle of a range and the importance of recognising that partial compliance can range from doing only a little to doing nearly all that is required.

One underlying issue is that the vice-presidency is insufficiently explicit about the fundamentals of its risk-based approach, so supervisory staff may not all have a proper understanding and supervised entities may not be clear either. The approach should be articulated in a way that staff and supervised entities clearly understand. In Chile, this is done through an annex to a regulation. In the UK, the published annual corporate plan and report do this, supplemented by consultation papers where substantial changes are contemplated. The supervisor in the Netherlands publishes the higher-level sections of its supervision manual on its website. Publications can be supplemented by the words of the head of the authority at conferences or directly to entities where they are relatively few, as in Mexico. Regardless of the media used, the supervisor should communicate strategic priorities for risk mitigation as well as the methodology to take assurance from entity risk mitigation.

It is therefore recommended that CONSAR:

- Formally map the risk landscape to have a shared articulation of the risks to its objectives and pension system outcomes, and include an overview in its explanation of its RBS methodology or annual report.
- Move to a smaller set of risk factors, along the lines that have been proposed, that are defined in terms of risk mitigations, with risks to regulatory compliance being a sub-set of each factor as appropriate.
- Move to a more transparent methodology for assessing inherent risk weightings that is related to the risk landscape.
- Define the output of the risk matrix in terms of net risk rather than level of compliance, considering a move to a 4-point scale and transversal evaluation of governance as one or more additional factors applied to assessing net risk.



4 ► Risk-based selection of entities and subjects for attention

CONSAR has stated that¹¹ its model of supervision “allows to the supervisor to direct resources towards the matters and institutions that represent the greater vulnerabilities”. This implies that there is a methodology that directs attention to some risks at some entities and away from others.

All the supervised entities are systemically important, because a major failure at any of them could irreparably damage trust in the pension system. Hence, CONSAR needs to undertake continuous off-site supervision of all of them and has to date also sought to inspect every AFORE on site every year. This means that its methodology should be more focused on the selection of risks and activities to supervise than on entities. In particular, aspects of the methodologies that are used by other supervisors worldwide to determine which entity should be inspected – notably, the calculation of a global score for each entity – are not needed within CONSAR’s methodology. This has the advantage that CONSAR need not aggregate risk scores to generate an overall risk score, a process that can cause issues of comparability of different risks.

In fact, CONSAR has computed a global compliance score for each AFORE, which should in principle be of value in driving up compliance rates and identifying entities where compliance is sufficiently poor to merit additional inspection (which itself has positive incentive qualities). This tool has been used effectively elsewhere. It needs to be recognised, however, that this is a measure of compliance, not directly of risk.

In pension systems such as Mexico’s where the primary purpose of risk assessment is not to determine which entities to inspect, its main purpose is to identify which risks or sub-risks and mitigations should receive more attention. The standard approach is to use a structure of risks and often sub-risks as discrete components for assessment and planning purposes. The level of each risk is then measured by assessing compliance with the mitigating actions that the supervisor hopes to see (whether included in regulation or not), along with any available measures of impact. Such measures can include investment returns or materialised risks, complaints or other failures affecting desired outcomes. The assessment of governance is either incorporated within risk mitigation assessment or applied as a separate (transversal) evaluation that modifies individual risk scores. A heat map or risk dashboard can be used to illustrate assessments across each risk (or sub-risk) and across all the entities.¹² Such decisions may be relevant both for on-site inspection programmes and the depth of off-site analysis undertaken (although some analyses may be needed for other purposes).¹³

11. Included within materials that CONSAR supplied to the AIOS workshop in October 2016.

12. Such a tool can be used to enable judgmental prioritisation alongside or in place of a numeric scoring system. The cross-entity view can identify where systemic changes are needed.

13. Off-site analyses are often needed not just to help assess risk and compliance but also to act as early warning indicators, measure the impact of risks that are not fully mitigated or provide performance measures.



The application of such a model of risk assessment is relevant to all three supervision departments within the financial vice-presidency as well as its regulation department and the legal vice-presidency to the extent that it works alongside the financial vice-presidency. The model's application is best considered by starting with off-site surveillance before considering on-site inspection.

4.1 ▶ Off-site surveillance

Two departments have responsibility for off-site surveillance:

- The **Risk Management Department** focuses on the analysis of portfolio and other investment-related data, considering how well funds are complying with their strategies, short-term mandates and regulatory limits. This provides input to high-level meetings with AFOREs as well as on-site inspection. It also identifies potential breaches of limits. This department also approves the amendments to the risk manual of each AFORE.
- The **Surveillance Department** has a major focus on operational risks, although it does duplicate the checking of compliance with limits. It also has the closest any department has to a lead role on governance.

In addition, the research team within the **Regulation Department** has started to analyse how well the multi-funds of each AFORE deliver life-cycling (informing consideration of a move to target date funds). As life-cycling is the primary means of mitigating market risk at retirement, but transitions between multi-funds also cause some market risk, it might be expected that the Risk Management Department would undertake such analysis as a matter of routine. Indeed, a criticism that could be levelled at this department is that, despite its extensive analysis of investment activity, it does not explicitly compute metrics that would indicate how well each AFORE manages credit, market and liquidity risk, which would be invaluable as inputs to the risk model. It should also produce metrics relating to trading costs to test for fiduciary and execution risk. It does, however, compute a measure of portfolio performance (the IRN) over several appropriate durations. The revised risk model should show how investment analyses enable an assessment of investment risks as an input to the weightings used and specific assessments of individual AFOREs.

The Risk Management Department does not vary its analysis programme according to the level of risk at different entities, except of course that analyses relating to derivatives and alternative asset classes are undertaken only for funds where they are used. This makes sense so long as the relevant data are obtained from all funds, as it is unwise for a supervisor to obtain data and then not analyse them. There could be a case for reducing the periodicity of data collection where the data relate AFOREs and risks that are well managed.

Turning to the Surveillance Department, it has identified some significant risk materialisation relating to operational risk in relation to accounting and to improper trading activity. The former case appears to be associated with the most used custodian not undertaking all the checking processes that would usually be expected in a system such as Mexico's. In the case of one AFORE, the assurance that could be taken may also be reduced by its custodian being in the same financial group. Hence, there is a systemic risk that needs to be addressed at system level. It should not be usual for a supervisor to find accounting errors, and AFOREs should certainly not be satisfied with a situation where this happens. In this context, it is unfortunate that CONSAR does not



have a role in licensing or inspecting pension custodians, as is the case in other similar jurisdictions, as then it could ensure that sufficient requirements are placed on custodians and effectively implemented.

The trading irregularities also appear to be associated with a subset of AFOREs, and have required extensive detective work by CONSAR to disclose. This too suggests a systemic risk at some AFOREs, although there may also be a cultural issue across the industry. In any event, CONSAR should look to strengthen controls at some, if not all, AFOREs. The highly intrusive procedures undertaken by CONSAR, such as listening to recordings of telephone conversations, would more normally be undertaken by AFOREs, although if a supervisor has concerns, CONSAR should test check such procedures on-site. Notably, significant losses due to trading abuse should also be detectable through analysis of return attribution.

In a well-functioning pension system, one would not expect to see an intensive focus on operational investment risk because this should be well controlled by supervised entities. That this is not the case in Mexico indicates a shortfall in governance, especially in the roles of middle office and regulatory controller. While responsibility for risk management is effectively split between the risk management and on-site departments, the Surveillance Department leads on the assessment of the regulatory controllers. It has been working hard to raise standards with detailed scrutiny of their risk models and programmes. Governance is considered further in a later section of this report.

The Surveillance Department has a case management system (IVP) to enable effective tracking of issues identified. This is, rightly, to be extended across the vice-presidency within the next two years.

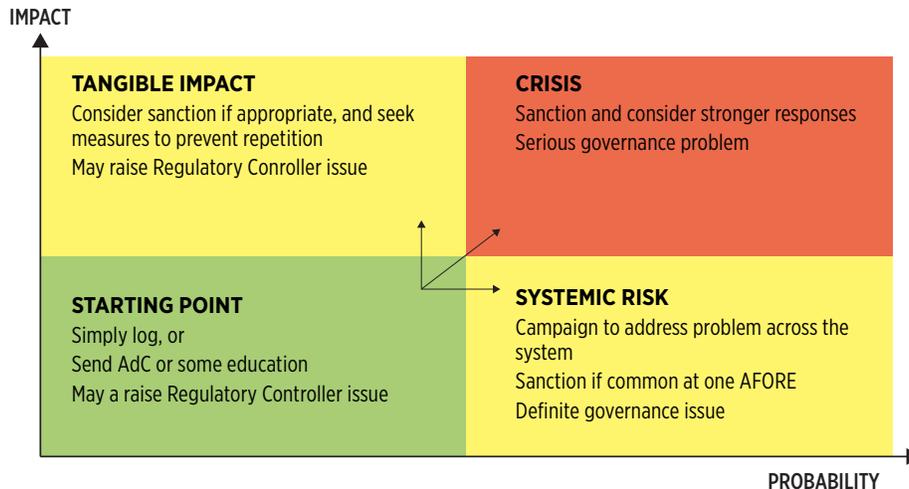
4.2 ► Coordination

Experience shows that a risk-based supervisor needs some form of coordinating function or committee to ensure that there is the right response to new data and analyses. The vice-presidency has such a committee that meets (approximately) weekly to consider each AFORE four times a year. It comprises managers and key staff from the supervision departments and considers all relevant off-site findings and the results of any recent inspections. Potential issues are flagged and considered, and actions decided upon. These could include an immediate approach for more information or addition to the potential remit for the next on-site inspection. Items are related to the relevant risk factor in the compliance matrix, which could therefore direct the discussion towards whether there is evidence of non-compliance for sanctioning rather than a risk materialising.

This is in the context of complaints from AFOREs that CONSAR makes too many ad hoc requests for information, which may be well founded unless there is a transparent methodology for assessing which issues need to be followed up and when. If there is not a significant risk, it would be preferable for the issue to be logged for the next on-site inspection or simply logged in case further evidence emerges. The decision-making process could be as reflected in the matrix in Figure 4 below. This indicates that a one-off issue should simply be logged (or noted with an *aviso de conocimiento* (notice of awareness) if a sanctionable breach), but that a stronger response is needed if there is a tangible impact on affiliate benefits or system reputation or if there is a systemic problem. Systemic problems with a tangible impact should receive immediate and robust attention. This can be seen as a kind of triage process.



FIGURE 4 ■ ILLUSTRATIVE RISK-BASED APPROACH TO ISSUE RESPONSE



The minutes of one of these meetings, seen during this review, provided a good level of detail on issues identified and the action points (although it was not explicit as to which related to the next on-site inspection). The nature and level of potential or actual risk was generally not specified to justify whether action was taken, other than some references to legal compliance. Thus, it might not be easy to justify why ad hoc information requests were made, or precisely which risks needed attention on site and why. The entity risk compliance matrix was not recorded as reviewed in this context.

The coordinating committee also has the potential to identify and initiate action (a campaign) on systemic risks, such as those identified above – it is not clear that this is within its terms of reference, but it should be. The committee would indeed benefit from terms of reference to clarify its roles and ensure that its membership and reporting lines are generally understood.

Another potential role for a coordinating committee could be the twice-yearly assessment of the compliance risk matrix at each supervised entity. Around 20% of the line items can be assessed off site, leaving the rest to be assessed on site. Currently, the acting general director undertakes the assessment, but it would be valuable if this were a more corporate exercise, either by the coordinating committee or the committee that assesses inherent risk weightings (perhaps they should be the same). If managers and staff of the vice-presidency are to focus on risk mitigation, they need to have a good understanding about how it is assessed, and indeed contribute to that assessment. At present, the focus of conversation on what is found wrong tends to be on sanctionable breaches, not the mitigation of risk. Changing the definition of risk factors as suggested in Section 3 should help achieve this shift in perspective.

Finally, there needs to be some coordination of the different departments’ resources within the vice-presidency, building up from resource plans for each department and prioritising among them. The minimum work needed to address the higher risks in the system (using a landscape matrix such as in Figure 3 above) needs to be identified, with the remaining resources allocated to the highest priority needs after these. Paragraphs



4.22-23 below indicate how this might be done for on-site inspection, and the approach might be replicated as far as practicable to the other supervision departments. Planning staff deployment based more explicitly on the level of risk could result in temporary moves of staff from one department to another, and it is important that there is a body of staff who are capable of doing that. This further argues for a common approach to and language of risk and formal articulation of the methodology.

4.3 ▶ On-site inspection

At the time of the review, the on-site inspection team's staffing was significantly below complement; although there are supposed to be two full teams, there was barely more than one. The turnover of staff suggests that the motivation for staying in the department might have been less than the disincentive arising from its heavy workload. Certainly, the department struggled to complete its 2016 programme and to deliver inspection reports within the allotted time frame. Action was in hand to fill the vacancies, but some underlying issues may also need to be addressed.

The work of on-site inspection has fairly recently changed to focusing on vulnerabilities identified at supervised entities, even off site or in previous inspections, along with enabling AFOREs to support more sophisticated forms of investment. The attention given to vulnerabilities is evidently risk-based, although not immediately associated with the risk model. There is not an explicit review of all risk factors in the matrix (or at least the 80% that can be checked on site) to determine which has the highest priority. The principal vulnerabilities for inspection across all the AFOREs are identified during the planning for the year, but can be updated during the year according to the results of off-site analysis after the annual planning.

In principle, risk factors and sub-factors should be examined with a periodicity broadly equivalent to the level of net risk (as in Chile), although this would require an estimate of net risk. There are indications¹⁴ that quite a few risk factors were not examined at any AFORE during 2016. This is not sustainable in the longer term, as all risk factors should be examined from time to time unless sufficient evidence is available off site or CONSAR can take substantial assurance from AFORE governance. Of course, the determination of which risk factors should be examined each year at each AFORE also must reflect identified vulnerabilities, as now. These could be included within the net risk scoring in terms of an increase in net risk. Account could also be taken of the overall scores relating to some or all of the four net risk areas (corporate governance, investment, risk management and back office). For instance, a strong governance score might reduce all the net risks at an entity, and a weak one might increase them. Such an approach would almost inevitably result in some AFOREs requiring much more resource-intensive inspections than others.

In Chile, the supervisory departments use a spreadsheet for planning purposes. This estimates the number of staff hours required for each risk factor or sub-factor (for planning, inspection tasks and report preparation), and any other necessary tasks at each entity. Assumptions regarding which risk factors (or sub-factors) to inspect are to be examined across all entities on the basis of net risk and other criteria (see 4.21 above). This is an iterative process, and the risk factors to be examined may be adjusted according to staff availability.

14. See paragraph 7.16, which refers to analysis undertaken by the legal vice-presidency.



This approach could be adopted by the CONSAR on-site inspection team (at least). As there are more AFOREs in Mexico and they are more heterogeneous than in Chile, it might actually be appropriate to omit one or two AFOREs with lower net risk scores from the programme for one year if resources are limited. Alternatively, low-priority tasks in other supervisory departments might be stopped or deferred to free up staff to transfer over to the inspection department. This would necessitate risk-based prioritisation within those departments as well. Undoubtedly, there would be several AFOREs where the workload identified from the risk spreadsheet would exceed what a standard-sized team could undertake without breaching the elapsed time limit on inspections, and that would necessitate using a larger team, perhaps involving short-term secondees from other departments.

Currently, however, the resources allowed for each inspection are the same regardless of the level of risk, and planning is limited to fitting the AFORE visits and their teams into a schedule. Furthermore, it appears that not enough resource is always allowed for the tasks involved in the inspections of less compliant AFOREs, with the risk of overwork or under-attention. From experience, an over-heavy inspection schedule tends to impact planning and write-up, leading to inefficiency and delay.

The workload of the inspection department is further increased by the requirement to approve changes to fund prospectuses (see paragraph 4.32 et seq.).

Inspections start with interviews with the key staff involved and then move onto specific testing. This is good practice, except that high-level interviews are scheduled separately from inspection interviews (see Section 5 on governance). There also appears to be a sound process of planning each inspection. This may be over-reliant upon the experience of the staff concerned. It would probably facilitate inspection planning if there were more guidance on good practice that inspectors should expect to find and relevant sources of evidence (again, something available in Chile). This is particularly important where new staff have to be drafted in to fill gaps in staffing. It should also help to address the risk of inconsistency of judgements alleged by at least one AFORE.

From conversation, it would appear that the focus of the inspection process is on finding sanctionable breaches rather than assurance that risks are being sufficiently managed. Breaches found are described in terms of which regulation is infringed rather than which risk is compromised, which is perhaps unsurprising given that the items being inspected are defined in terms of legal compliance. Non-sanctionable issues are also raised, but views differed within the department as to whether these were treated with the same level of respect. It would be consistent with human nature if they were taken less seriously given the divergence in consequences. In the absence of pre-issued guidance as to CONSAR's expectations, it is not surprising that non-sanctionable issues are often disputed when raised or can be ignored. The way forward would be to move the focus onto entities following agreed good process on risk mitigation and CONSAR seeking assurance that they are doing so. Where problems are found, these could then be assessed in relation to the consequential increase in risk rather than the scope for sanction.

Reporting to management follows the standard approach of informal discussion followed by formal presentation, then submission of a formal report to be actioned. There might be more scope to negotiate agreed solutions – which are perhaps more likely to be implemented effectively – were the focus more on following good practice in risk mitigation and less on sanctions. Certainly, the AFOREs consider that there is insufficient



willingness to be flexible, although they acknowledge that CONSAR has become more consultative. Follow-up of implementation is quite properly scheduled according to the nature and gravity of the problem found.

There has apparently been an issue with delays in writing up conclusions, which is a common occurrence where there is a tight schedule and a fairly small team covering a large amount of ground. This might be eased by making greater use of pre-populated templates so that findings can be recorded on the IT system as the inspection progresses. That said, a reduction in the number of sanctions actioned might make as big an impact, given the amount of documentation associated with them.

4.4 ► Updating the compliance risk matrix

It is common practice in RBS for an updating of the risk matrix (net risk) to be undertaken at the conclusion of an on-site inspection. At CONSAR, the acting general director updates the matrix twice a year for each entity on the basis of off-site and on-site results as an exercise separate from completing the on-site inspection. In practice, however, many of the scores will be unchanged each time in the absence of any relevant supervision. This raises a serious question regarding the value of the process formally occurring twice a year. It might make more sense for the on-site inspection report to specify what changes to compliance risk assessments are appropriate on the basis of evidence gathered during the previous year both on and off site for management and coordinating committee review, drawing on supporting evidence documented on the case management system. The annual formal report to AFOREs could then be made as part of the inspection report.¹⁵

At present, the main purpose of the updated compliance risk matrix is communicating messages to the AFOREs regarding their level of compliance in the form of a heat map, although the acting general director may also seek to use the scores as an unstructured input to the inspection programme. There appears to be greater scope available for them to be used formally for planning the programme and determining supervisory response. It would therefore enhance the risk orientation of CONSAR supervision if the assessment of risk factors in the matrix were more clearly owned by the supervision teams leading on each risk factor (depending on whether the primary source of evidence is off or on site). If supervision staff were required to make proposals regarding the response to problems found in relation to the scoring of the matrix, this could help shift attention from sanctionable breaches to risk mitigation.

The scoring and colour-coding of the matrix as a heat map already has considerable value in identifying which are the well-run and badly run AFOREs, albeit without a direct connection with the level of risk they pose. This is why moving to scoring net risk rather than compliance would be beneficial. However the results are regarded, it is clear that the level of compliance at some AFOREs is unacceptable. This calls for a strategic response to a systemic governance problem, considered further in Section 5. Until the position is improved, it strengthens the case for inspection attention to be focused on a subset of the AFOREs. Doing so would not just represent a more efficient use of resources, but would send a clear signal that performance correlates with the amount of CONSAR intrusion.

15. If an AFORE is not inspected during the year, either the update could be made just from off-site evidence with caveats regarding completeness or left to the following year. This might be acceptable bearing in mind that only the lowest-risk AFOREs would fall into this category.



4.5 ► Approval functions

CONSAR currently approves changes to the investment prospectus for each fund and the risk manual for each AFORE. The approval processes are time critical and inevitably divert staff and management attention from other functions, and so should continue only if there is a good case for doing so. There is a good case for concluding that neither of these functions is justified or even appropriate.

Prospectus. This is a hangover from the early days of DC pension funds when they were seen as retail investment funds to be chosen by affiliates on the basis their risk preferences in a competitive marketplace, and hence subject to the standard provisions of unitised product regulation. This is no longer the case with pension funds in Mexico, where most affiliates default into funds that are heavily regulated to protect their interests. What affiliates need is a short, ideally one-page, summary of the key features and performance of each fund, so that if they wish to make a choice they have the necessary information easily accessible.¹⁶ The prospectus has far too much detail for this purpose and can be readily confused with the fund's investment strategy, which should be available on request (if at all). Indeed, its value is unclear.

Furthermore, it is contrary to OECD guidelines on private pensions for a supervisor to approve investment strategies, as this transfers what should be a pension fund responsibility to the supervisor. Approving the prospectus could be seen as crossing this line and puts CONSAR at risk of being blamed if the strategy articulated or implied by the prospectus proves to be unwise with hindsight. Instead, CONSAR should ensure, as it seeks to do, that each fund has a meaningful and realistic strategy which is properly implemented, using risk assessment including investment metrics to focus on those funds where the strategy or its implementation appears to be weakest.

On the other hand, in the early days of RBS, it probably made sense to approve the **risk manual** for each AFORE to ensure that minimum standards were adopted. Now that every AFORE has risk management embedded in line with a manual, it should have become their responsibility to ensure that there is adequate risk management. Approving amendments to the manual perpetuates a culture of dependence on the supervisor rather than AFORES taking responsibility. An exception to removing this requirement might be made for any AFORE with particularly poor scores for risk management. CONSAR should, of course, still expect to receive amendments to the manual for periodic checking, quite possibly as part of the on-site inspection.

4.6 ► Conclusions on risk assessment

The risk of non-compliance is taken into account in several ways during the off-site and on-site supervision processes. The assessment of such risk through the matrix is not formally embedded within these processes, nor is the drawing of conclusions on risk to CONSAR objectives an explicit outcome from the processes, whether they be in terms of investment metrics, the review of supervision results or drawing conclusions from on-site processes. In reality, much good practice is evident in what is done – for instance, by the coordinat-

16. CONSAR already produces factsheets on voluntary funds that could provide a basis. The EU UCITS Directive regulates the format of such documents across the EU and may provide a useful template – interestingly, it is being adopted as part of the EU occupational pensions (IORP) directive.



ing committee, the identification of significant accounting and trading problems and the on-site inspection process itself. But supervision could be more strongly orientated towards and driven by risk assessment. In the absence of a risk-based selection of risks to examine, CONSAR may be expending too much effort on lower-risk mitigations and not enough at AFOREs and in areas where risk is most intense.

The changes to the risk model considered in Section 3 could go some way to embedding a stronger risk focus, if accompanied by the following other changes, which would be facilitated by changes to the risk factors and scoring system:

- The Risk Management Department should produce metrics specific to the key investment risks in CONSAR's model (plus fiduciary risk) as an input to risk assessment. It should stop approving amendments to risk manuals at the better AFOREs (at least) and have sole responsibility for monitoring breaches of quantitative limits.
- The coordinating committee should be provided with formal terms of reference that specify how decisions are taken on a risk basis and broaden its remit to more explicitly draw or affirm conclusions regarding risk assessment and supervisory response at entity and systemic levels.
- In particular, issues found at AFOREs should only receive immediate attention if they are, or are likely to be, systemic or result in a tangible negative impact.
- The focus of surveillance and inspection activity should be on seeking assurance that risks are being effectively mitigated rather than on sanctionable breaches, which should be seen just as evidence of risk materialisation or as an influencing tool where risk mitigation requires improvement.
- Ownership of risk factors in the risk matrix should therefore be disaggregated to the teams gathering the evidence for each risk factor, under oversight of the coordinating committee.
- The allocation of staff between supervision departments should be explicitly based on a planning process that prioritises activities according to risk, by using the scores for risk factors at each entity derived from the risk matrix as much as possible, with periodicity of attention correlated with the level of risk.
- In particular, the scale of inspections at AFOREs should vary according to the number of risk factors needing attention, with the current approach to vulnerabilities incorporated within the analysis. All risk factors should be inspected occasionally unless there is sufficient evidence off site and from entity governance to justify their omission. Hence, each inspection should probably cover one or two lower-risk factors as well as those that merit the most attention.
- Risk-based resource prioritisation would necessitate greater flexibility of staffing between departments. This in turn would require training, particularly more effort to build common understanding of risk and process. Staff guidance on what represents good risk mitigation and the sources of evidence needed for each risk factor would help underpin such flexibility and reduce the risk of inconsistency.
- More use could be made of pre-populated IT templates, which could help streamline and expedite the inspection documentation process.



- CONSAR should review the concept of the prospectus with a view to replacing it with something more user-friendly and removing the requirement for approval of any document that refers to a fund's investment strategy.



5▶ Promoting and assessing good corporate governance

A focus on raising standards of entity governance and taking reliance from it is an essential element in RBS. The aggregated weighted risk factors associated with corporate governance constitute 37% of the compliance risk matrix; hence, CONSAR cannot be criticised for giving insufficient attention to this issue. However, is the approach comprehensive, and does it deliver meaningful assurance?

5.1▶ Governance definitions and scope

One way of scoping pension fund governance is to establish some key principles which could be expanded upon with detail relating to regulatory compliance and best practice. A generic governance framework (drawing on the frameworks used by DNB and the IAIS and published by CAPSA¹⁷) would include the following principles¹⁸:

1. Fiduciary responsibility of the board, including management of conflict of interest
2. Board and senior management competence
3. Effective organisation and structuring of the board, its committees, senior management and entity staffing, with clarity of respective roles
4. Strategic direction provided by the board, based on full consideration of available information, and disseminated throughout the entity
5. Transparent, effective and timely communication within the entity, especially between management and the board, which covers performance reporting and review
6. A risk management culture and framework within the entity led from the top, resulting in effective management of key risks
7. A framework of internal control, compliance and audit consistent with risk management analysis and with clear reporting lines
8. Transparency and effective communication with external stakeholders, notably affiliates and the supervisor

As the focus of the vice-presidency is on investment governance, these principles could be modified to reflect the attention that needs to be given to sound investment strategy process. It should be noted that the pre-

17. CAPSA is the Canadian Association of Pensions Supervisory Authorities. Its set of pension governance principles is published on its website accompanied by good practice guidance and a self-assessment questionnaire. This is understood to be easily CAPSA's most popular web page, for good reason.

18. These principles are often combined for simplicity, especially 1 and 3 and 4 and 5, while audit may be separated out from 6.



cise scope of what is included within governance varies between supervisors, especially as regards the risk management and other assurance functions.

CONSAR tests the existence of many aspects of governance and risk management structure and process that are required by regulation and relate to the principles in paragraph 5.2. Taking each principle in turn:

1. There are references to fiduciary responsibility of key staff and the investment committee, although this does not appear to extend to the board itself. There are also references to procedures for identifying and managing conflict of interest in specific circumstances.
2. Competence of key staff and the investment committee (but not the board) is covered by certification requirements. The challenge of insufficient professionalism CONSAR has identified raises a question as to whether such an approach is sufficient.
3. There are some references to structuring and roles, although it is less clear that this extends to the extent of clarity in practice.
4. There is considerable emphasis on the quality and depth of information provided for strategic decision-making, along with the Statement of Investment Principles itself, and associated investment policies are well covered. For the financial vice-presidency it is appropriate that this principle be limited to investment strategy; other strategies would be more appropriate to the operational vice-presidency.
5. Large numbers of analyses are required by regulation, with some references to reporting. The requirements for investment committee meeting recording should encompass processes and methodologies to ensure internal transparency.
6. The risk management framework is defined, but there is no reference to culture, nor to the way the framework is applied at the board and investment committee levels, except as it relates to breaches.
7. There are references to internal controls, although not explicitly to their derivation from risk management. As the regulatory controller delivers both the internal audit and compliance function, this is very much covered. The apparent omission of external audit is surprising.
8. There is reference to external reporting, although not to CONSAR, nor to effective communication with affiliates, although this may be seen as more of a responsibility of the operational vice-presidency.

Although there might be a few gaps, the risk factors appear to cover the principles fairly thoroughly. The supervisory challenge is that an AFORE could have all of the regulatory requirements in place and still be badly governed, especially as the requirements placed on the governing board itself and how it leads the organisation are not very clear. The variability in net investment returns seems to suggest that governance is variable in practice, and there does appear to be some correlation between the governance compliance scores and scores for compliance under other headings (even though the corporate governance heading may not entirely align with the principles above).¹⁹ Some of the AFOREs also have quite low governance scores, suggesting that they

19. It is perhaps problematic that the investment performance of funds does not appear to correlate well with governance scores, which appears to contradict international evidence.



are not compliant with form let alone substance. In any event, governance and risk management processes can be subverted by an over-dominant member or clique of senior management.

5.2 ► Governance assessment

In view of the above considerations, it is desirable that a substantial element in governance assessment be undertaken by means of interview rather than examining documents. CONSAR appears to have the wrong balance in this respect. If a decision is not fully documented in the investment and risk committee minutes or other process-related documentation is absent, there is considered to be a regulatory and sanctionable breach. The preferable approach would be to interview key actors in the decision to ascertain whether they followed an appropriately informed and proper decision-making process, using inadequacies in documentation as supporting (and legally useful) evidence of poor process if the interview does not give the desired assurance. This requires structured interviews with key actors probing investment decisions that appear odd, unfortunate or poorly documented – **substance not form**.

The aim should be to determine whether there is strong investment governance most, or preferably, all the time, rather than to pick holes in documentation. As it is, one of the biggest complaints from AFOREs is that, to cover themselves, they need to provide members of their committees with vast quantities of documentation which no-one has the time to read. This does not appear to add value. That said, a review of documentation in advance of an inspection, coupled with analysis of investments, as now, would be an invaluable means of determining which questions should be asked and which decisions probed.

Currently, there are at least four different components of governance assessment within CONSAR:

- CONSAR senior management periodically meet the board and committees of each AFORE to communicate key messages and seek to understand how well governed the entity is. These meetings are not formally part of the supervisory process, but do enable CONSAR to obtain a subjective view regarding the quality of senior management in each AFORE.
- On-site inspectors interview managers and staff at AFOREs to ascertain the actions they take with regard to the vulnerabilities and other issues covered by the inspection, which may include issues of governance.
- The Surveillance Department assesses the quality of the regulatory controllers, in particular reviewing their planning documentation and reports.
- The Surveillance Department also reviews the content of investment and risk committee minutes against decisions that are evident from off-site analysis.

These processes should suffice to identify compliance breaches relating to governance, but unless every risk factor relating to governance is tested, they may not give full assurance that governance is effective. No-one is responsible for preparing an overall formal assessment of the governance of each entity, although in practice there appears to be a good understanding of the quality of governance at different AFOREs. Making an overall assessment of each entity would require someone to be charged with collating and analysing the evidence from all the different sources, including the high-level meetings, although it is not clear whether these are currently



structured to deliver evidence in a form usable for that purpose. It would help if structured interviews with the entity board, committees and key persons²⁰ were undertaken as part of the on-site inspection, by a team usually led by the general director or his/her deputy (at least until experience develops at lower managerial levels) rather than the superintendent, for whom this might be an excessive time commitment.²¹

Making an overall assessment of entity governance is necessary to enable the supervisor to place some prospective reliance on well-run entities to mitigate risks, and to identify serious problems requiring some form of intervention or at least enhanced monitoring. This reflects the reality that governance is both a mitigation and a risk. But if a formal risk model is used, it needs to be treated primarily as one or the other. Some supervisors, such as in the UK, treat it as a risk to be mitigated by education, guidance or intervention, but do not use a sophisticated risk model. Supervisors with sophisticated models tend to treat governance as a mitigation, either by assessing governance as it relates to risk factors (if there are only a few) or by applying an assessment of good governance as a discrete function to improve risk mitigation scores. CONSAR's approach could be seen as doing this to the extent that its overall compliance risk score includes a corporate governance component, although this is not formally used to determine how much attention needs to be given to each entity.

The existing corporate governance score could be used as input to the planning of how much inspection (or even surveillance) work should be undertaken at each entity, if CONSAR moved in the direction of defensibly varying the amount of work that way, as suggested in Section 4. The application of a governance score could be enhanced by:

- Undertaking a separate governance assessment focused on key governance principles, relying heavily on interviews preceded and followed up by checks of supporting documentation, as indicated at paragraph 5.6 above. This would be unavoidable if CONSAR adopts the recently proposed 18 risk factors, as they do not explicitly cover high-level governance.
- Separating the overall score into components relevant to different risk factors. For instance, a score relating to the processes for approving strategies and decisions would be relevant to risk factors relating to the mitigation of credit, market, liquidity and fiduciary risk through the fund's asset allocation. A score relating to board monitoring could be relevant to the practical implementation of investment mandates, while an assessment of the regulatory controller could be relevant to operational risk mitigation factors.
- Determining how much reliance can be placed on good governance to reduce supervisory attention to the better governed entities, incorporating a means of weighting the compliance or net risk scores of relevant risk factors according to the governance assessment. In Chile, this is described as a "transversal evaluation".

20. Experience shows that a better assessment of the calibre and involvement of key interviews is best obtained when they are interviewed singly. This could apply to the chairs of the board and its committees, the independent members and the chief executive, chief investment officer and chief risk officer. There are too many others involved in entity governance to interview them singly, but they might be interviewed in groups, maybe without senior officers present (who could help them give the "right" answers).

21. A detailed programme of interviews might not be needed annually at each AFORE, but would need to be repeated whenever significant changes in personnel occurred.



If more weight is to be placed on interviews, the question arises as to whether they can have evidential value where CONSAR wishes to apply a sanction. CONSAR has apparently attempted in the past to give interviews evidential status and has been met with strong resistance. In practice, it would be unusual for a supervisor to use interview evidence in this way. The purpose is much more to help the supervisor determine how much effort should be put into gathering other forms of evidence, and whether the entity can be trusted to take remedial action without the spur of some form of sanctioning. Hence, the evidence should be robust enough to convince CONSAR's management and audit that consequential decisions are appropriate and defensible, but not itself used in a legal process. Thus, it would not usually be appropriate to agree the records of meetings, except maybe the final meeting at the conclusion of an inspection, which is conducted to facilitate agreement of the inspection report.

5.3 ▶ Explaining supervisory expectations and evaluative criteria

The assessment of governance and risk mitigation requires the supervisor to have generally understood evaluative criteria. CONSAR's approach is based around the use of regulation for this purpose. A problem with this approach is that it is hard to define governance and risk management in enforceable regulation, as this can refer only to actions not intentions. Regulation can set out some basic requirements such as structure, qualifications, meeting procedures and information flows; but it is not flexible enough to cover more subjective criteria, such as influence by conflicting interests, understanding subject matter, timeliness of decisions or avoiding dominance by an individual or clique in sufficient detail to be enforceable. Furthermore, it is difficult for regulation to specify best practice without being unduly burdensome in cases where best practice is not appropriate (for instance, because an entity is small or unsophisticated). In practice, on-site inspections often seek to go beyond the minimum requirements of regulation, and meet obstruction because this is seen as being arbitrary.

An alternative approach is to have purposive principle-based regulation, as is the case in trust-law jurisdictions. This would probably be unenforceable in jurisdictions such as Mexico. Another alternative adopted across several jurisdictions more similar to Mexico is to issue guidance that interprets and expands upon regulatory provisions explaining what the supervisor expects of entities for internal or external use. This can take the form of principles, such as those in paragraph 5.2 above which are seen as mandatory (and could be included in regulation, albeit with little chance of being directly enforceable) supported by good practices to be adopted on a "comply or explain" basis. They have a two-fold purpose:

- To provide consistent evaluative criteria for supervisory staff, not replacing judgments but providing a commonly understood language for framing them. This could help to shift emphasis from sanctions to risk assessment.
- To share the supervisor's expectations of best practice with supervised entities and, if possible, obtain agreement to these so that the debate moves from the interpretation of requirements to the quality



of the supporting evidence. This would not replace regulation (except where it is over-detailed), but complement it.

Ideally, the content of the documents prepared for this purpose should differ only in tone and syntax, not substance. Indeed, supervisors might even use the external guidance for internal purposes.

Agreeing to the guidance with supervised entities should be done through consultation with the whole industry, with consultation responses published as a constraint over the entities, who presumably would not wish to be seen as publicly challenging good practice. On the other hand, it should enable a dialogue on what is proportionate and practicable and reduce the risk of CONSAR requiring disproportionately costly or impracticable processes or systems. Once agreed at the industry level, the board of each entity can be asked to sign up to follow the guidance. This approach has the advantage that guidance can be updated with experience. Good innovations developed by one entity can be disseminated across the industry.

The immediate priority would be to develop guidance relating governance, especially the ill-developed and defined role of the regulatory controller, which CONSAR is unable to rely upon as intended. Establishing more clearly the role of AFORE boards, and the nature of their fiduciary duties, would also be a priority. Other aspects of risk management where CONSAR and entities have failed to agree on interpretation would also be good candidates. Indeed, because CONSAR's governing objective refers to best practices in managing investments, a guide on that area would seem almost essential to discharge CONSAR's objectives.

Experience shows that guidance of this nature is best developed within the supervisory authority as a team approach, to harness experience from across the supervisory authority. Specialist experts could be hired to provide input where CONSAR is not fully expert, as well. Such an approach strengthens staff ownership and understanding and helps to embed the language of risk.

5.4 ► Conclusions associated with governance

CONSAR has a substantial focus on governance through its work to ensure compliance with the many regulatory requirements relating to governance. Being structurally and procedurally orientated, regulation by itself does not suffice to raise standards to the level that CONSAR should expect. Furthermore, the supervision of governance is diffuse and its assessment does not explicitly contribute decisions on how much inspection is needed at each entity. While some verification can be, and is, undertaken off site, much can only be assessed through on-site interview, which in turn demands considerable knowledge and skill on the part of supervisory staff. The section above sets out some ideas as to how CONSAR might improve its assessment of governance to take some reliance from it where appropriate. **It is therefore recommended that** CONSAR consider:

- Centralising the responsibility for assessing the governance of each supervised entity.
- Moving to greater reliance on structured interviews as the primary source of evidence on governance, albeit supported by documentary review.
- Enhancing the risk model methodology to enable assurance to be taken from good governance.
- Establishing principle-based evaluative criteria for governance assessment.



- Publishing the principles and supporting guidance on governance, having first consulted on it and, if possible, agreed on it with supervised entities.
- Extending published guidance to various aspects of risk management where regulatory interpretation is an issue.

CONSAR would should also consider whether some or all of the governance assessment programmes of the financial and operational vice-presidencies should be combined in some way to reduce the risk of duplication.



6▶ Using quantitative risk assessment tools

Globally, the most common use of quantitative tools in pension supervision is to assess pension fund solvency. This is not directly relevant to the pension funds that CONSAR currently supervises, let alone the financial vice-presidency. The use of quantitative tools to assess investment risk in DC funds is less common internationally, and CONSAR is a world leader in this regard. CONSAR has available substantial data and analytical software to undertake sophisticated analyses of pension fund risk and return profiles, as well as having access to the analyses that AFOREs are required to undertake.

CONSAR has set commendably high standards of investment governance for AFOREs consistent with the wide latitude allowed to the better ones in terms of asset classes and the use of derivatives. The most recent advances have been the requirement for benchmark portfolios alongside return and risk attribution. Many other asset class-specific analyses are also required of AFOREs for each fund along with credit risk modelling. These analyses go far to ensure the accountability of AFOREs to affiliates and, in particular, CONSAR. They supplement the requirement for IRNs, which have the unavoidable drawback that 7-year figures may not represent current performance while 1- or even 3-year figures may be unduly affected by market volatility. Still, requiring all these figures to be produced is assuredly best practice.

The quality of investment governance, analysis and reporting undertaken by AFOREs raises the question as to what CONSAR's own analysis can add, beyond cross-checking AFOREs' figures and providing figures to supervisors more quickly. This is a question that should periodically be asked by CONSAR management to avoid overburdening the AFOREs or having inefficient supervision. For a risk-based supervisor, the obvious answer is that the measurement of risk can help to identify where risks are not sufficiently mitigated. This suggests that explicit metrics should be calculated for each risk for input into the risk model, either by modifying the inherent risk weightings for relevant risk factors or factoring in the calculation of net risk (both options would necessitate a change to the way the model works). The latter option may be preferable because for some risks, the CONSAR-calculated metrics would need to run alongside AFORE analyses, such as performance against the benchmark portfolio, risk and return attribution and credit scoring.

It is unlikely that there will be a single metric for all risks. They would need to be compared with metrics for the equivalent funds of the other AFOREs and targets in AFORE strategy documents. Options for metrics are set out in Figure 5 below alongside some suggested risk definitions. These metrics would need to be supplemented by bespoke metrics relating to derivatives (such as cVAR).



FIGURE 5 ■ **RISK DEFINITIONS AND POTENTIAL METRICS**

RISK	DEFINITION	POTENTIAL METRICS
CREDIT	The risk of an issuer default or other event that permanently impairs the asset value of affiliate accounts	Extent of concentration and maximum exposure to a defaulting issuer or counter-party. This is supplemented by the results of AFORE credit modelling.
COUNTER-PARTY	The risk of a counter-party default that permanently impairs the asset value of affiliate accounts	
MARKET	The risk that a financial market fall is crystallised when an affiliate is transferring out of a fund having reached a relevant age, thereby reducing the affiliate's accrued benefits	Portfolio VAR compared with target for the fund and stress tests to identify risk from forced selling on standard market-related scenarios and to affiliates progressing to more conservative funds (or retirement from the most conservative)
LIQUIDITY	The risk that the fund has to sell assets at a loss to meet cash/transfer requirement, reducing its value	
FIDUCIARY	The risk that conflict of interest, lack of interest in fund performance, or lack of competence results in a fund's strategic asset allocation not being designed or implemented to optimise real terms net risk-adjusted returns for affiliates	Gross and net performance in real terms and the comparison between the two, deviation of portfolio composition from relevant mandates, a measure of investment churn by asset class, and comparison with a benchmark representing the industry average and maybe a crude benchmark portfolio of CONSAR's own. ²² This should be supplemented by review of AFORE return and risk attributions.

It is recommended that the vice-presidency consider how and what key metrics relating to investment risks should provide input to the risk matrix (bearing in mind that enabling this provides a further reason to change the matrix).

6.1 ► Placing reliance on AFORE models (notably for credit risk)

As investment portfolios and asset classes become more sophisticated, CONSAR will inevitably have to place more reliance on AFOREs' own models. The issue has arisen as to the extent that CONSAR should dictate the use of credit risk models for alternative asset classes where market pricing or credit ratings provide little guide. The following points could be made in this context:

- No model is perfect, and over-reliance on models can be dangerous. Hence, mandating a particular model exposes CONSAR to risk.
- Internationally respected models and those with a strong track record are to be preferred, as they expose CONSAR to less risk than if CONSAR requires bespoke solutions.
- What is important is that the right people – at a minimum, a credit analyst, CIO, CRO, independent counsellor and risk committee chair – can explain why the model was chosen, how it works, its potential limitations and how these are addressed.

22. Any in-house benchmark portfolio should be kept deliberately crude. The idea is that a well-run AFORE should easily beat it but it can highlight where net performance is weak, including where investment costs are excessive.



7► Regulation and proportionality of supervisory response

Under this heading one would expect to see a linkage between the assessment of risk and actions taken to mitigate it and supervisory response, with sufficient gradation of response to cover a wide range of responses between gentle advice and robust intervention. In particular, one would expect a clear understanding of what should happen when the way an AFORE is run is unacceptable to CONSAR or where there is a system-wide problem. The applicable regulation can enable or constrain the supervisory response to problems at individual entities. Hence, regulation and proportionality of response are considered together in this report. They are in any case both relevant to the role of the legal vice-presidency.

7.1► Regulation

Regulation does not fit easily within international models of RBS, as many supervisors are not also regulators. CONSAR, however, has the power to issue enforceable directions. Requesting the regulatory authority to issue or amend regulation can, however, be seen as one way in which a supervisor can respond to systemic problems that it finds.

The AFOREs complain about there being too much detailed regulation that adds to cost without adding much value. This would appear to be partially their own fault. The experience of CONSAR is that AFOREs tend not to make worthwhile changes unless a regulatory requirement is imposed on them. For instance, several years ago it became generally recognised that the IT system that AFOREs used to control and record investment activity was outdated, prone to error at its interfaces and could be unsustainable were the private company supporting it to go out of business. Hence, AFOREs and affiliates were exposed to unacceptable risk. CONSAR requested that AFOREs replace this system to no avail, and eventually felt constrained to regulate for its replacement (see paragraph 7.8).

This appears to indicate an unhealthy dependency culture which CONSAR should aspire to change. Consulting and issuing agreed guidance for comply-or-explain implementation, as recommended in Section 5, might be one way of encouraging AFOREs to take greater responsibility, as might efforts to strengthen the fiduciary responsibility of AFORE boards.

Mexican law and CONSAR practice now aim to ensure that regulation is only promulgated after being subject to cross-departmental review within CONSAR, external consultation and cost-benefit analysis. Furthermore, CONSAR must remove a regulation for each new one it adds, and is starting a review of its regulation to see how it can be streamlined. This should ensure that there is continued emphasis on regulating where there is significant risk that AFOREs cannot be trusted to mitigate (such as excessive charges or lack of transparency) but less so on processes with less risk that the AFOREs have a commercial incentive to undertake efficiently. Bearing in mind that excessive costs and the resulting charges to affiliates are among the greatest risks in the



system, it is important that regulation allow scope for innovation and improved efficiency rather than specifying processes in detail. Regulation should therefore set out principles and minimum enforceable standards, leaving the promotion of best practice to supervisory influence.

As it is, the large quantity of detailed regulatory requirements creates problems for CONSAR itself. There appears to be an expectation, particularly from CONSAR's auditors, that CONSAR should check whether all regulation is being complied with and take sanctioning action where there is non-compliance regardless of the assessed risk, even though CONSAR's legal objectives require such activity to be based on risk assessment. This inevitably gives CONSAR staff some incentive to focus on the most likely and easily detectable regulatory breaches rather than the highest risks. Publishing a regulation (or annex to regulation) such as the one in Chile that specified how RBS should work in practice might help to counter this pressure.

In the longer term, it could be helpful to rephrase regulation around expectations that AFOREs must demonstrate compliance with, so that they decide what documentation is needed to avoid a legal breach and the absence of such documentation becomes an issue only if the AFORE is not meeting CONSAR's expectations (and hence, not mitigating risk effectively). Rather than having to provide documentation on everything in advance of a committee meeting, an AFORE would just need documentation to justify decisions that CONSAR considers may have failed to mitigate risk. This is how trustee knowledge and understanding is regulated in the UK. There is no legal requirement to generate any documentation for legal compliance, but if the supervisor considers that a decision runs counter to one that a knowledgeable trustee board should take, the pension fund may be required to demonstrate that it has taken actions to ensure all trustees are sufficiently knowledgeable. The regulation requires that they should be able to do so, and defines what might constitute evidence.

The regulation developed in response to the failure by AFOREs to upgrade their investment IT capability provides a useful case study, especially as AFOREs cited it as an example of CONSAR asking for something (the Integrated Automated System) that adds more cost than value. It is agreed that what regulation specifies is beyond what the available software, such as Aladdin, can deliver unmodified, and therefore goes beyond what fund managers in the rest of the world consider to be necessary. To be fair, CONSAR staff appeared to receive unjustified assurances that the software could deliver the additional requirements. However, CONSAR's document runs to over three pages of specific regulation that place substantial requirements on functionality. For instance, the specification requires at least 14 different types of risk management functionality, apparently so that effectively all risk management can be undertaken by the one system. The requirements relating to the inclusion of credit risk analysis within the system have apparently proved particularly controversial. In practice, the supervisor needs only to check that there are credit risk assessment processes of appropriate sophistication that use the right data and the output from which are used properly. The decision as to whether integration within other systems is worthwhile should surely be left to management. Similarly, requirements for end-to-end processing, also contentious, are arguably desirable rather than essential features.

The motivation for the specification appears to be as much to make supervision more thorough as to make the AFOREs more efficient. It would have been better to set a purposive specification for the IT support provided to investment with some specific minimum requirements that could readily be met from internationally available software. If some AFOREs proved able to comply with the regulation without having a strong enough system, regulation could then have been enhanced with requirements equivalent to those implemented by



the better AFOREs. This reiterates the point that regulation should concern itself with minimum safeguards, leaving supervisory pressure and fiduciary responsibility to drive best practice.

6.10 The other major concern of the AFOREs is the pace of regulatory change. It has indeed been the case that much new regulation has come into force in the last few years. This imposes a cost on the AFOREs and makes it hard to secure full compliance; indeed, it would appear that some AFOREs do not even try very hard in this respect. In view of difficulties of interpretation and in achieving full compliance, there would be a case for halting new regulation until guidance has been issued and agreed on (see Section 5), or at least limiting it to where this is significant affiliate detriment. It might be worth trying to persuade AFOREs that the burden of regulation would be lifted in exchange for a more positive approach to doing the right thing regardless of whether it is specifically a regulatory requirement.

7.2► Gradations of supervisory response

In evaluating supervisory response, two questions need to be answered: Does CONSAR have sufficient gradation of powers to make the response proportionate to the risk; and does it have a methodology to enable such gradation? The first of these questions is considered in this sub-section. The following gradations might be expected, starting from the lowest risks and working upwards on an enforcement pyramid:

- **Advice to entities without any sanction.** This is possible for CONSAR even where a legal breach is found by issuing an *aviso de conocimiento*. In practice, it appears that this is not often used by the financial vice-presidency, and is rarely used for breaches found on site.
- **Waiver of a sanction if agreed remedial action is taken within a specified time period.** This is a less common power worldwide, but can either be used semi-formally or, as in Brazil, be given legislative authority. CONSAR does not have this power, although there is a substantial discount for sanctions where breaches are self-reported, which should at least provide AFOREs with a good incentive to have effective mechanisms designed to detect regulatory breaches. Some small adjustment to or reinterpretation of the wording of this provision might make it applicable for breaches where the entity immediately agrees to remedial action regardless of who finds it.
- **Direction to take remedial action accompanied by a fine.** CONSAR makes considerable use of this power, although failure to implement the remedial action would attract a further fine only if there was a further breach.
- **Additional inspection to follow up implementation of directions.** CONSAR's stated policy is that a regulatory compliance score of under 100/122 can result in additional inspection, which could well act as a stronger incentive for managers than small fines. It is not clear whether the inspection department is resourced to undertake such inspections, but could be with more sophisticated planning and prioritisation as suggested in Section 4.
- **Written warning that a person will be removed from office if breaches continue.** CONSAR has this power and uses it.



- **Suspension or removal of individuals.** CONSAR has used this power in relation to trading irregularities.
- **Managerial intervention.** CONSAR has this power but has not used it.

CONSAR therefore appears to have nearly the complete range of powers to provide gradation of response – the one probable exception being a power to waive sanctions, and even that might be feasible with innovative interpretation. The next question is whether that gradation is used effectively: too often, supervisors tend to default to a standard response to problems found regardless of the extent of risk involved. The use of powers against individuals involved in trading irregularities suggests that there is indeed some discrimination. But there are questions at the top and bottom ends.

The power to remove or substitute board members or senior managers where there is a corporate failure exposing affiliates to serious risk is one that is used effectively in jurisdictions such as the UK and the Netherlands, enabling rapid effective intervention in high-risk situations. There is a case for saying that CONSAR should have considered such action against one AFORE that has, at least until recently, been entirely invested in short-term instruments to the significant detriment of affiliate returns. The problem for CONSAR has presumably been that there was no specific breach of law that could be invoked. Some pressure could be applied in such cases through the “Al Capone” approach²³ of sanctioning the significant number of procedural breaches likely to accompany a poor strategy, but ultimately stronger powers were probably necessary, for which there are two options to consider:

- Emulate Chile and Colombia by making it a sanctionable offence if the fund for younger workers (and maybe some aggregation of all funds) persistently under-performs the average. This can have negative side-effects such as herding, but should prevent really bad investment strategies or decisions; or
- Require AFOREs to follow investment best practice and set out expectations of what this constitutes in guidance supported by some minimum requirements in regulation. This is in a sense principle-based law, which is considered extremely hard to enforce in the Mexican system. But if, say, the minimum requirements included several analyses, among them an analysis of past return data for all legal asset classes with a range of durations, an asset allocation optimisation analysis, and back-testing of the strategic asset allocation; and if they required the board to give good reasons why the results of such analysis should be ignored, this would start to apply pressure. Further pressure could be exerted through threatening to remove independent board members for lack of expert input. So, while these powers might be insufficient actually to change the board in this circumstance, the threat and aggravation consequent upon them might be enough to persuade those running the AFORE to change behaviour. What is often sufficient is not that the supervisor has a certain prospect of using a power successfully, but that the entity perceives some risk that it might be used successfully. Furthermore, the publicity generated by a court case where CONSAR cites poor results for affiliates in evidence may be cause for more embarrassment than the AFORE can tolerate.

23. The “Al Capone” approach involves finding specific legal infractions that can be used in lieu of enforcing the principle that is of most concern to the supervisor – Al Capone was convicted of tax evasion rather than being a gangster.



In either case, managerial intervention should be a power useable where CONSAR can demonstrate significant affiliate detriment.

CONSAR's current default approach to supervisory response when problems are found at AFOREs appears to be applying sanctions for regulatory non-compliance wherever breaches have occurred, with other non-sanctionable issues included in inspection reports. The level of sanction can vary according to the level of detriment, but supervisory staff take the view that they have no option but to pursue sanctions. This is not because the law itself requires it – the legal vice-presidency is confident that it does not, and indeed legal compliance is subject to risk assessment – but because CONSAR's auditors are said to require it and have the power to apply sanctions to any individual who fails to take action on a sanction. It is understood that they have asked questions to ascertain that action is taken. This understandably makes supervisory staff cautious. That said, because the current methodology is focused on sanctions, staff may in any case have an incentive to find sanctionable breaches to demonstrate their effectiveness and may therefore overemphasise the risk posed by the auditors.

The consequence is that CONSAR takes action on large number of very minor breaches. The legal vice-presidency report that of the 182 cases raised in 2016, 49% related to delayed or mistaken information, 42% represented failures to conform with formalities connected with the investment regime and 8% represented accounting and book-keeping issues. Some of these might represent powers being used for “Al Capone” purposes to underpin a more serious non-sanctionable failing, but in the legal vice-presidency's view, most of these are trivial. This has significant consequences. The Mexican legal system is very strict regarding the documentation and evidence needed to support a prosecution. In the past, this has resulted in CONSAR losing cases on a technicality.

The legal vice-presidency therefore overhauled the process to ensure that it generates robust cases. But this also means that considerable effort and paperwork is needed for each case, and may well have contributed to delays and overwork in delivering the inspection programme. Hence, there is a substantial opportunity cost and potential negative impact from the strong focus on sanctionable breaches. It should also be noted that analysis by the legal vice-presidency shows that many areas of compliance do not seem to be addressed by inspection reports (see also paragraph 4.20). This suggests that the breaches found may not be driven by an assessment of risk across supervised entities, but rather by a search for easy compliance failures.

The process is reinforced by a committee in which legal and supervision staff review the evidence available for each breach to determine whether there is sufficient evidence to support a successful prosecution and to calibrate the level of fine according to the level of detriment. In most cases, little or no detriment is found. This is a good means of helping to secure consistency, and it could more explicitly use an approach similar to that in Figure 4 above. It is unfortunate that the legal vice-presidency considers that it can only reject a case due to inadequacy of evidence rather than inadequacy of impact. Otherwise, this committee could be used to eliminate cases which are disproportionate as well.

That said, the process for eliminating such cases should preferably start much earlier, with evidence of breaches being sought only where other evidence suggests a material risk that needs to be remedied. Where cases are found, heads of department or the general director should have the authority to authorise an *aviso de*



conocimiento where the case would be disproportionate, bearing in mind the level of risk and amount of documentation that would need to be generated. Moving such decisions to a senior level, which might beneficially be undertaken by a committee, would remove the risk of more junior staff being intimidated by the auditors. Such approaches would be more defensible if:

- CONSAR produced a regulation (or annex thereof) that explained the supervisory approach and the way that risk assessment underpins how compliance failures are treated on the basis of risk assessment, as already recommended; and
- There were a more explicit means of using risk assessment to inform supervisory response (next sub-section).

7.3 ▶ Deciding on the appropriate supervisory response

For a set of graduated powers to be used effectively and fairly, there also need to be robust processes for ensuring that supervisory responses are proportionate with risk assessments. Other countries that apply RBS (notably Australia, Canada and Chile) use entity risk assessments to derive a supervisory response, often using a matrix of impact and probability which may be the same as that used for planning purposes. In CONSAR's case, this is to some extent done using the compliance assessment scoring. As already mentioned, this is not itself a risk assessment tool; strictly speaking, the connection between residual risk and supervisory response is indirect, and for the reasons considered above, tenuous.

A fairly standard model applied elsewhere (with variations) has the following stages:

1. The supervisor establishes criteria for evidence that defined risks are being effectively mitigated, preferably in the form of guidance to supervised entities which encompasses, but is not limited to, regulatory requirements.²⁴ This includes principles that must be applied and good practices that can aid compliance with them.
2. The supervisor assesses risk probability by reviewing compliance with the criteria along with any evidence of negative impact (outcomes), and uses a supervisory response matrix or formula to determine the level of supervisory response.
3. This response is applied, and only involves sanctions at the higher levels of response. In the event that sanctions are considered appropriate, the supervisor assembles evidence of legal infraction to support the action.

The philosophy can be expressed as: “educate, orientate and enforce”, as follows:

- First, the supervisor seeks to ensure that supervised entities have a shared understanding of what they need to do to discharge their fiduciary duties to manage the risks that the supervisor cares about effectively.

24. It is possible for the whole guidance to be given some regulatory status (although this may not be enforceable).



- Second, through feedback to entity management following supervisory processes, the supervisor provides 1:1 specific guidance on how good practice should be applied to ensure compliance with fiduciary duties as described in supervisory principles, requesting an action plan, and monitoring its implementation.
- If, exceptionally, an entity refuses to cooperate or wilfully or negligently puts the supervisor’s objectives in serious jeopardy, the supervisor takes whatever enforcement action is needed to compel compliance. This may be an intervention rather than fines. The assumption is that such action will be fairly unusual, as entity management will usually wish to do their best for affiliates in line with their fiduciary duties except where there are commercial incentives. Otherwise, changing the incentives is probably more effective than enforcement.

CONSAR already colour codes the four risk factor areas of its risk matrix, which could provide a suitable input to decisions on response, albeit a rather crude one. Such is the variability of performance, that arguably CONSAR should be contemplating managerial intervention at the weakest AFOREs while waiving all sanctions at the strongest. In fact, the resources needed to apply strong pressure on the weakest might even preclude annual inspections of the strongest. Moving to 18 risk factors would enable a more nuanced approach, as would scoring net risk rather than compliance.

As well as a graduated scale of sanctions that provides a “stick” incentive for change, a supervisor can also seek to use “carrot” incentives. CONSAR already does this through reduced fines for self-reporting and “earned autonomy”. In CONSAR’s case, this latter concept is applied through permissions to AFOREs to use more sophisticated investment techniques where they have been assessed as having strong enough investment governance. This also could be tied more rigorously to the CONSAR risk assessments, which might reduce or eliminate the need for special inspections to verify specific aspects of governance. Another incentive used elsewhere, for example in Costa Rica, is for AFOREs’ regulatory capital to be linked to risk assessment. Promising less intrusive supervision (off site²⁵ and on site) where an AFORE is well assessed could provide a further such incentive, which should follow naturally if the recommendations in Section 4 are adopted.

7.4 ► Conclusions on regulation and supervisory response

The key point is that supervisory response should be seen as a means of effecting change in AFORE behaviour. This perspective seems to have been clouded. With 192 compliance failures a year potentially generating fines, the emphasis on sanctions is liable to be seen by AFOREs as the cost of doing business rather than a spur for change. And there is a risk that the majority of risk factors, for which sanctions are not readily enforceable, receive less attention despite including vital developments such as improved regulatory controllers and benchmark portfolios. The development of regulation is perceived as overly burdensome due to rapid change with a focus on detailed direction and enforcement rather than influencing change through good, well-informed governance. Too much regulation inevitably pushes towards too much enforcement effort.

25. Including approval of amendments to the risk manual.



On the other hand, at least one AFORE may have merited a tougher response than it received. CONSAR has been successful, as acknowledged by AFOREs, in driving up standards of professionalism and improvements in investment process through exhortation and granting approvals only where standards are high enough. CONSAR would benefit from taking a strategic approach to influencing entity management more generally. Where there are systemic weaknesses, CONSAR needs to work out strategies for persuading supervised entities to change by providing incentives and identifying whether serious threats can be made. Where there is significant affiliate detriment, CONSAR should ensure remediation where possible and apply sanctions. Otherwise, the emphasis should be on obtaining agreement to proportionate changes. All decisions on response should be grounded in a well understood and robust risk assessment methodology.

It is therefore recommended that CONSAR should:

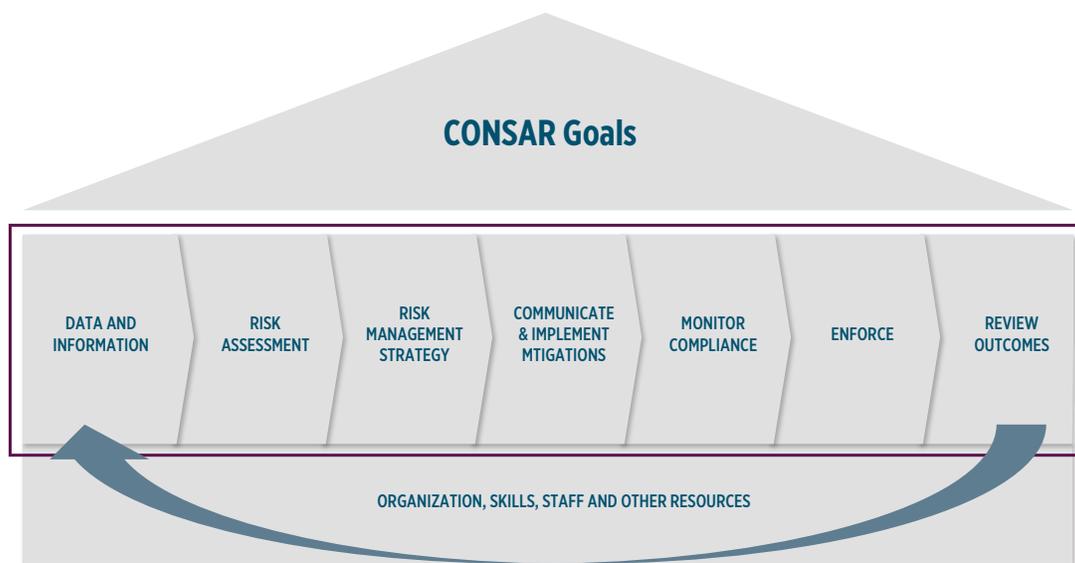
- Avoid over-prescriptive regulation which runs the risk of increasing industry costs, and therefore ultimately reduce net investment returns for affiliates.
- Consider deferring any new regulation that is not essential to prevent affiliate detriment until it is agreed how existing regulation and CONSAR's expectations regarding fiduciary duty and best practice in investment should be implemented.
- Become more explicit about what AFORE behaviours most need to change and focus on using supervision results to underpin the influencing strategy adopted for each.
- Explore how it can use or threaten to use its powers against AFOREs that seriously jeopardise affiliate benefits or system reputation/stability.
- Take forward sanctions only where risk assessment shows a systemic issue or associated tangible affiliate detriment, making much greater use of the *aviso de conocimiento*. This would make these decisions subject to committee review and high-level authorisation and consistent with the RBS regulation.
- Provide an explicit connection between risk matrix scores for net risk and level of supervisory response and various forms of earned autonomy.



8 ► Organisational issues

Delivering RBS also requires an effective organisation, as can be illustrated by the concept of the value chain for the achievement of CONSAR's goals in Figure 6 below.

FIGURE 6 ■ SUPERVISION VALUE CHAIN



The stages in the value chain are as follows:

1. **Data and information** obtained from supervised entities and derived from CONSAR's analysis should be sufficient in terms of quantity, quality and periodicity to enable the assessment of risk but nothing more. Obtaining and retaining unused data is inefficient and exposes to the supervisor to risk.
2. **Risk assessment** evaluates available data and information from a sufficiently wide range of sources to identify where resources need to be prioritised, in particular where the assessed risk is greater than CONSAR's risk tolerance. The assessment should define the risks in the pension system and consider both the probability and impact of the risks.
3. For each risk area that poses a serious threat to the achievement of CONSAR's objectives, there should be a **risk management strategy** for reducing or maintaining risks at a tolerable level by deploying the various supervisory and regulatory tools available. Each strategy should also indicate how success is measured. The extent to which each strategy is formally articulated depends on the seriousness and extent of the risk. The strategies could combine to form an overall strategy for supervision as a component of the organisation's budgetary and planning cycle.



4. Having determined what mitigations are needed by CONSAR and supervised entities to achieve CONSAR's strategy, it is necessary that strategies be **communicated and implemented**. This should include actions such as changes to regulation or public communication campaigns that are directly within entity control. Entities should be clear what is expected of them, and should be in agreement, at least as far as their objectives are aligned with CONSAR's.
5. **Monitoring compliance** encompasses off-site and on-site processes to assess the extent to which the entities comply with CONSAR's expectations. The governance and risk management processes of supervised entities, especially their regulatory controllers, can hopefully be seen as first-line supervision in this regard. Hence, a key supervisory focus should be on those processes. Where inherent risk is high, such as for investment, direct verification is prudent, especially where the incentives in the system are insufficient to align entity objectives with CONSAR's, most notably regarding fees and mis-selling.
6. **Enforcement** refers to the proportionate supervisory response to identified risk and compliance (as considered in Section 7).
7. The **review of outcomes** completes the cycle and provides an important input for the risk assessment and strategy processes. It tends to be a neglected area at many supervisory authorities, not least because it can be methodologically challenging.
8. The essential underpin for all the activities within RBS is having an **organisation, skills, staff and other resources** sufficiently provided and aligned to enable efficient and effective supervision. There are many ways in which supervisory authorities can be organised, but crucially there should be mechanisms to enable different functions to readily communicate what they need to each other so that there are seamless hand-offs at different stages in the value chain. In relation to staff and skills, there should be clear specifications of what is required of staff in each department underpinning recruitment, training and appraisal. Staff should be deployed according to supervisory priorities.

Many of these points have already been covered earlier in this report. A few further points are worth making at this stage.

- If surveillance activity becomes more risk-based, the frequency or even scope of routine **data collection may be reduced**. We recommend that this should be kept under review and that CONSAR should restrict ad hoc data requests not associated with an on-site inspection to cases where there is a serious risk if data are not obtained immediately.
- CONSAR's perspective on the inherent **risk landscape** is not clear. Consequently, there are no explicit strategies for effecting change to mitigate risks. CONSAR may well be doing the right things for the right reasons, and senior management do appear to have a clear strategy. But it could gain greater traction internally and externally if it were explicit and communicated to staff and supervised entities.²⁶ It has already been recommended that there should be a published annual corporate plan for the financial vice-presidency (at least) articulating CONSAR's perception of risk and strategies for addressing it.

26. Of course, there might be strategies that management might wish not to disclose such as those regarding industry structure, but it may be possible to advance these indirectly through explicit strategies that are consistent with them.



- The changes to the **risk assessment methodology** considered earlier in this report could provide a consistent means of assessing risk, communicating risk, verifying risk mitigation and determining supervisory response. This would represent the foundation for the value chain as far as it relates to risks mitigated at entities. The assessment of investment risks should be an explicit component within the assessment process and should also enable CONSAR to measure the progress made towards mitigating risks as an input to supervisory strategies.

Turning to organisation and staffing, the emphasis that CONSAR has placed on the professionalization of AFORE staff increases the importance of CONSAR itself having overt professionalization in its supervision staff. In practice, many CONSAR staff members have obtained or are studying for appropriate qualifications, so good progress is being made. **A public statement** in this regard would respond to those in AFOREs who claim to see a discrepancy between the expectations CONSAR places on them and its own staff, and it is recommended that this be done.

Any organisational structure which allocates supervisory responsibilities between different departments will inevitably experience overlaps of responsibility, and CONSAR's is no exception. Apart from the duplicate checking of compliance with quantitative limits, the most obvious issue is the absence of a single responsibility for assessing entity governance. Coordination between on-site and off-site assessors is always a potential issue, but the coordinating committee appears to address this effectively, and the legal case review committee is another good innovation. Both these committees could take on wider roles to promote consistency in decisions responding to risk assessment.

Other requirements for the structure to work effectively are:

- Resource needs must be assessed using, and staff should be allocated on, the basis of risk assessment.
- Staff should work flexibly across boundaries as the need arises.
- The case management (incident) system must be used by the whole of the vice-presidency, as currently planned.
- Most importantly, there must be a common understanding and language of risk arising from corporate ownership of the risk matrix and risk mitigation strategies, as already recommended.

Finally, as already emphasised in this report, there would be value in the vice-presidency seeking to foster a more collegiate approach to risk assessment and decision-making. This can build on the committee structure that is already in place, for instance through team meetings during the on-site inspection process. This should enable a broader understanding of the objectives and methodology of supervision and how risks should be mitigated and reduce the dependency on a few key individuals.



Appendix 1 ► List of recommendations

1. CONSAR should prepare a public articulation of its methodology for RBS and how this implements its objectives (paragraph 2.11).
2. CONSAR should formally map the risk landscape to have a shared articulation of the risks to its objectives and therefore pension system outcomes, and include an overview in its explanation of its RBS methodology or annual report (paragraph 3.29).
3. The vice-presidency should move to a smaller set of risk factors defined in terms of risk mitigations, with risks to regulatory compliance being a subset of each factor as appropriate (paragraph 3.29).
4. The vice-presidency should move to a more transparent methodology for assessing inherent risk weightings related to the risk landscape (paragraph 3.29).
5. The vice-presidency should define the output of the risk matrix in terms of net risk rather than level of compliance, considering a move to a 4-point scale and transversal evaluation of governance as one or more additional factors applied to assessing net risk (paragraph 3.29).
6. The Risk Management Department should produce metrics specific to the key investment risks in CONSAR's model (plus fiduciary risk) as an input to risk assessment. It should stop approving amendments to risk manuals at the better AFOREs (at least), and have sole responsibility for monitoring breaches of quantitative limits (paragraph 4.38).
7. The coordinating committee should be provided with formal terms of reference that specify how decisions are taken on a risk basis and broaden its remit to more explicitly draw or affirm conclusions regarding risk assessment and supervisory response at the entity and systemic levels (paragraph 4.38).
8. In particular, issues found at AFOREs should only receive immediate attention if they are, or are likely to be, systemic or result in a tangible negative impact (paragraph 4.37).
9. The focus of surveillance and inspection activity should be on seeking assurance that risks are being effectively mitigated rather than on sanctionable breaches, which should just be seen as evidence of risk materialisation or as an influencing tool where risk mitigation requires improvement (paragraph 4.38).
10. Ownership of risk factors in the risk matrix should therefore be disaggregated to the teams gathering evidence for each risk factor, under oversight of the coordinating committee (paragraph 4.38).
11. The allocation of staff between supervision departments should be explicitly based on a planning process that prioritises activities according to risk. This process should use the scores for risk factors at each entity derived from the risk matrix as much as possible, with periodicity of attention correlated with the level of risk (paragraph 4.38).



12. In particular, the scale of inspections at AFOREs should vary according to the number of risk factors (or sub-factors) needing attention, with the current approach to vulnerabilities incorporated within the analysis. All risk factors should be inspected occasionally unless there is sufficient evidence off site and from entity governance to justify their omission. Hence, each inspection should probably cover one or two lower-risk factors as well as those factors that merit the most attention (paragraph 4.38).
13. Risk-based resource prioritisation would necessitate greater flexibility of staffing between departments. This would require training, particularly more effort to build common understanding of risk and process. Staff guidance on what represents good risk mitigation and the sources of evidence needed for each risk factor would help underpin such flexibility and reduce the risk of inconsistency (paragraph 4.38).
14. The vice-presidency should make more use of pre-populated IT templates could help streamline and expedite the inspection documentation process (paragraph 4.38).
15. CONSAR should review the concept of the prospectus with a view to replacing it with something more user-friendly and removing the requirement for approval of any document that refers to a fund's investment strategy (paragraph 4.38).
16. The vice-presidency should centralise the responsibility for assessing the governance of each supervised entity (paragraph 5.19).
17. CONSAR should move to placing greater reliance on structured interview as the primary source of evidence on governance, albeit supported by documentary review (paragraph 5.19).
18. The vice-presidency should enhance the risk model methodology to enable assurance to be taken from good governance (paragraph 5.19).
19. CONSAR should establish principle-based evaluative criteria for governance assessment (paragraph 5.19).
20. The vice-presidency should publish the principles and supporting guidance on governance, having first consulted on them and, if possible, agreed to them with supervised entities (paragraph 5.19).
21. The vice-presidency should extend published guidance to various aspects of risk management where regulatory interpretation is an issue (paragraph 5.19).
22. The vice-presidency should consider how and what key metrics relating to investment risks should provide input to the risk matrix, bearing in mind that enabling this provides a further reason to change the matrix (paragraph 6.5).
23. CONSAR should avoid over-prescriptive regulation, which runs the risk of increasing industry costs and ultimately reducing net investment returns for affiliates (paragraph 7.27).
24. CONSAR should consider deferring any new regulation that is not essential to prevent affiliate detriment until it is agreed how existing regulation and CONSAR's expectations regarding fiduciary duty and best practice in investment should be implemented (paragraph 7.27).
25. CONSAR should become more explicit about what AFORE behaviours most need to change and focus on using supervision results to underpin the influencing strategy adopted for each (paragraph 7.27).



26. CONSAR should explore how it can use or threaten to use its powers against AFOREs that seriously jeopardise affiliate benefits or system reputation/stability (paragraph 7.27).
27. CONSAR should take forward sanctions only where risk assessment shows that there is a systemic issue or associated tangible affiliate detriment, making much greater use of the aviso de conocimiento. This would make these decisions subject to committee review and high-level authorisation and consistent with the RBS regulation (paragraph 7.27).
28. The vice-presidency should provide an explicit connection between risk matrix scores for net risk, the level of supervisory response and various forms of earned autonomy (paragraph 7.27).
29. Routine data requirements should be kept under review, and CONSAR should restrict ad hoc data requests not associated with an on-site inspection to cases where there is a serious risk if data are not obtained immediately (paragraph 8.3).
30. CONSAR should issue a public statement regarding the level of professionalization it expects of its supervisory staff (paragraph 8.4).



Appendix 2 ► Terms of reference

Background

Established in 1959, the **Inter-American Development Bank (IDB, or Bank)** is the main source of financing for economic, social and institutional development in Latin America and the Caribbean. It provides loans, grants, guarantees, policy advice and technical assistance to the public and private sectors of its borrowing countries.

The PLAC Network's main objective is to improve the institutional and technical capacity of pension institutions in the Latin America and Caribbean region. This Network provides technical support for member countries with the following specific activities: (i) supporting the areas of regulation and supervision of pension systems; (ii) providing technical support to pension policies with emphasis in coverage, sustainability, adequacy, equity and efficiency of pension systems; and (iii) fostering experience exchanges between countries in and outside the region. The PLAC Network provides technical support for policies and regulations with a long-term horizon, focusing on strengthening human capital and governance.

The Mexican defined contribution pension system was created in 1997. It currently has 57 million savers (20 million regular contributors), 11 pension providers and \$140 billion in assets under management. During the past years, CONSAR's regulation and supervision have gradually migrated from a norm-based to a risk-based framework. Nevertheless, the transition process remains open and still has important areas of improvement. Due to the increasing complexity of financial instruments and volatile market developments that have influenced the performance of pension funds, it is critical to strengthen the RBS regulation and methodology of the Mexican pension fund regulatory agency, CONSAR.

Consultancy objectives

The main objective of this consultancy is an evaluation of its risk-based supervision (RBS) regulation, methodology and implementation process with the purpose of strengthening its overall RBS framework.

The specific objectives of this consultancy are the following:

- Evaluate CONSAR's overall RBS regulation and its supervision methodology in accordance with international best practices, and provide recommendations on both areas.
- Evaluate the consistency of CONSAR's risk measurement methodology, and provide an assessment of CONSAR's pension funds ranking obtained from this methodology. This evaluation should provide recommendations to make more appropriate comparisons between pension funds.
- CONSAR would like specific recommendations regarding some topics of its regulation:
 - i. Its credit risk models and prudential limits framework;
 - ii. Its corporate governance framework.



Main activities

The selected candidate will:

- Prepare a literature review regarding international best practices in risk-based supervision;
- Review available materials, provided in advance by CONSAR, with translations where possible. These should include any RBS regulation, manuals, risk analyses, matrices and assessment criteria, the latest supervision plan for CONSAR and information about any guidance materials provided to supervised entities including regulations.
- Perform an initial expert presentation to management and another to relevant staff on the methodology for the evaluation and the information needed, in the latter case focusing on the approach adopted to risk assessment;
- Perform expert interviews with CONSAR's management team, supervisors and legal department;
- Perform an expert-led workshop with CONSAR front-line supervisory staff and their management on the activities involved in on-site supervision and results achieved;
- Perform an expert-led workshop with CONSAR staff and management involved in financial analysis of supervised entities, particularly affiliate investments;
- Perform an expert-led workshop on the application in practice of the risk assessment methodology;
- Perform expert interviews with the management of at least three pension funds;
- Perform an expert meeting with senior management at the conclusion of the visit to discuss emerging findings;
- Prepare a draft report with diagnosis and recommendations in accordance to the specific objectives mentioned above;
- Run a workshop at CONSAR with supervisors to explain recommendations.

Reports/Deliverables

Deliverable 1: First draft report following review of the material submitted by CONSAR

Deliverable 2: Report after visit to Mexico and literature review regarding international best practices in risk-based supervision;

Deliverable 3: Final report.

Every report must be submitted to the Bank and to CONSAR in an electronic file. The reports should include cover, main document, and all annexes. Zip files will not be accepted as final reports.



Appendix 3 ► System outcome metrics included in the Annual Report of the UK Pensions Regulator

1. Increasing participation and amount of savings in workplace pensions (coverage)
2. Increasing income in retirement and the proportion of income from workplace pensions (adequacy)
3. Increasing confidence in workplace pensions (sustainability)
4. Increasing members of DB schemes receiving their promised benefit entitlement (security)
5. The continued protection of the Pension Protection Fund²⁷ (security)
6. Increasing capability and competence of trustees and others who govern pension schemes (efficiency)

27. The Pension Protection Fund (PPF) is a State-sponsored compensation fund for affiliates of DB plans whose sponsoring employer has gone into liquidation with an underfunded pension fund.



Appendix 4 ► Highest risks as identified by CONSAR staff in the introductory session

Whilst all of these risks can be seen as risks to CONSAR achieving its objectives, only some (asterisked) are also directly risks to pension system outcomes. In several cases, two different groups identified closely similar risks which have been combined and marked “(2)” – hence, 14 risks have been captured.

Highest risks (HH)

- The credibility of and confidence in the system has been lost because in the absence of broader financial awareness, a savings culture and increased contributions. Affiliates receive less pension than they expect. (2) *
- Affiliates take poor decisions regarding their investment or level of saving because they have a poor understanding of how the system works, resulting in reduced benefits at retirement. *
- Investment decisions are compromised by conflicts of interest because AFOREs do not apply the ethics code in practice, resulting in reduced investment returns and reputational damage to the system.*

Medium probability, high impact

- The limited supply of financial assets eligible for pension fund investment within existing regulatory restrictions – for instance, a 20% limit on foreign securities or barring of certain asset classes – results in restricted diversification, asset bubbles and reduced investment returns, and lesser affiliate benefits in the longer term. (2)*
- A catastrophic IT infrastructure failure compounded by poor system resilience results in high-profile inability to deliver services to affiliates, possible miscalculation of benefits, reputational damage and a threat to AFORE viability.*
- Pension fund investment strategies lack a longer-term perspective, which results in reduced investment returns and affiliate benefits.*

High probability, medium impact

- The absence of regulatory authority or availability of analytical tools limits the scope of CONSAR surveillance activities such that risks are not identified and mitigated in a timely manner. (2)



Low probability, high impact

- Ambiguity or lack of definition in investment policies results in implementation that causes avoidable losses or lower returns to affiliates.*
- A financial crisis results in systemic contagion of the pensions sector, for instance through the bankruptcy of an AFORE or custodian parent companies, with reputational and service delivery consequences for the pension system.*

Medium probability and impact

- A weak culture in AFOREs regarding compliance with regulation or internal manuals results in frequent breaches, which could sometimes impact the benefits delivered to affiliates or system reputation as well as making it harder for CONSAR to achieve its objectives. (2)
- Insufficient powers frustrate CONSAR efforts to reduce the vulnerability of AFOREs to poor governance by their committees, resulting in decisions or lack of oversight that compromise the benefits of affiliates or the reputation of the system.
- Inadequacy in the process to ensure that AFORE personnel are fit and proper results in poor outcomes.

High probability, low impact

- AFORE regulatory controllers do not properly assess risks, resulting in endemic failures of compliance or system procedures which prevent CONSAR from achieving its objectives.
- CONSAR delays in granting AFOREs certifications to invest in some types of instruments delay the benefits obtained in improving returns or reducing risks, with a small impact on affiliate benefits.



Appendix 5 ► Literature review regarding international best practices in risk-based pension fund supervision

In a review of this kind, it is best to start with some definition of terms, in particular supervision. *Supervision* is “the mechanisms and systems used to monitor the implementation of regulation and to take enforcement action if [regulatory] expectations are not being met”. This contrasts with *regulation*, “the framework of rules, principles, and guidelines that set out expectations for the way the pension system will work”²⁸. Used together, regulation and supervision reinforce one another; using one without the other is unlikely to be effective.

However, whilst there is a large body of literature on regulation, the amount of literature on supervision is lesser, and the amount on risk-based pension fund supervision (or indeed RBS of any kind) even lesser, other than numerous country-specific case studies. Furthermore, much of the available material is descriptive rather than normative, and the normative literature may have a partial perspective. It is therefore helpful to start with some of the literature on RBS in general, then consider the basic concepts as applied in insurance and banking supervision before moving on to pensions.

The pensions material starts with a review of generic publications on risk-based pension supervision in general and the IOPS RBS toolkit in particular, providing some themes to help structure insights from the wide range of available country-specific case studies.

Given the nature of the expected audience,²⁹ the focus is more on defined contribution (DC) pension systems; literature on the specifics of defined benefit (DB) pension solvency is not covered. Decisions on which points to highlight from the various literature inevitably reflect the perspective and experience of the author, who does not agree with everything written and has not always avoided the temptation to draw attention to arising issues.

Generic literature on risk-based supervision

While RBS has existed for several decades, one of the first definitive scholarly articles on the subject was probably that of Julia Black in 2005.³⁰ The themes in this and her subsequent writing are reflected in “Really

28. Definitions taken from Hafeman, M. and Price, W. (2017), “*Regulation, Supervision, Market Structure and Member Protection*” Final draft March 2017 for inclusion in “*Digital pension inclusion: global lessons for local action*” Pinbox, Singapore.

29. This paper has been prepared for the Inter-American Development Bank in the context of evaluations of the pension supervision arrangements in Chile and Mexico.

30. For instance, Black, J. (2005), ‘The Emergence of Risk-based Regulation and the New Public Risk Management in the United Kingdom’ *Public Law*: 512.



responsive risk-based regulation”³¹ by Baldwin and Black.³² Baldwin and Black noted the increasing prevalence of risk-based supervisors³³ coinciding with the experience of supervisory failure. Governments and regulators were now developing risk-based regulatory strategies as frameworks for the management of their resources and their reputations. The paper defined these as “collections of strategies that at the very least involve the targeting of enforcement resources on the basis of assessments of the risks that a regulated person or firm poses to the regulator’s objectives”. Ideally, “risk-based regulation offers an evidence-based means of targeting the use of resources and of prioritising attention to the highest risks in accordance with a transparent, systematic and defensible framework”.

The article sets out the core tasks of RBS as:

- Establishing **objectives**
- **Detecting** undesirable or non-compliant behaviour
- **Responding** to that behaviour by developing tools and strategies
- **Enforcing** those tools and strategies on the ground, and
- **Assessing** their success or failure and **modifying** approaches accordingly

It then summarises the standard model of applying RBS to deliver these tasks, in which the supervisor:

- Establishes its risk appetite – the level of risk it can tolerate.
- Assesses the impact of the hazard or adverse event and the likelihood of it occurring. Two broad categories of risk are identified: the *inherent risks* arising from the nature of the business’s activities; and *management and control risks*, including compliance record. The methods by which management and control risks are combined with or offset against inherent risk scores vary, but broadly speaking, supervisors are concerned with the effect of management and controls in either exacerbating or mitigating inherent risk.³⁴
- Assigns scores and/or ranks to firms or activities on the basis of these assessments. These scores often operate as shorthand for more complex underlying judgements.
- Uses the risk-based framework to link the organisation of supervisory, inspection and enforcement resources to the risk scores assigned to individual firms or system-wide issues. In practice, resources do not always follow the risks in the way that the framework would suggest, but resource allocation remains a key rationale for their development.

It is emphasised that no two risk-based systems are identical in their form and they often differ significantly in their operation – even if they have certain similarities in form. Some of these formal and operational differ-

31. It should be noted that in the UK, there is little distinction made between regulation and supervision, so risk-based regulation in this context primarily refers to supervision (although it may stray over into regulation). In this review, the phrase “risk-based supervision” is used in place of “regulation” unless it is obvious that regulation rather than supervision is intended.

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

33. Primarily in environmental and financial services supervision.

34. The extent to which risks are measurable varies considerably depending on whether the events are highly probable and can be counted; or less typically, require a more subjective estimate of probability (this tends to be more the case for financial supervision).



ences stem from the supervisors' widely differing remits and locations within the institutional structures of their governments. However, differences may also reflect strategic choices.

The article then discusses how such supervision can be a “really responsive” dimension, arguing that there are considerable difficulties to face in applying RBS really responsively. However, the pay-offs from doing so outweigh the difficulties. In this context, Baldwin and Black reference problems with non-responsive RBS that have occurred in practice, of which the most obvious is its association with the banking failures during the 2008 global financial crisis. They consider that supervisors should be attentive and responsive to five key factors, some of whose key points are summarised below:

- **The behaviour, attitudes and cultures of supervised entities** – Risk scoring should take attitudinal matters on board in relation to any task. But attitudes and their impacts on the risk framework may vary across supervisory tasks, and astute supervisors will be clear about the degree to which any particular supervisory task can and should be guided by a risk scoring system. Furthermore, risk assessments relating to different supervisory tasks may be best kept separate. It is also a challenge to obtain 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. The risk framework may often require supplementation by additional strategies and judgements, since risk analyses offer little assistance in relation to many of the familiar problems that supervisors face. Such problems might include how best to secure compliance, or whether it is best to regulate in a precautionary or intervention-averse manner. Even on a relatively simple matter such as the identification of the greatest risks, RBS provides only limited guidance on the most cost-effective response. This is not to say that RBS is inevitably misguided, but that it is a complex and nuanced strategy that often deals in situations of uncertainty rather than risk, although uncertainty is often unhelpfully obscured by the dominant language of risk. RBS must be used with awareness of its limitations.
- The **institutional setting** of the regulatory regime – How the different agencies involved interact, the importance of recognising how external factors impact on the supervised landscape and recognizing how the actions of supervised entities can have systemic impacts.
- The **different logics of regulatory tools and strategies (and how these interact)** – For instance, command- and sanction-based instruments operate on very different understandings to educative or economic incentive systems of control; unless well thought through, there may be dissonance between tools and strategies. For instance, applying sanctions on a deterrent basis may undermine a concurrent strategy of “educate and persuade” by chilling supervisor-to-supervised-entity communications. Also, the mismatching logics of risk/outcome and compliance can produce significant lacunae in the supervisory regime at the point of implementation and enforcement.
- The **regime's own performance** over time – If supervisors cannot assess the performance of their own regimes, they cannot know whether their efforts (or budgets) have any positive effect in furthering their objectives, nor can they justify their operations externally.



- **Sensitivity to change** – Events occur, knowledge develops, technologies and markets change, institutional structures are reformed, political and legal obligations alter, and public expectations and preferences mutate. If supervisors cannot adapt to change, they will apply yesterday’s controls to today’s problems.

Julia Black summarised the challenges in another publication,³⁵ which has been reprinted in the IOPS RBS toolkit covered later in this review and echoed in much of the pension-specific literature that follows:

- **Combining simplicity with complexity** – The challenge of designing a system which is sufficiently complex to capture and assess a wide range of risks at the firm-specific and generic levels, yet simple enough to be understood and used on a day-to-day basis by inspectors and supervisors.
- **Knowledge and data** – Getting the right data (both for individual firms and identifying system-wide and external environment risks), and making better use of the knowledge the authority has is a critical challenge.
- **Ensuring that assessments of firms are forward looking** – How to go beyond only capturing the risks apparent today to what might happen in the future.
- **Going beyond the individual firm in assessing risk** – How to incorporate industry-wide risk assessments into the firm-specific assessment, and how to compare risks across the whole of the supervisor’s portfolio of overseen entities.
- **The structure and operation of internal risk governance processes** – How to balance the need for organisational structures to ensure the accuracy and consistency of assessments with speed and supervisory response.
- **Changing the culture to embed the risk-based approach across the whole organisation** – It can take years for both senior management and individual supervisors to really incorporate a risk-based approach into the heart of their work.
- **Managing blame** – This is important when a “non-zero failure” policy is adopted, as problems will occur and the supervisor therefore must have the confidence to apply a different approach to low-risk areas.

Black in particular focused on the associated risks of a supervisor intervening when not needed or failing to intervene on the assumption that an entity is well run (Type 1 and Type 2 errors). In reviewing the approaches to adopting RBS, Black notes that the key element of risk-based frameworks for allocating resources is that the starting point is risks not rules; that is, identifying the risks that they seek to manage, not the rules they have to enforce.³⁶ Supervisors cannot enforce all rules. Statutory objectives can help the supervisor focus on risks to those objectives (so long as they are clear), as with UK pensions supervision.

Black’s review of risk methodologies finds more variability than commonality. The choice of risks and risk indicators is subjective, but frameworks also vary considerably in the extent to which the indicators they use can be assessed objectively or subjectively. In particular, management, governance and culture, control

35. Black, J. (2008), “Risk-Based Regulation: Choices, Practices and Lessons being Learned” – OECD paper.

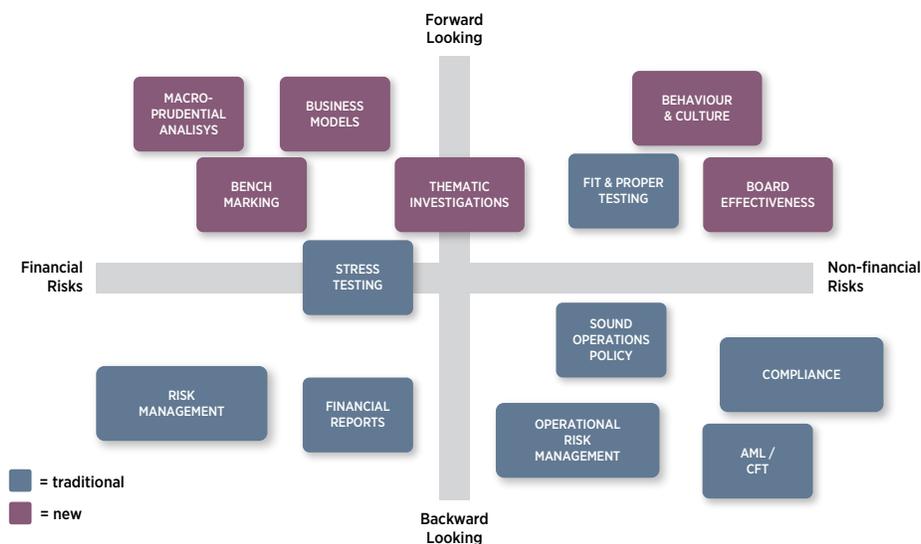
36. Author’s note: the contrast between risk and rules is arguably more accurate than that between compliance and risk made by other authors covered by this review. Any supervisor wishes to see compliant entities; what changes is what the supervisor expects the compliance to be with.



functions, and risks arising from dealing with customers are inevitably assessed on a qualitative basis. While impact assessment often relates simply to entity size, or the number of persons impacted, it may also reflect reputational factors. There is variability as to whether risk factors are treated as impact or probability, resulting in different approaches to inherent risk. There is also variability as to whether impact and probability should be combined by aggregation or multiplication and how governance and management are factored in. All risk-based frameworks face implementation risk: the risk that they will be inadequately implemented, including the risk of “model-induced myopia” – that inspectors do not look beyond the model itself. These are compounded by issues of data collection, performance review and internal governance (i.e. ensuring consistency). A common criticism is that supervisors make insufficient use of the data they hold.

Another generic perspective is provided by the Dutch financial services supervisor (De Nederlandsche Bank [DNB]) in its review of how its supervision has evolved since the global financial crisis to a much greater focus on supervised entity behaviour and culture. Figure 1 below is their diagram illustrating how additional techniques have been added to their RBS. The book concludes that the causes of the crisis were not so much that governance structures were inadequate, as that board and management behaviours within that structure were below standard. Behaviour has a certain predictive quality with respect to future financial performance, which is why early intervention may prevent future problems. Consequently, as Figure 1 below shows, DNB added new focus areas and methodologies relating to business models, board effectiveness, behaviour and culture, in-depth thematic reviews, benchmarking and macro-prudential analyses. DNB stated that they had thereby been able to identify and assess risks relating to behaviour and culture, and in most cases to mitigate them.

FIGURE 1 ■ POST-CRISIS SUPERVISION³⁷



37. Taken from Nuijts, W. & de Haan, J. (2013), *Financial supervision in the 21st Century*. Kellerman, A. J., de Haan, J. & de Vries, F. (eds.). Heidelberg: Springer.



The application of risk-based supervision to insurance and banking

Before moving to pensions, it is worth considering in brief how RBS is commonly applied to banking and insurance. A useful summary is provided for the benefit of pension professionals in Randle and Rudolf, which features in the pensions literature review later in this review.³⁸ Risk-based capital requirements (Pillar 1) form the core of the risk-based approach in both these markets. As such, supervision is focused on ensuring that capital requirements are properly calculated and implemented as provided for in the relevant core principles of Basel and the International Association of Insurance Supervisors (IAIS). These include risk-based approaches to determining regulatory capital requirements. The risk categories relating to financial risks, such as market, credit and liquidity risks, feature in the models often used for DC pensions, but expense risk less so, although this too is relevant.

Supervisors are also, however, expected to ensure the effectiveness of Pillar 2,³⁹ robust governance as a pre-requisite for an efficient solvency system. Undertakings must comply with the requirements on fit and proper, risk management, the Own Risk and Solvency Assessment (ORSA), internal control, internal audit, the actuarial function and outsourcing. The underlying objective of the ORSA is to ensure that supervised entities identify and assess all risks they are (or could be) exposed to, maintain sufficient capital to face these risks, and develop and better use risk management techniques in monitoring and managing these risks.

There is also a general requirement relating to the supervision of general governance covering sound and prudent management of the business; organisational and operational structures geared towards the most important strategic goals and operations; clearly defined, allocated and coordinated duties and responsibilities; regular internal review; proportionality to size and nature of the business; written and implemented policies which are regularly reviewed; and continuity and regularity, including contingency plans.

Of perhaps greatest relevance is Insurance Core Principle 9 issued by the IAIS,⁴⁰ which covers the risk-based approach to supervision. Key requirements are:

- **Sufficiency of powers and resources** for off-site monitoring and on-site inspection;
- A **documented framework for supervisory review and reporting** which takes into account the nature, scale and complexity of insurers. The framework encompasses a supervisory plan that sets priorities and determines the appropriate depth and level of off-site monitoring and on-site inspection activity. This includes assessing risk of failure, the use of quantitative and qualitative analyses, trend analysis, and communication between supervisors and with supervised entities.

38. Randle, T. and Rudolph, H. R. (2014), *Pension risk and risk-based supervision in defined contribution pension funds*, Policy Research Working Paper 6813, World Bank Group, Washington DC

39. There is also a Pillar 3 relating to market discipline which may be considered relevant to pension funds, especially where they exist in a competitive market.

40. International Association of Insurance Supervisors (2015), *Insurance Core Principles*, (www.iaisweb.org).



- A mechanism to **periodically check that its supervisory framework pays due attention to the evolving nature, scale and complexity of risks** which may be posed by insurers and of risks to which insurers may be exposed, which in practice focus on the analysis of what is or should be reported.
- **Reporting by supervised entities** to the supervisor, keeping them under review and tailoring them to different types of entity.
- **Off-site monitoring** of insurers on an ongoing basis, based on regular communication with the insurer, information obtained through supervisory reporting, and analysis of market and other relevant information. Off-site monitoring should include a risk-based analysis on various risks relevant to the insurer such as credit, market, underwriting, reserving, liquidity, operational, conduct of business, legal, strategic and reputational risk.
- **On-site inspection** that should be tailored to the particular insurer and to any detected problems. However, an on-site inspection plan should remain flexible since new priorities might arise. The supervisor may use on-site inspections as an opportunity to interact with the board, senior management and key persons in control functions. This enables the supervisor to assess their ongoing suitability, the insurer's organisational culture, the quality of their corporate governance, risk management and internal controls and to explore the rationale behind their strategy and business plan. Other priorities for inspection include risk management systems, key business activities and policies, outsourcing, financial strength and fair treatment of customers. Annexes provide more detail regarding each of these.
- **Discussions with the insurer of any relevant findings** of the supervisory review and the need for any preventive or corrective action.
- **Supervisory follow-up** to check that required actions have been taken by the insurer.

The equivalent standards for banking,⁴¹ issued by the Basel Bank (BIS), Principles 8 and 9, are less explicit about the approach being risk-based, although they include a more explicit focus on systemic risk. They do inter alia refer to the supervisor:

- Using a methodology for determining and assessing on an ongoing basis the nature, impact and scope of the risks which banks or banking groups are exposed to or expose the financial system to. The methodology should address, among other things, the business focus, group structure, risk profile, internal control environment and resolvability of banks, and permit relevant comparisons between banks. The frequency and intensity of supervision of banks and banking groups should reflect the outcome of this analysis.
- Having processes to understand the risk profile of banks and banking groups and employing a well-defined methodology to establish a forward-looking view of the profile. The nature of the supervisory work on each bank should be based on the results of this analysis.
- Taking into account the macroeconomic environment in its risk assessment of banks and banking groups.

41. Basel Committee on Banking Supervision (2012), *Core Principles for Effective Banking Supervision*, Bank of International Settlements.



- In conjunction with other relevant authorities, identifying, monitoring and assessing the build-up of risks, trends and concentrations within and across the banking system as a whole.
- Having a clear framework or process for handling banks in times of stress, such that any decisions to require or undertake recovery or resolution actions are timely.
- Taking appropriate action where non-banks undertake banking-type activities or banks undertake non-banking activities. This can be a significant risk in pension systems, and is often given insufficient attention.
- Employing an appropriate mix of on-site and off-site supervision to evaluate the condition of banks and banking groups, their risk profiles, internal control environments and the corrective measures necessary to address supervisory concerns, ensuring that on-site and off-site supervision are sufficiently integrated.
- Having a coherent process for planning and executing on-site and off-site activities.
- Using a variety of information to regularly assess the safety and soundness of banks, evaluate material risks, identify necessary corrective actions and supervisory actions.
- In conjunction with other relevant authorities, seeking to identify, assess and mitigate any emerging risks across banks and to the banking system as a whole. This can include conducting supervisory stress tests (on individual banks or system-wide).
- Evaluating the work of the bank's internal audit function, determining the extent to which it may rely on internal auditors' work to identify areas of potential risk.
- Maintaining sufficiently frequent contacts as appropriate with the bank's board, non-executive board members and senior and middle management (including heads of individual business units and control functions) to develop an understanding of and assess matters such as strategy, group structure, corporate governance, performance, capital adequacy, liquidity, asset quality, risk management systems and internal controls.
- Communicating to the bank the findings of its on- and off-site supervisory analyses in a timely manner by means of written reports or through discussions or meetings with the bank's management, with appropriate follow-up checks.
- Having an adequate information system which facilitates the processing, monitoring and analysis of prudential information.

It should be noted that the basic concepts of RBS in banking and insurance are nowhere explicitly stated but must largely be deduced from the guidelines and standards applicable to supervised entities regarding the management of risk as well as requirements on supervisors to ensure that they are in place. While many of the general principles relating to such governance and risk management requirements have a read-across to pensions, there is a fundamental difference from DC pensions in that banking and insurance prudential supervision focus on capital adequacy. Conduct of business receives relatively limited attention. The framework does, however, provide important context to the development of risk-based pension supervision, as some key early adopters were integrated supervisors who adapted insurance approaches to DB pensions.



Randle and Rudolf (op. cit.) note a further relevant issue. They view the move to risk-based insurance and banking supervision as being the replacement of objective backward-looking assessment criteria by more subjective forward-looking criteria. This requires a detailed framework within which well-qualified and expert supervisors can make defensible judgements, and which evolves as risks change. On the other hand, the mechanism of risk-based capital requirements can provide a more effective tool to drive improvement in risk management than traditional sanctions.

Generic literature on risk-based pension fund supervision

The starting point for a literature review on risk-based pension fund supervision has to be the first paper written on the subject, under the auspices of the World Bank.⁴² The paper provided a review of the design and experience of risk-based pension fund supervision in Australia, Denmark, Mexico and the Netherlands, which it identified as leaders in the development of these methods. It noted that the utilization of risk-based methods originated primarily in the supervision of banks, but had increasingly been extended to other types of financial intermediaries including pension funds and insurers. It suggested that the trend toward RBS of pensions was closely associated with movement toward the integration of pension supervision with financial services into a single national supervisory authority.⁴³ Although similar in concept to the techniques developed in banking, the application to pension funds required modifications, particularly for DC funds that transfer investment risk to fund members. The countries examined provide a range of experiences that illustrated both the diversity of pension systems and approaches to RBS, but also a commonality of the focus on sound risk management and effective supervisory outcomes.

The World Bank advanced a summary model of the components of RBS (Figure 2 below) that drew somewhat on the banking and insurance models, albeit with some differences in the definition of the three pillars. It considered that one of the main objectives of RBS was to ensure sound risk management at the institutional level. The capacity of an institution to identify, measure, and manage all the relevant risks would be reflected in the presence of a sound internal architecture of risk management including a reasonable risk management strategy; evidence of board involvement in risk management; the existence of risk management functions performed by competent, independent, and accountable professionals; and proper internal controls.

42. Brunner, G., Hinz, R. and Rocha, R. (2008), *Risk-Based Supervision of Pension Funds: A Review of International Experience and Preliminary Assessment of the First Outcomes*, Policy Research Working Paper 4491, World Bank Group, Washington DC. This paper was actually prepared and circulated several years earlier, so its content predates the other reports covered in this review.

43. This assertion is questionable, as several leading risk-based supervisors such as the UK's and Mexico's are not integrated.



FIGURE 2 ■ THE BASIC RISK MANAGEMENT ARCHITECTURE

FOR THE INSTITUTION	FOR THE SUPERVISOR
<ul style="list-style-type: none"> • Risk management strategy • Board committees • Risk management functions in the managerial structure • Internal controls • Reporting responsibilities 	<ul style="list-style-type: none"> • Regulations, including minimum risk management • Standards • Risk-based solvency rule • Risk scoring model guiding supervisory actions • Internal organization of the agency, with specialist risk units
MARKET DISCIPLINE	
The contributions of the actuary, auditor, fund members, market analysts, to sound risk management	

In reviewing the supervisory tools evident in the four selected countries, the paper particularly noted regulations on risk management, risk-based solvency rules, comprehensive risk scoring models and specialized risk units. It appears to place more weight on market discipline than would be consistent with experience in most countries. It notes that the detailed regulatory requirements for entity risk management, governance and control are not replicated in all jurisdictions, but that the risk scoring models they use might drive entities towards a similar outcome. In practice, there have been more recent increases in the requirements in the other jurisdictions. Considerable attention was given to risk-based solvency models, including the analogous value at risk (VAR) control model then used in Mexico. More detail regarding the approaches to RBS in the countries concerned are given in the latter part of this review.

The intention was that the World Bank report would be complemented by a related piece of research by the International Organisation of Pension Supervisors (IOPS). This took the form of a working paper on the experience of various countries in moving to RBS.⁴⁴ Stewart noted that many members of the Organisation were planning to or had been implementing a risk-based approach and included case studies regarding five of them (Croatia, Germany, Kenya, South Africa and the UK). The study started by (perhaps for the first time) defining risk-based supervision as a “specific attempt to vary the scope and intensity of supervision according to the level of risk which individual pension funds are estimated to pose, both to affiliates and the fund itself. This contrasts with a ‘compliance-’ based approach where all funds are treated the same. It allows scarce resources to be targeted at the pension funds which are seen to be at most risk and a proactive approach attempting to avoid potential problems before they occur”.

A presentation subsequently given on the paper⁴⁵ helps to highlight how RBS differs from compliance-based supervision (see Figure 3).

44. Stewart, F. (2007), “Experiences and challenges with the introduction of risk-based supervision for pension funds”. IOPS Working Paper 4. Available at SSRN: <https://ssrn.com/abstract=1813759>.

45. Jones, R. (2009), “Risk-Based supervision: IOPS work and APRA supervision”. IOPS/OECD MENA Workshop.



FIGURE 3 ■ RISK-BASED VERSUS COMPLIANCE-BASED APPROACHES

RISK-BASED APPROACH	COMPLIANCE-BASED APPROACH
<ul style="list-style-type: none"> • Identifies potential risks • Assesses mitigating factors • Seeks proper management of all risks • Allows scarce supervisory resources to be targeted at funds seen as most at risk 	<ul style="list-style-type: none"> • Focus on compliance with tax and labour laws and (often) quantitative investment rules • All funds receive same degree of attention
<ul style="list-style-type: none"> • Forward-looking and principles-based legislation • Flexible 	<ul style="list-style-type: none"> • Detailed, often rigid, rules that are difficult to change to meet urgent regulatory needs
<ul style="list-style-type: none"> • Incentives for institutions to strengthen risk management practices 	<ul style="list-style-type: none"> • Institutions' focus is on compliance with rules, not risk management
<ul style="list-style-type: none"> • Supervisors use judgment to assess risk management and quality of management 	<ul style="list-style-type: none"> • Point in time focus • Overlooks major risk areas • No early warning system
<ul style="list-style-type: none"> • Compliance checks done by audit etc. – removes duplication of work 	<ul style="list-style-type: none"> • Duplicates work of auditors, etc.
<ul style="list-style-type: none"> • Supervisors can benchmark institutions and assess overall industry 	<ul style="list-style-type: none"> • Difficult to obtain meaningful comparisons
<ul style="list-style-type: none"> • Attention directed to emerging problems 	<ul style="list-style-type: none"> • Penalises past breaches of rules

The paper noted that moving to RBS was associated with prioritization within an integrated supervisor, supervisory reorganization, and failures of fund performance and compliance. The paper then identified some lessons to be learned,⁴⁶ including:

- Models used elsewhere or in other markets need to be adapted to the particular circumstances of the jurisdiction.
- The cultural changes required within the authority should not be underestimated, there needs to be clarity as to what “risk-based” actually means, especially the need to prioritize between risks.
- Associated with this is the need to train all staff and redeploy within the authority, and if necessary, recruit the right expertise.
- The problems associated with running the approach out to all funds at the same time – piloting is preferred.
- The likelihood that at least one reorganization will be needed. Leading-edge teams may be valuable to help drive the culture change.
- The importance of identifying the data needed to support the risk-based approach: obtaining the data electronically, being realistic about what can be analysed effectively and explaining why it is needed.

46. This drew from Australian and Mexican experience as well as from the five case studies.



- The importance of obtaining sufficient supervisory powers (including for data capture) – which is easier to do in the context of a broader reform. These should, inter alia, provide for flexibility and proportionality in supervisory response. The value of incentives such as risk-based capital or levies was mentioned.
- The need to sustain continuing business as usual during the design and implementation of risk-based approaches and recognise this as a potential constraint.
- External communication with the industry is as important as internal communication. Ensuring that supervised entities understand the philosophy of RBS is important because the ultimate goal is for them to absorb the risk culture within the funds themselves and become first-line supervisors. This may be a challenge, as they may be sceptical about the need for or the subjectivity of the approach. Informing and educating can be supported by consultation exercises, communication campaigns and codes of practice or guidance notes. Entities should understand what they should do to avoid a negative supervisory response.

The IOPS touched again to the issue of RBS within the specific context of DC funds in its Working Paper 12.⁴⁷ While this does not refer directly to RBS, it reviews the various approaches available to supervisors and regulators to mitigate the principle risks in a DC system. These are identified as being investment risk, high costs (expense risk), operational risk (including administering individual accounts and outsourcing) and the risk at the transfer from accumulation to decumulation. The IOPS also identifies agency risk as being particularly serious in DC systems. Mitigation mechanisms of particular relevance to supervision included supervision of transparency and disclosure requirements, risk management systems, VAR (although with some limitations emphasised), thematic reviews, and the registration or inspection of service providers. Details are given of specific approaches taken in various countries. The use of target-based risk measures is discussed, although these had yet to be applied in practice at the time.

The paper notes that the extent to which a supervisor can rely on market mechanisms to control risks will dictate how supervisory oversight is applied and that the increased use of RBS makes the choice of tools more transparent. The key for any risk-based supervisor is to identify the main risks to the DC pension system and check that the mechanisms in place to manage these risks work properly. It notes that with DC systems, the supervisory focus has to be on the processes rather than outcomes, with the role of the supervisor being to ensure that the pension fund is managed in a secure way, as if the affiliates themselves were undertaking the task.

Perhaps seeking to compensate for the DB orientation of its original report on risk-based pension supervision, the World Bank returned to the subject in 2014 with a focus on DC.⁴⁸ The paper identifies the major problem in DC systems of misalignment of the incentives for pension fund management companies with the interests of affiliates, with a focus on reducing short-term volatility rather than longer-term returns. Supervisors in emerging economies have sought to correct this bias but have not focused sufficiently on the long-term pension income

47. Ashcroft, J. and Stewart, F. (2010), “Managing and defining risk in defined contribution systems”. IOPS Working Paper 12. Available at <http://www.oecd.org/site/iops/principlesandguidelines/46126017.pdf>.

48. Randle, T. and Rudolph, H. R. (2014), “Pension risk and risk-based supervision in defined contribution pension funds”, Policy Research Working Paper 6813, World Bank Group, Washington DC.



objective. DC supervision needs to be more proactive in minimising this risk. Proper institutional design and intensive market surveillance are efficient tools for dealing with most of the system's operational risks.

Randle and Rudolph recognise that in DC systems, the adequacy of future pensions is not explicitly defined as the main objective. There is no direct link between capital and portfolio efficiency and hence concepts of risk capital used in other markets, including DB pension funds, are irrelevant – indeed, capital requirements for DC fund management companies can have a negative impact on outcomes.⁴⁹ This means that there has been a wide-ranging debate as to what constitutes RBS in DC systems, where the focus on risk assessment has tended to be on operational risks. The authors argue that the focus should instead be on pension adequacy, which requires setting a target, designing an investment strategy to achieve the target, and finally measuring the deviations against the strategy. But, with the exception of a few large funds, the necessary targets are not set. Focusing instead on processes can result in misaligned incentives, a focus on operational rather than investment risks, and a focus on short-term rather than long-term performance. Regulatory and supervisory tools such as asset class limits, VAR limits, short-term performance monitoring and guarantees can make things worse.

Randle and Rudolph's main recommendation is that the attention of pension supervisors should instead be focused back towards the core goal of delivering an adequate pension income and mitigating pension risk. The proposed tool is benchmarking portfolios of pension funds, with the objective of optimizing the affiliates' pensions at retirement age. The only example of application given relates to Lithuania, which the authors consider to have significant flaws in that although funds must set and a benchmark portfolio submitted to the supervisor for publication, the supervisor has insufficient powers over its content. The paper concludes with some scepticism about the cost-benefit justification of RBS in countries with a relatively small number of funds unless there is a proactive approach to investment along the lines recommended, with exogenous benchmark portfolios.

A useful summary was provided in a paper presented at the 10th Global Conference of Actuaries in India⁵⁰ drawing heavily on IOPS and material summarised elsewhere in this review. The paper is helpful in the way it identifies a comprehensive list of risks particular to pension funds within the nine categories of portfolio risks⁵¹ and agency risks (operational, fraud, expense, legal/regulatory, strategic and contagion/related party), plus systemic risks from problems elsewhere in financial services or the economy. The purpose of the overall assessment is seen as measuring the solvency of the DB schemes and of the investment risk of the DC schemes. The various types of governance, operational and systems mitigations to be assessed are mentioned. This may be a somewhat simplistic and one-dimensional description, but it does provide a uniquely succinct and basic summary of the ingredients found most often in risk-based pension supervision. In particular, the DC focus on investment risk might be seen as reasonably consistent with Randle and Rudolf, as it relates to net long-term performance, which is consistent with the wide range of investment risks cited.

49. The authors acknowledge that where pension funds invest in products with substantial counter-party exposure and where counter-party failure could result in a call on own resources, capital requirements may have value in incentivising investment discipline and protecting affiliates.

50. Meenakumari, J. (2008), *Risk-Based Supervision for Pension Funds*.

51. Interest rate, market, foreign exchange, commodity, concentration, credit, counter-party, liquidity, mismatch.



Another perspective was provided in a presentation to the AIOS⁵² in 2012.⁵³ It restates the objective of risk-based pension supervision as reducing the most serious risks through intensive and focused supervision. To do this within constrained resources, the supervisor needs to free up resources currently applied to less serious risks in a structured way; and especially to place greater and defensible reliance on supervised entities to manage the risks themselves. The presentation defined serious risks as being principle/agency risks associated with pension management entities' conflicted interests or disinterest in outcomes, combined with the lack of transparency that arises from the challenges of performance measurement, long time-horizons and informational asymmetry. To achieve such objectives, the supervisor should:

- Identify and focus on the biggest risks (not those easiest to supervise).
- Re-orientate on-site supervision to seek assurance on governance, risk management and how to obtain assurance that risks are being mitigated.
- Implement a structured risk assessment methodology that drives prioritisation and supervisory problems.
- Integrate off-site supervision, the supplier of quantitative analysis, with on-site inspection.
- Proportionately enforce regulatory principles to improve the scope for relying on entity risk mitigation.

Other key points made are:

- Obtaining necessary measures of entity risk mitigation within a risk analysis model can be challenging.
- There is value in having a coordinating risk committee.
- There should be strategies to respond to major risks, with investment risks being a serious challenge and improving governance likely to be a common form of risk mitigation.
- Supervision should be concerned with changing or reinforcing behaviours; hence, communication and persuasion is vital.
- While supervisory staff generally know how to inspect and monitor, they may not be familiar with a structured and disciplined approach, have little experience of inspecting governance and risk management, and may need enhanced skills for off-site analysis of what matters most.
- Enforcement is the biggest challenge regardless of legal system, especially in relation to governance. To enforce principles, the supervisor has to win articulate and agree with supervised entities what these principles mean in practice.

A paper published by the World Bank focusing on expanding pension inclusion, contains some material drawn from the experience of developing risk-based pension supervision in a wide range of countries.⁵⁴ Under the heading of “pension-specific risk-based supervision is paramount to maintaining security”, Price, Rawlins,

52. The International Association of Pension Funds Supervision.

53. Ashcroft, J. (2012), “Supervising the risks to a funded pension system” Seminario Internacional “Mejorando Nuestros Sistemas de Pensiones” 29 June 2012, San Salvador, El Salvador.

54. Price, W., Rawlins, M. and Stewart, F. (2016), “*Expanding coverage of good quality private pensions*”, First Initiative Lessons Learned series, World Bank Group, Washington DC.



and Stewart note the distinction between the long-term retirement income objectives of pension supervision and the shorter term viability objectives in banking and insurance. The authors set out a series of steps for improving the articulation of long-run objectives, focusing on the risks to them and developing more solutions to tackle these risks (Figure 4). They note that effective supervision does not exist in a vacuum. It needs to support – and be supported by – a well-designed market structure and good laws and regulations, for example. Most importantly, modern RBS provides a framework that allows the supervisor to continually monitor and update its focus, typically as a result of an annual strategy. This dynamic approach should ensure continuity and delivery well beyond the life of the implementation project.

FIGURE 4 ■ OUTCOME AND RISK-BASED SUPERVISION (ORBS) STEPS AND BENEFITS

Objective is focused on the long-run outcome
Inherent and residual risks to the objective are managed
Development of risk mitigation strategies is prioritized relative to costs and benefits
New principles and best practice guides are published as part of the risk mitigation strategy
New regulations are developed, including market structure rules, if they are the most effective way to manage risk
New risk-based off-site and on-site supervision is carried out, plus training and communication
An annual strategy and a monitoring and evaluation cycle are established to allow evidence-based review and revision

The authors note the importance of the risk-based supervisor focusing on entity governance, defined as “delivering a strategy focused on the best interest of the members and having the expertise and systems to execute that strategy”. Governance is essential to enhancing pension fund performance and the security of pension savings in industrial and developing countries alike.⁵⁵ Poor investment returns can result from suboptimal investment allocation arising from conflicts of interest or lack of expertise. A lack of skills leads to either (a) recklessly conservative investment allocations in deposit accounts or short-term bonds, or (b) pension funds that subcontract investment to external managers who cannot be effectively monitored and who offer poor value for money. Good governance has many other positive effects, such as creating trust among all stakeholders, reducing the need for prescriptive regulation, and facilitating supervision. One project helped to develop a supervisory methodology that deepened supervisory understanding of how pension funds were run, expanding the previous focus on qualifications and track records and enabling subsequent broadening of asset classes available to the funds. Finally, the importance of supervisory capacity building and stakeholder engagement is stressed.

A paper published in October 2017 provides perhaps the most ambitious attempt at assembling a cohesive model of best practice in pension regulation and supervision. The model draws out some concepts of RBS,

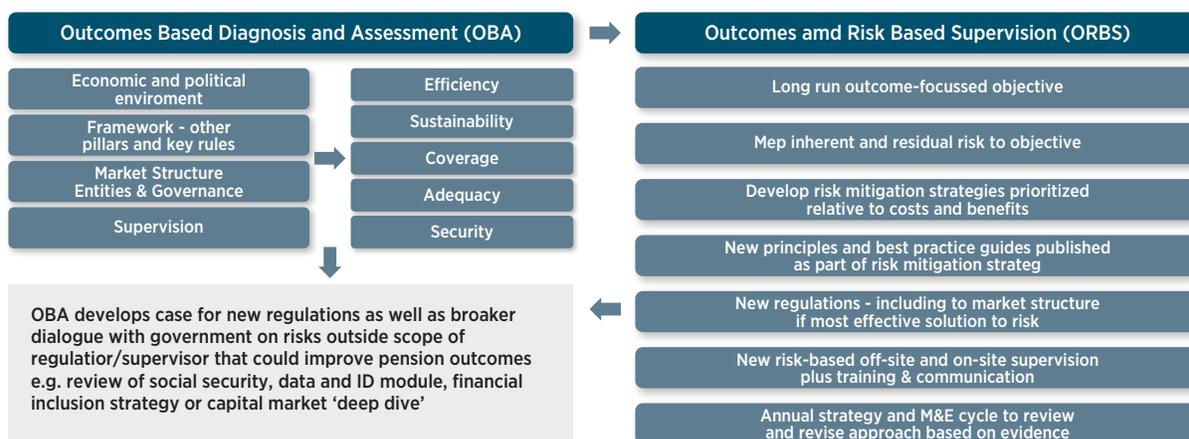
55. The paper references in support: Ambachtsheer, K. (2016). *The Future of Pension Management: Integrating Design, Governance, and Investing*, Wiley and Sons, Hoboken, NJ.



expanding on the ORBS concept⁵⁶ articulated in Price, Rawlins and Stewart (2016). The paper summarises an outcome-based assessment framework for pension systems⁵⁷ and explains its relevance for regulatory development and the setting of regulatory and supervisory objectives (see Figure 5). In particular, Hafeman and Price argue that the RBS approach is enhanced by having a clear statement of the outcomes and goals that the supervisor wants to achieve, to focus on the risks to the achievement of the desired outcomes and goals. These can be both risks at entities and risks across or from beyond the pension system. Consideration should be given to the level of the system at which each weakness is relevant. For example, would it pose a risk only to the members of a pension plan that suffers from the weakness, or might it affect outcomes of the entire pension system?

FIGURE 5 ■ LINKAGE BETWEEN OUTCOME-BASED ASSESSMENT AND OUTCOMES AND RISK-BASED SUPERVISION

Typically an Outcomes Based Diagnosis and Assessment underpins the long run objective and assessment of risks - followed by a series of critical steps in the process



These risks can be rated in terms of their inherent risks; in other words, the level of risk that they present before considering steps that have been or could be taken to mitigate the risk. Each inherent risk can be rated in terms of both the probability of its occurrence and the impact that it would have on the achievement of outcomes or goals if it does occur. In some cases, data might be available to support quantification of the probability or impact. However, in most cases, qualitative assessments must be made from expert knowledge and judgement. The results of the risk identification and rating can be summarized in tabular form or as one or more two-dimensional risk maps. For example, one risk map might capture risks relevant for the pension

56. Hafeman, M. and Price, W. (2017), "Regulation, Supervision, Market Structure and Member Protection", Final draft March 2017 for inclusion in "Protecting the Next Billion Against Old Age Poverty: Global Lessons for Local Action" Pinbox, Singapore.

57. Price, W., Ashcroft, J. and Hafeman, M. (2016), "Outcome-Based Assessments for Private Pensions: A Handbook", World Bank, Washington DC.



system, while another might relate to risks assessed at entity level. As part of this process, the risk mitigants should be identified.

The analysis should enable the prioritization of resources, which should be done through the development of risk mitigation strategies that provide the bridge between the system-wide risk analysis and the specific supervisory actions taken. The implementation of supervisory strategies can be taken forward by regulatory change or by using a range of supervisory tools singly or in combination. The paper proposes a template for such strategies.⁵⁸ It notes that some of the supervisory tools might be more compliance- than risk-based, and their deployment can be affected by staff expertise (risk-based needs more), culture and legal system.⁵⁹ However, in a compliance-based system, some important risks might be missed because they exist in areas not currently subject to detailed checks.

Supervisory organisation structures are examined with no specific conclusion, there being no dominant structural solution. A careful analysis of arrangements that worked well during the global financial crisis highlighted instead that regulators and supervisors needed to display both the ability and willingness to act. It was not enough to have sufficient powers, because many who had the powers did not act. So, in addition, the institutional culture needs to support effective supervision (see Figure 6).⁶⁰

FIGURE 6 ■ ABILITY AND WILLINGNESS TO ACT DRIVE EFFECTIVE REGULATION AND SUPERVISION



A 20-stage process for implementing RBS is then set out (Figure 7). In summary, the paper concludes that it is possible to develop robust, jurisdiction-specific solutions if attention and resources are devoted to analysing the jurisdiction- and entity-specific risks and opportunities and developing the most effective regulatory, supervisory, market structure and member protection approaches to tackling these risks.

58. Taken from Price, P., Ashcroft, J. and Inglis, E. (2016), "Outcome-Based Assessments for Private Pensions: Methodology with a Case Study for Costa Rica", World Bank Group, Washington DC.

59. It notes that risk-based supervision can nonetheless be implemented in civil code jurisdictions such as Chile and Canada (province of Quebec).

60. Vinals, J. and Fiechter, J., with Narain, A., Elliott, J., Tower, I., Bologna, P. and Hsu, M. (2010), "The Making of Good Supervision: Learning to Say 'No'", IMF Staff Position Paper SPN/10/08.



FIGURE 7 ■ ILLUSTRATIVE ACTION STEPS FOR IMPLEMENTING RISK-BASED SUPERVISION AT AN ENTITY LEVEL

1. Decide which types of entities will be assessed.
2. Identify the significant activities performed and risk management functions used by each type of entity.
3. Determine the categories of inherent risks to be used and which ones are relevant for each significant activity.
4. Determine how inherent risks, quality of risk management, and net risk will be rated and how the relative importance of each significant activity will be reflected in the overall net risk rating.
5. Decide which types of financial assessment will be performed for each type of entity.
6. Determine how the composite risk rating will be assigned.
7. Develop a guide to intervention.
8. Document the RBS framework for communication with industry and other key stakeholders.
9. Review existing regulations, guidelines, and assessment tools and map them to the various cells in the entity risk matrix. Identify gaps.
10. Review existing supervisory activities and map them to the various cells in the entity risk matrix. Identify gaps and activities that might be discontinued or reduced.
11. Identify information needs and sources. Review existing information requirements imposed on supervised entities. Identify gaps.
12. Communicate with industry and other stakeholders about the RBS implementation project.
13. Identify skills needed by supervisors. Develop training and recruitment plans to deal with any gaps.
14. Develop and consult with industry on draft guidelines.
15. Develop tools and design supervisory processes for risk assessment.
16. Train some staff and perform pilot assessments of a few entities.
17. Modify assessment tools and supervisory processes, as necessary.
18. Finalize guidelines and communicate with industry about the assessment framework in more detail.
19. Train all staff to perform assessments.
20. Begin performing assessments of all entities.

The IOPS risk-based supervision toolkit

Thus far in this review, the literature has provided a series of individual perspectives on how pension fund supervision has been or should be risk-based, and developed each perspective informed by the distinctive starting points and experiences of the authors. The IOPS have gone beyond this by developing a toolkit setting out the approaches and techniques used by IOPS members within an overall framework and pulls together some of the material already covered. This can be seen as more descriptive than normative, and perhaps more a presentation of many of the ingredients that could be included within RBS than a cookbook. It is essential reading nonetheless. The structure is modular, with the following modules and then 11 country case studies:



Introduction

1. Preparation
2. Quantitative risk-assessment tools
3. Identifying risks
4. Risk mitigants and scoring
5. Supervisory response

While in the context of the other literature, the toolkit might appear incomplete without explicit reference to objectives and organisational issues, they are in practice covered within the module on preparation. The coverage of promoting and assessing good governance is spread across several modules, although it might be felt that it is lighter than the subject deserves. The toolkit provides little more guidance on the process of establishing RBS than that already presented in Stewart (2007).

Introduction

The **introduction** provides the standard IOPS definition of risk-based pension supervision:

Risk-based supervision (RBS) is 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 towards the issues and institutions which pose the greatest threat.

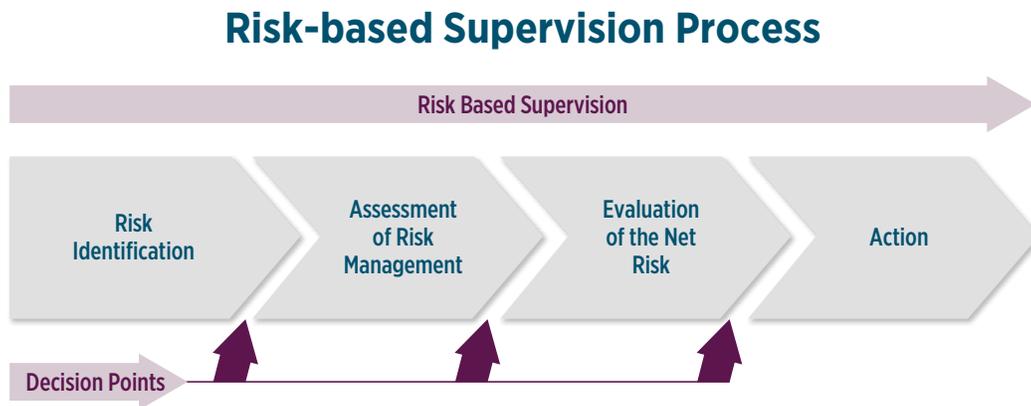
It then explains the benefits of RBS along the lines already covered in this review, before noting that it will be applied in different jurisdictions according to their different circumstances. Nonetheless, there are the following common features, which are first given in summary and then in more detail (see Figure 8):

- A determination by the supervisory authority of its objectives and of the risks to their achievement, and hence the authority's risk focus.
- An assessment of the hazard or adverse events, and the likelihood of these occurring, at entities and across the system as they impact on the authority's objectives. The authority then needs to articulate the different indicators (both quantitative and qualitative) it will use to identify and measure these risks, as well as consider how well these risks are managed – i.e. the risk mitigants in place – as risk is usually considered on a net rather than a gross basis.
- Supervisors establish a methodology for assigning scores and/or ranking to firms or activities on the basis of these assessments, quantitative and qualitative.
- Establishing a quality assurance process to ensure consistency of approach, as a risk-based approach relies more heavily on subjective judgements by supervisory staff.
- Providing a means of linking the organisation and application of supervisory, inspection and often enforcement resources to the risk scores assigned to individual entities or system-wide issues. The supervisor



should also have an established policy for adapting and escalating its supervisory response. Guidance and education to help alleviate systemic risks will also be drawn up as required.

FIGURE 8 ■ DECISION POINTS IN THE RISK-BASED SUPERVISION PROCESS ⁶¹



The introduction suggests that there can be a continuum between compliance and risk-based supervisory approaches, and hence that a fully developed system of RBS does not have to be introduced in one step – rather, there can be a gradual move from a rules to a risk-based approach, which can take several years. It references the common situation for new pension systems of starting with a strong focus on enforcing rules, followed with a transition at a later stage to risk-based approaches. It then repeats much of the material in Stewart (2007) and Brunner et al. (2008) regarding the origins, motivations and challenges of risk-based pension supervision, and the lessons learned. The section on challenges is expanded to include those identified by Black in paragraph 10 above. The introduction makes one further vitally important observation:

One misconception is that RBS is simply a model designed to come up with a “risk score” for each entity which the supervisory authority oversees. RBS is a much broader approach and philosophy. It would be impossible for authorities overseeing thousands of pension funds to come up with an individual risk score for each institution, but this does not stop them developing a broad risk-based framework for allocating their resources (e.g. UK).

Module 1

The module on **preparation** repeats more of the material in Stewart (2007), but also develops several other themes. It starts with a consideration of the legal powers needed for RBS. It notes that as well as having sufficient preventative, protective and punitive powers, the supervisor needs some discretion in the interpretation and enforcement of legislation. It covers the application of the prudent person principle and quantitative

61. Source: Toronto Centre, “*Implementing Risk-based Supervision: Leadership and Management Challenges*”, presentation given by Michael Hafeman, Regional Insurance Leadership Program, April 19-24, 2009, Johannesburg, South Africa.



investment limits as complementary or alternative frameworks, as well as other regulatory prerequisites such as “fit and proper” requirements, a power for the supervisor to issue binding or persuasive guidance and licensing powers. It is stated that it is preferable for the supervisor’s objectives to be established in legislation, and examples are given. Risk-based legislation is considered primarily in relation to solvency. There follows a discussion of readiness to implement RBS, such as organisational alignment between mission, strategy, culture (core values) and infrastructure. Resource planning and the various options for organizational structure are considered.

Information and data collection are reviewed,⁶² noting in particular that information is needed not just on what is going wrong but what is going right, so that effort can be targeted at the former (deciding on what to inspect or analyse in greater detail). Supervisors require qualitative information on how entities are complying with rules as well as just quantitative information showing that they are doing so. Supervisors require trend data to try and spot developing problems (meaning that the data used must be consistent over time). Ultimately, information is needed both on the probability of risks materialising and their impact should they materialise. The supervisor also needs more information on the big picture to identify how systemic risks can affect individual entities and the pension industry as a whole. In addition, assessing the performance of the authority itself becomes more important under RBS, both to reassure external stakeholders and provide feedback on the supervisory strategies adopted. The introduction of RBS gives the authority an opportunity to critically scrutinise information gathering, and indeed risk-based supervisors should regularly review their information needs to identify gaps or information that is redundant. The mechanics of data collection are then discussed.

Finally, the module considers industry skills and readiness, and why these are essential to successful implementation. Some authorities note that over 80% of pension fund errors are due to lack of knowledge and understanding and a relatively small proportion due to wilful acts of fraud or deception. It is important to reduce the errors caused by ignorance and poor practices, to concentrate the supervisor’s efforts on finding genuinely problematic cases. Therefore, the standards and best practices that the supervisor wishes to see, and perhaps rely upon, need to be communicated. Because the authority is going beyond simple compliance with regulation, it needs to issue guidance on its expectations. These relate especially to governance, integrity and risk management systems. Such education may be as important as inspection. It may involve a greater role for communications professionals in tailoring guidance so as to best communicate messages to different audiences and the use of a wider range of media including interactive online tools. Pension professionals advising pension fund management may also be an important audience, while industry representative organisations may be important intermediaries. In any event, consultation should play a key role.

Finally, there is some brief consideration of the importance of capital market development where such markets are underdeveloped.

62. IOPS Working Paper No. 13 on “Efficient Information Collection” provides more information.



Module 2

The coverage of **quantitative risk assessment tools** provides an overview of risk-based solvency and other quantitative regulatory requirements. There is a general discussion of the use of models, referencing the UK Board of Actuarial Standards' recommendations on modelling and some caveats. Models, however good, can never be a substitute for the judgement of experienced supervisors. It then moves on to the supervision of quantified regulatory requirements for DB plan solvency and funding.

The module then turns to quantified regulatory requirements for DC plan investment in relation to portfolio limits and minimum returns before turning to more advanced target-based risk measurements, already covered in Ashcroft and Stewart (2010) and Randle and Rudolf (2014). These ideas are developed further by drawing on the concepts advanced by Professor Viceira.⁶³ Supervisors could limit the level of active bets that managers take by defining (measuring and verifying) maximum tracking errors, just as institutional investors do with the active managers they hire. This would enable the pension system to remain within the overall risk level that is deemed appropriate. Or, a benchmark could be constructed of a portfolio of riskless assets which would generate the targeted replacement rate at the relevant investment horizon (i.e. a portfolio of inflation-indexed bonds with a duration that properly reflects the investment horizon of the population of plan participants). The performance of the fund would be measured against the performance of such a benchmark.⁶⁴ Supervisors could then work this analysis into their overall risk assessment via a “traffic light” system.

The module then considers quantitative measures of risk (see Figure 9), recognising that the extent of their application should be proportionate to the nature, size and complexity of the pension fund.

FIGURE 9 ■ APPLICATION OF QUANTITATIVE RISK ASSESSMENT TOOLS⁶⁵

TECHNIQUE	DB PENSION	DC PENSION PLAN
Comparison of assumptions	X	
Analysis of surplus	X	
Roll-forward calculations	X	
Duration analysis	X	X
Sensitivity testing	X	X
Deterministic stress testing	X	X
Stochastic stress testing	X	X
Value at risk	X	X

63. Taken from Hinz, R. P., Rudolph, H. P., Antolin, P. and Yermo, J. (2010), “Evaluating the Financial Performance of Pension Funds”, World Bank Group, Washington DC.

64. A problem is that in practice there is a lack of such long-dated, indexed bonds, in developing and indeed some developed economies.

65. “Pension entity” refers to assessment of the solvency of insurers that provide pension funds or the funds of pension management companies.



The module considers each of these techniques and their application in some detail. It makes the following observations in the DC context:

- **Duration analysis** refers to asset liability modelling (ALM) to test mismatch risk, which refers to the exposure of the fund to interest rate changes.⁶⁶
- **Sensitivity testing** can, for example, be used to estimate the effect of changes in interest rates and equity values on participants' account values.
- **Deterministic stress testing** can be used to help assess the effects of various risk scenarios on the fund values and potential retirement incomes of the members and beneficiaries. However, it does not provide any information on the likelihood of such scenarios occurring.
- **Stochastic stress testing** is similar to deterministic stress testing except that the likelihood of scenarios is not predetermined but computer-generated according to a model, and hence can respond to a wide range of future conditions.
- **Value-at-risk calculations** can be used as a measure of the volatility risk to which affiliates of a DC pension fund are exposed.⁶⁷

The module points out that many of the techniques require large quantities of detailed data that would often require significant entity cooperation, or for the entities to undertake the calculations themselves.⁶⁸ The integration of such analyses into entity risk assessment is then considered, covering DB plans and DC plans with and without guarantees, except that the module can see little practicality in their use for unguaranteed DC plans (running counter to the thrust of Randle and Rudolf, 2014).

The module finishes with some consideration of the measurement of non-financial risks, essentially operational risks and management and control. While such factors are very difficult to judge and equally difficult to score numerically, they can be of great utility to the supervisor, as they tend to be “leading” indicators, as compared to the numerical factors, which are mostly “lagging”. Sources of information can include data on supervisory filings and self-assessment questionnaires. For management and control, more qualitative judgment scores may have to suffice. In any event, a consistency checking process is needed.

Module 3

This module on **identifying risks** covers both risk focus and entity-level risks, with an illustrative chart showing how different concepts associated with risk assessment may inter-relate, (see Figure 10). Strangely, however, the module does not consider basic concepts in risk such as definitions and the importance of them being

66. In practice, ALM can also be used to test how well the duration of assets in DC funds matches the length of time to retirement of affiliates where funds only cover affiliates within a specific age band.

67. The toolkit does not, but perhaps should, go on to state that this is most of value where maxima or a range is specified for the volatility in a fund so as to align it to the expressed or implicit risk preferences of affiliates invested in the fund and where volatility can be measured relative to the specification or target.

68. Most of the related discussion relates to DB liabilities. Some interesting points could have been made requiring the importance of such analyses to be undertaken by DC pension entities if the supervisor wishes them to demonstrate that their investment strategies and implementation are in affiliates' best interests.



two-dimensional and coherent, nor the definitions of inherent and residual risk – concepts that can in practice be differently defined. This may be the most fundamental omission in the toolkit.

FIGURE 10 ■ **RISK-BASED SUPERVISION PROCESS CONCEPTS**



The module starts by noting that a supervisor’s risk focus is driven by its objectives and the nature of the system supervised, arguing (again in contradiction of Randle and Rudolf, 2014) that while the focus of DB fund supervision can be on outcomes, the focus of DC supervision has performed to be on processes relating to affiliate benefits. The supervisor needs to be clear about its risk appetite (the level of failure it could tolerate, which could be risk- or entity-specific), noting that several supervisors (including those in Australia, Canada and Hungary) have published statements to this effect. The next step is identifying the industry and individual institutional risks that could lead to failure to meet the supervisory authority’s objectives. These are defined as risk factors and are usually classified in terms of the conventional risks that pension funds face: market risk, credit risk, actuarial risk, operational risk, compliance risk, governance risk, financial crime risk, outsourcing risk, etc.⁶⁹

The module then covers the risk indicators that can be used to measure some of the risk factors mentioned, which largely draws on Module 2. An example from Kenya is given illustrating how a supervisor can combine qualitative and quantitative indicators in a risk scoring system.

69. As stated, these risks mix three different perspectives on risk, outcome focus, risk mitigation focus and activity-focus. A supervisor might struggle to establish a coherent risk model that uses all these risk factors as defined in detail in the module – the full list runs to a catholic mixture of 12 risk factors which excludes governance, mis-selling and reputational risks and includes expenses/charges within a broader category of “agency risks” due to competition failure.



Finally, the module considers systemic risk, noting that such risks can be identified and assessed on two levels, a micro and a macro basis. One can take a bottom-up approach and attempt to identify risks at the level of individual supervised entities, or a top-down approach looking at risk on a sectorial or thematic basis. In the former case, systemic risks are those found across many entities and may be best dealt with at system rather than entity level. Indeed, entity risk assessments only become meaningful once systemic issues are identified. Regarding the top-down approach, the risk-based supervisory process should look beyond entity-specific data to gather and analyse information on the industry and the financial system as a whole, including relevant international market information. The risk identification process should also be forward-looking in nature, to detect trends that may pose new or emerging risks. This concept of risk landscape analysis otherwise appears to be overlooked in this module.

The analysis of specific systemic risks may be triggered by exogenous developments such as a major financial crisis (a global financial crisis example from Germany is given). Or, functional activities or risk categories that do not need immediate attention at individual entities may increase in importance where they are found to be widespread. Examples of the types of indicators that may be relevant are cited, such as complaints and industry-wide stress tests. Various options for incorporating systemic risks within risk scoring are considered; these depend on the supervisory methodology.

Module 4

This module, on **risk mitigants and risk scoring**, is designed to help supervisory authorities who wish to build a risk scoring model which will be used to guide their supervisory actions. The aim is to derive a score for net risk for each risk factor which takes account of risk mitigants.⁷⁰ This can be plotted in matrix form to indicate the materiality of the mitigated risks, such as at Figure 11 below, which can in turn be interpreted according to the supervisor's risk appetite and supervisory strategies.⁷¹

70. Inherent risk in Figure 11 is effectively measured in terms of the impact of a risk materialising and may reflect the quantitative assessment of the risk, for instance the actual level of credit risk exposure in a portfolio. This implies a common measure of impact, which is perhaps easier for a DB plan where all impact can be measured in terms of scheme solvency. Such quantitative assessment enables the probability dimension of the inherent risk assessment to be combined with the impact: for instance, a 5% probability of a 20% loss could be expressed as an inherent risk of 1%; indeed, the model used by the Dutch supervisor bases all risk on a 5% probability. This assessment may still have some subjectivity within it, which may be obscured by being expressed as subjectivity in the choice of model parameters. Applying this model to DC pensions may prove more challenging.

71. For instance, green might be interpreted as "no inspection activity needed" or "no remedial action needed", with the aim of reducing all risks to green, which would necessitate de-risking of higher inherent risks as well as strengthened risk management mitigation.



FIGURE 11 ■ EXAMPLE OF NET RISK SCORING ⁷²

Quality of Risk Management for Significant Activity	Level of Inherent Risk for Significant Activity			
	Low	Moderate	Above Average	High
Strong	Low	Low	Moderate	Above Average
Acceptable	Low	Moderate	Above Average	High
Needs Improvement	Moderate	Above Average	High	High
Weak	Above Average	High	High	High

The scoring of the net risk can be undertaken using a matrix which combines a relatively small number of key activities with inherent risks and mitigation evaluations (see Figure 12).⁷³

FIGURE 12 ■ EXAMPLE RISK SCORING MATRIX CONSISTENT WITH FIGURE 11 ⁷⁴

RISK MATRIX							
Significant Activities	Materiality	Inherent Risks	Quality of Risk Management	Net Risk	Direction Of Risk		
Activity 1	★	<input type="checkbox"/> Credit <input type="checkbox"/> Market <input type="checkbox"/> Liquidity <input type="checkbox"/> Insurance <input type="checkbox"/> Operational <input type="checkbox"/> Legal & Regulatory <input type="checkbox"/> Strategic	Operational Management <input type="checkbox"/> Oversight <input type="checkbox"/> Financial Analysis <input type="checkbox"/> Compliance <input type="checkbox"/> Internal Audit <input type="checkbox"/> Risk Management <input type="checkbox"/> Senior Management <input type="checkbox"/> Board Oversight	★			
Activity 2							
Etc...							
Overall Rating					Overall Assessment		
Capital		Earnings					
Composite Risk	★	Direction of Risk	Time Frame				

72. Source: Toronto Centre.

73. The format shown in Figure 12 has been compressed for reasons of space. In practice, each inherent risk is plotted vertically, as is each type of oversight (which in the broadest sense could be described as aspects of governance). Note that the matrix combines three different perspectives on risk: the net risk associated with key activities, the inherent risk of negative outcomes, and the risk associated with deficient risk mitigation. But each type of risk is rigorously separated. The Canadian OSFI DB matrix on which Figure 12 is based is kept manageable by having just four key activities (actuarial, administration, asset management and affiliate communication), four inherent risks (investment, valuation of funding level, operational and legal/regulatory) and two risk mitigation evaluations (controls and oversight).

74. Source: Toronto Centre.



The types of risk mitigant are then detailed on the basis of Canadian definitions, serving as broadly defined types of governance or external support for DB adequacy. Notably, some of these can be problematic system-wide, and mitigants also need to be assessed at significant outsourced functions, necessitating sufficient supervisory powers. The types of mitigant can and should be broken down further into specific principles or key questions, as for instance in Figure 13 below, which may be made specific to particular key activities or inherent risks.

FIGURE 13 ■ EXTRACT FROM THE AUSTRALIAN PENSION SUPERVISOR’S QUALITY ASSESSMENT SCORING METHODOLOGY

RISK CATEGORY	PRINCIPLE DETERMINANT IN APRA’S ASSESSMENT OF MANAGEMENT AND CONTROL ⁷⁵
Liquidity risk	<ul style="list-style-type: none"> • Awareness of liquidity risk by the board • Liquidity management functions and committees (ALCO) in place • Policies and procedures relating to liquidity risk management • Limits in place, and how they are reviewed and monitored • Scenario analysis and models used, including dependability of information sources • Reliability and extent of intra-group funding and standby activities • Contingency arrangements in place, including any contributions to multilateral liquidity support arrangements

The module then provides significant detail on risk management and internal control systems, drawing on pre-existing IOPS and OECD guidelines on this subject,⁷⁶ and emphasising the importance of supervisory guidance and a focus on activities where serious risk materialisation has been noted in the past. Where supervisors determine that the internal control system is not adequate or effective for the entity’s specific risk profile, they should take appropriate action. This would involve communicating their concerns to the governing board of the pension fund and monitoring the actions taken to improve internal control. Where the risk is felt to be systemic, the authority may issue guidance notes on how they would expect risk-management systems to be improved.

The module then considers risk weighting, which requires the establishment of probability and impact. Assessments are likely to vary depending on the type of plan design. Risks with a greater or more likely impact on the supervisor’s objectives require a higher weighting. Examples include jurisdictions that weight key activities, inherent risks or risk mitigation types or all three. Once risks have been weighted, the methodologies for rating net probability and impact are considered in general terms. Different risk or mitigation factors need to be combined additively or multiplicatively⁷⁷ using a conditional probability model.

75. The Figure reproduced in the module goes on to cover operational risk, credit risk and investment and market risk.

76. IOPS (2010), “*IOPS/OECD Good Practices for Pension Funds’ Risk-management Systems*”; IOPS (2009), “*Pension Funds’ Risk Management Framework: Regulation and Supervisory Oversight*”, IOPS Working Paper No.11, <http://www.iopsweb.org/dataoecd/31/33/43946778.pdf>.

77. The module comments that the fact that supervisors add or multiply factors indicates a view that there is positive correlation. In fact, only multiplicative combination implies positive correlation.



An Australian example shows a supervisor working out the magnitude of a risk by a certain factor, then assigning a probability of that risk occurring, then working out the impact should it do so, all in the context of the failure risk of a supervised entity (where there is therefore a common metric for failure against the supervisor’s objectives). This shows a non-linear increase in risk rating as impact increases, mirroring the risk-of-failure methodology used by credit rating agencies. Alternatively, a single probability rating can be calculated on the basis of a given impact that is implicit (or preferably explicit) in the risk definition. Where a separate impact rating is used, this tends to relate to entity size except in mandatory systems, such as Hungary’s, where all mandatory funds are considered equally systemically important. Possibly for political reasons, impact may be given a higher weighting than probability.⁷⁸

Finally, mechanisms to ensure consistency of scores are reviewed. The extent to which evaluation is centralised or pre-populated depends to the maturity of approach and supervisory culture and affects the amount of checking needed. Crucially, the module notes that within most supervisory authorities there is a separate set of officials responsible for the design and ongoing maintenance of the risk-based system. This unit evaluates the framework and sets the risk parameters on which the gradings are based. The relationship of this unit with the rest of the regulatory organisation varies. Alternatively, a cross-departmental team or committee can be used. Biases in supervisory judgment need to be recognised. Authorities in their second or third generation of risk-based frameworks are developing an awareness of how they need to structure the assessments to adjust for supervisors’ behaviour. Some other issues are discussed, including the scope for including direction-of-travel indicators against net risk scores.

Module 5

A fundamental aspect of RBS is that a logical connection should be made between the outcome of any risk analysis undertaken and the nature of the subsequent supervisory action taken in response. The module on **supervisory response** first considers supervisory response matrices, drawing heavily on the Australian PAIRS/SOARS matrix (Figure 14) and contrasting it with the simpler matrix used in the UK.⁷⁹

FIGURE 14 ■ THE AUSTRALIAN PRUDENTIAL REGULATION AUTHORITY PAIRS/SOARS MATRIX

		Probability Rating				
		Low	Lower Medium	Upper Medium	High	Extreme
Impact Rating	Extreme	Green	Yellow	Orange	Red	Red
	High	Green	Yellow	Yellow	Orange	Red
	Medium	Green	Green	Yellow	Orange	Red
	Low	Green	Green	Yellow	Orange	Red

Green	Normal
Yellow	Oversight
Orange	Mandated Improvement
Red	Restructure

78. This feature can now be seen in the latest risk model developed by the Chilean supervisor and results in an asymmetric risk matrix.

79. See Figure 18 below, although this matrix included in the toolkit deviates substantially from that originally developed in the authority.



Various considerations in matrix design are covered, such as the value of using an even number of gradations to avoid default to the middle, clarity of defining inputs to and responses to the assessment, and the need to calibrate the matrix to avoid too many entities requiring intensive response. It is mentioned that where there is a small number of entities, the risk score may drive which risks or activities are to be examined at entities rather than which entities. The importance of having some response to lower-risk activities or entities is also discussed.

In considering responses to different levels of assessment, the module spends some time setting out what might be seen as good practice in making on-site inspections risk-focused and effective.⁸⁰ There is then some reworking of the material already covered on systemic risk, with some ideas regarding responses.

The module then considers the communication of risk assessments, noting that the greater application of supervisory judgement under RBS creates various communication challenges which need to be tackled verbally and in writing. The supervisor must be able to explain such concerns in a credible manner and require appropriate action by the institution, which might not involve a single best answer. If necessary, the authority can require the pension fund to develop an acceptable plan for correction of problems and check compliance with corrective actions and remedial measures. The advantages and drawbacks of disclosing risk scores to entities and the public are discussed. There is agreement, however, that the supervisor should explain its methodology to the industry, albeit without compromising supervisory flexibility. Sharing an outline of what broad supervisory response can be expected in certain circumstances with the industry (including any matrices used) may strengthen the credibility of the authority, clarify what is expected of supervised entities, and help them stay in compliance with regulations and supervisory expectations.

Finally, the module considers the response specific to each entity, including the escalation of response. To maintain the credibility of the supervisory system, supervisory responses should be perceived by supervised entities as meaningful and appropriate to the circumstances. The supervisor should carefully pitch its initial response to a problem in a proportional and fair fashion, and then follow up in an appropriate way. The concept of the enforcement pyramid (Figure 15) is explained, drawing on a recommendation originally made in Baldwin and Black (op. cit.). In essence, the pyramid is a graphical representation of an action plan for intervention, allowing the supervisory authority to consider various scenarios in advance and develop appropriate strategies for supervisory action, rather than waiting until problems arise and then having to decide what action should be taken under pressure. The various ways in which response can be escalated are considered along with the options for different levels of response.

80. The model adopted appears to be based on inspecting DB plans in a single jurisdiction. Bizarrely, this is seen as a “high–medium risk” response, limited to at most five days and undertaken only by males. But then, a different type of inspection every few years (perhaps thematically) is contemplated for low/medium risk entities. Mandatory DC systems are at one point explicitly excluded from the guidance.



FIGURE 15 ■ ILLUSTRATIVE ENFORCEMENT PYRAMID⁸¹



Country case studies – Sources

By far the largest source of literature on risk-based pension supervision describes the experience of numerous countries that have sought to implement it. Inevitably, this is mostly jurisdiction-specific, often outdated, and does not often mention any problems encountered. There are three main sources:

- The 11 case studies included in the IOPS toolkit,
- Several case studies on implementing RBS published by the World Bank,⁸² and
- Material published by the supervisors themselves.

Case studies from the first two of these sources are covered in turn, by jurisdiction in alphabetical order.⁸³ Where no other reference is given, information is taken from the IOPS toolkit. Some of the individual supervisors covered in those case studies have published more extensive and up-to-date details on their approaches on their websites, notably OSFI in Canada, the RBA in Kenya and DNB in the Netherlands. To keep the length of the review manageable, the review of case studies restricts itself to bullet points on key features that may help to illuminate the literature that has already been reviewed.

81. The version included in the toolkit cannot be reproduced for technical reasons. An alternative version is included with more layers that are colour-coded to reflect the output from a supervisory response matrix. The layers of the pyramid represent different types of intervention and enforcement activity, with the levels and structure of the pyramid depending on the powers available to the supervisory authority.

82. One World Bank case study (on Costa Rica) is among the 11 IOPS case studies. Some case study material relating to Albania and Turkey has been covered already.

83. The case study on Mexico is not included, because this literature review is appended to an evaluation report on this jurisdiction that provides considerably more detailed and up-to-date information.



IOPS and World Bank case studies

Key points from **Australia** include:

- APRA is an integrated prudential supervisor that does not cover market conduct.
- Publicly states its objective is not zero failure.
- Focus is on prudential oversight, with governance and risk management as 4 of its 9 risk categories.
- On-site inspection and off-site analysis are combined within entity-type teams, plus specialist teams (including entity crisis).
- On-site focus is on ensuring governance and risk management works in general, specifically on investment and operational risks (less on outcomes).
- Risk matrices (PAIRS) are used to select entities to examine, and supervisory response (SOARS; see Figure 14) is derived from overall risk scores.
- Inherent risk is assessed by entity, reflecting the governance assessment.
- Internal and external guidance on governance and mitigation (qualitative measures) defines what “strong” looks like.
- Quantitative investment measures relate to relative concentration and volatility.

Key points from a report on the development of risk-based pension supervision in **Brazil**⁸⁴ include:

- Stand-alone supervisor (PREVIC) is responsible for a mixture of occupational and umbrella DB, hybrid and DC funds.
- High-level risk mapping underpinned development of the methodology, followed by the development of 14 core principles by a cross-organisational project team.
- The particular risks seen as being highest priority were DB actuarial/funding, investment (conservatism and overconcentration) and poor governance.
- The narrative underpinning the strategy is that
 - PREVIC aims to raise the standards of governance and risk management of pension fund management to a level where they manage the risks in the system themselves in line with their legal fiduciary duties.
 - To do this, PREVIC provided and disseminated guidance through three guides on best practices covering each of the three key risks, plus one on risk management. They also worked to obtain the agreement of the market that what is recommended is necessary if legislation and fiduciary duties are to be complied with. This involved an extensive process of industry consultation and awareness-raising.

84. World Bank (2012). “Brazil: Risk-based Supervision (RBS) of Brazilian Closed Pension Funds”, World Bank Group, Washington DC



- PREVIC then checks that the guidance is being applied. Where individual pension funds are not implementing the guidance, PREVIC identifies and recommends ways in which they can implement the guidance; that is, it orientates compliance.
- PREVIC has to recognize, however, that pension fund management may fail to do what they are told because of ignorance, laziness or, most seriously, because they have a conflict of interest. Therefore, PREVIC must be able to take enforcement action proportionate to the level of risk and the wilfulness of the non-compliance.
- A major focus of design work was on developing a more risk-based approach to the on-site inspection and risk assessment of pension funds, including the preparation of a new, risk-based, on-site supervision manual documenting the processes involved. It explains how PREVIC staff will assess pension fund compliance with the guide on best practices which, as it interprets and expands on regulation, underpins the inspection process.
- Governance is a particular focus of on-site inspection, and risk-based inspections are designed to enable PREVIC to develop a clearer view of the quality of governance across the different types of pension funds, enabling more targeted interventions. To expedite entity assessment, a self-assessment questionnaire⁸⁵ was completed by all entities.
- On-site inspection is driven by an annual plan prioritised according to assessed risk.
- Two committees (risk and strategic research committees) were established to coordinate the implementation of RBS and risk analysis across the different supervisory departments.
- Amendments to regulation were identified where the supervisor's powers or requirements placed on entities were inadequate.

Key points from **Canada** include:

- Integrated prudential supervisor (OSFI), with methodology fine-tuned to DB and insurance.
- Publicly states its objective is not zero failure.
- Risk indicators based on off-site analytics – especially DB funding – drive the selection of entities for on-site review or enforcement remedies.
- Analytics used for DC are limited. The DC emphasis is on affiliate communications and adherence to statement of investment policies and principles, as well as a few operational risks such as custodian relations.
- Each of the four significant activities in the risk matrix gives rise to certain inherent risks, which are evaluated by considering the potential effects of an adverse impact on the pension assets, liabilities, and funding requirements.

85. Loosely based on the questionnaire available on the website of the Canadian Association of Pension Supervisory Authorities (CAPSA).



- A risk matrix geared for DB drives supervisory response and follow-up based on net risk, having tested controls and oversight (governance). The matrix is now widely emulated in Latin America, including the version at Figure 12 above.
- Includes a direction of travel indicator.
- Inherent risk relates to entity-specific metrics.
- Residual risk/mitigation determined by governance and risk management specific to each risk category (no overall assessment of governance). This feeds into a supervisory response ladder.
- Each entity has a relationship manager. This is seen as key for assessment consistency.

Key points from **Chile**⁸⁶ include:

- Stand-alone pension supervisor (SP) supervising six DC pension management companies offering mandatory life-cycled and voluntary funds plus other institutions.
- Collects daily data from the companies plus ad hoc requests for further information.
- Intensive supervision reflects large size of funds and that they deliver privatized social security (several of the benefit types managed included a State-financed safety net).
- Conflicts of interest seen as key risk, and supervisor seeks to ensure effective risk management and controlled internal processes.
- 21 activities for evaluation originally included 12 relating to governance and management to derive a net risk score, taking account of inherent risk weightings.⁸⁷ Systemic risks are also evaluated, and these may affect entity risk ratings.
- Global entity risk scoring is used to drive future on-site inspection programmes and supervisory stance (response).
- Detailed IT-enabled off-site monitoring and analysis enable assessment of operational risks and failures.
- Acknowledges that monitoring of investment returns can drive short-termist approach and is considering better investment metrics.
- Central divisions are responsible for evaluating the effectiveness of the model and incorporating new information useful for the assessment. The latter issues the regulation that supports RBS and also the rules that a pension fund manager must comply with.

86. Taken from the presentation made by Solange Berstein, Superintendent of Pensions, at the IOPS Regional Workshop on pension supervision for CIS, Caucasus and Central Asia region, February 2010.

87. The system is now being revised to focus on activities causing risk and transversal evaluations of high-level risk mitigations relating to governance, risk management and IT.



The IOPS case study on **Costa Rica** is in fact a reprint of a report published by the World Bank⁸⁸ which focuses on the development process for outcome and RBS. It includes the following key points:

- Stand-alone pension supervisor (Supen) supervising six DC pension management companies offering mandatory life-cycled and voluntary funds plus several mostly governmental DB pension funds. The detail specific to DB is excluded from this review.
- An outcome-based risk diagnosis that underpins the approach (summarised in Figure 4 above) has the virtue of identifying risks over which the supervisor has no direct remit but can influence regulatory development or other agencies. Examples of this being successful elsewhere include the introduction of a fee cap in the UK and the supervisor in Albania persuading the tax authority to eliminate deficiencies in the process for reclaiming tax incentives.
- A methodology was developed to enable decisions based on risk to be rigorous and defensible, and in particular to prioritize the highest risks to its supervisory objectives. This involved strategies for addressing each of 22 risk areas⁸⁹ (with risks defined from an outcome perspective) and a risk scoring methodology.⁹⁰ The agreed-upon strategies were then used to underpin corporate planning and budgeting. The risk and strategy cycle is illustrated in Figure 16 below.
- The net risk ratings of each entity are used to determine the level of own funds (risk capital) that each entity must hold, providing an incentive for good performance as well as informing supervisory response to deficiencies found.
- There is a strong focus on pension fund governance and risk management, both through inspection and guidance to entities. The approach aims to ensure that the entity's board should, as part of their fiduciary duties, share the supervisor's objectives of minimizing risk in the system. As a result, there is a focus on ensuring that entity boards and management understand the key risks and how to minimize them proactively, since this will be the most efficient way to mitigate risks and avoid the risk of supervisory micromanagement.
- Principles and guides on six core areas (governance, DB fund solvency, operational risk, investment, IT and market conduct) have been developed by cross-organisational teams and issued to supervised entities to improve their understanding of the good practice expected of pension funds to improve the likelihood of compliance with supervisory expectations. This has been implemented alongside enhanced consultation with pension entity management.
- The principles provide the basis for a new risk management regulation, ensuring alignment between supervision and regulation.

88. Price, W., Ashcroft, J. and Inglis, E. (2016), *Outcomes and Risk Based Supervision in Pensions: Methodology with a Case Study for Costa Rica*, World Bank Group, Washington DC.

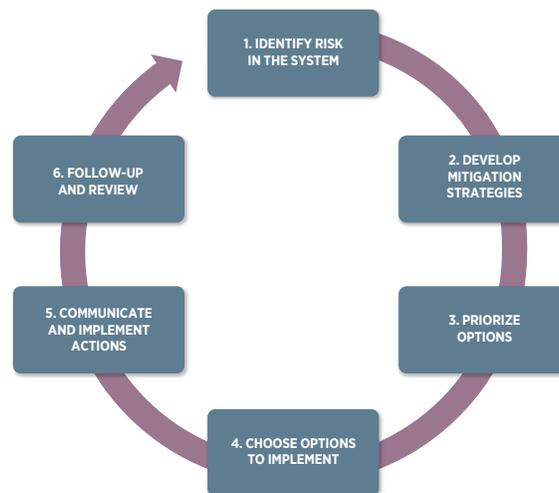
89. This may sound like a large number, but the supervisor is responsible for both DB and DC pension funds.

90. This methodology has subsequently been further refined to make it more consistent with the methodologies used by other financial service supervisors along the Canadian model.



- The principles and guides are the centrepiece of the new off-site and on-site inspection process, which delivers an integrated approach from risk strategies through to supervisory interventions. The new processes emphasize good planning and a structured use of the assessment guides for risk assessment. Questions and supporting on-site testing are documented on bespoke spreadsheets that also document how the off-site tests identified in the risk strategies dovetail with on-site inspection. There is a strong focus on interviews with the board and key managers to probe how they understand the way that risks are being mitigated.
- The supervisor's organizational structure has been developed to facilitate the focus on risks, with a central strategy and risk unit supporting a risk committee and a specialist team responsible for investment risk across both types of fund.
- **Becoming risk-based is as much an attitude of mind as a collection of tools and techniques.** Thus, the implementation approach focused heavily on involving staff in project design and raising their capabilities.

FIGURE 16 ■ SUPEN'S STRATEGY AND RISK CYCLE



Key points from **Croatia** include:

- Integrated supervisor (HANFA) responsible for four pension management companies running mandatory funds plus voluntary funds (all DC), and just starting to implement RBS when the case study was written.
- RBS seen as a way to delegate responsibility for setting portfolio investment limits to pension funds themselves.
- Supervision focuses on on-site review of board and senior management oversight, capital adequacy, monitoring daily reports, and on-site review of internal controls. In addition, a system for comprehensive risk assessment was being developed and regulation was being proposed covering a wide range of requirements, especially for governance and risk management.



Key points from **Denmark**⁹¹ include:

- Integrated supervisor.
- The methodology described relates to the prevailing DB funds, although DC funds are expanding into the market. The DB funds include profit sharing with affiliates.
- Introduced stress testing of funds covering the mismatch between their assets and liabilities, with traffic light indicators (red, amber, green) applied to each entity. The indicators affect entities' freedom to share profits, as well as informing the extent of on-site inspection and supervisory intervention. Stress testing is done in combination with scoring of management quality and controls, and additional capital requirements can be imposed where stress test scores are red.
- Has encouraged extensive risk hedging and use of derivatives, coupled with a large-scale move from equities into bonds.

Key points from **Germany** include:

- Integrated supervisor (Bafin) responsible for around 180 DB pension funds and uses the same methodology as for insurance companies.
- Assigns entities to risk categories with a view of determining the intensity of supervision, including selecting its on-site inspections. The two dimensions used for assigning entities relate to the potential impact on system stability (primarily size) and quality, based on an entity's financial situation, growth and quality of management.
- Off-site data analysis, for instance ratio analysis and stress testing, is the main driver of classification, although inspection results inform the quality of management in particular. Risks and mitigants are taken into account at the same time.
- An entity's classification affects the supervisory response.
- There are periodic evaluations of the quality of the risk classification process, which may lead to some recalibration.

Key points from **Hungary** include:

- At the time the case study was prepared, there was a system of mandatory and voluntary DC funds supervised by an integrated supervisor (HFSA).⁹²
- Board has established six objectives and explicit risk-taking policy (appetite – not a zero-risk policy). If an identified risk appears low compared with the HFSA's risk appetite, it will not be dealt with.
- Board determines the amount of risk to be taken by the organisation in two steps. First, they consider the environmental risks reported by analysts, selecting those which will have the strongest impact in the

91. Included within Brunner, Hinz and Rocha, cited already at footnote 15.

92. Since then, the mandatory funds have been nationalised.



coming period, and assign resources to the management of these risks. Next, a risk level threshold is set for each activity. Reaching these thresholds triggers the allocation of resources.

- Risk dimensions are the impacts of negative outcomes on specified targets (e.g. affiliates) and the probability that these outcomes will occur from entity evaluation. Net risk takes account of the types of inherent risks run by the entity and the quality of its risk management.
- Risk assessments under 10 headings relate to the financial sector, aspects of corporate governance, market presence and business processes. Each of these is graded on a four-point scale, and they are then aggregated into an overall assessment.
- Systemic risk factors influence entity risk assessments and vice versa.
- Thematic risk reviews are usually undertaken at a sample of entities.
- Analysts work in specialist teams and can assign “threat cards” to entities within the assessment model following their analysis (thematic, macroeconomic, sector or entity-level). Supervisors can rely on their specialist knowledge and experience in deciding which threat cards should be taken into consideration in compiling the risk assessment plan.
- Quantitative indicators can be used for benchmarking purposes. Qualitative indicators are used – for instance, for governance – and guidance is provided on the criteria for giving a risk factor a strong rating.
- Impact ratings relate to measures of entity size and customer base, with mandatory pension funds automatically given the highest rating, implying intensive supervision.
- Supervisory response and level of supervision depends on each entity’s rating.

Key points from **Kenya** include:

- Stand-alone pension supervisor (RBA) responsible for the National Social Security Fund (NSSF), occupational schemes and individual pension schemes, a mixture of DB and DC, using the trustee model. It has set itself five objectives.
- The RBS model is based on APRA’s, with the goal of measuring the solvency of DB schemes and the investment risk of DC schemes, applying a risk score to each scheme which then determines the supervisory response.
- Eight inherent risks are identified: counter-party (mainly DB), balance sheet/market, liquidity, operational, legal/regulatory, strategic (entity viability) and contagion/related party. These are combined into three inherent risk categories: investment, insurance and non-financial.
- The scoring model then provides assessment criteria for the three inherent risk categories, three management and control risk factors (covering a variety of risk mitigants including governance) and two capital adequacy risk factors (fund adequacy and employer sponsor contributions). Risk indicators are provided for each risk factor that is a mixture of quantitative and qualitative, including some aspects of regulatory compliance. A methodology has been developed for incorporating information from complaints within



the scoring model. Risk scores are weighted (with a double weight for inherent risks) and then added for an overall entity score.

- Quality assurance of entity weightings is provided by peer review, technical checks and the management chain.
- Detailed manuals, guidelines and checklists are provided for on-site inspection, content and process.
- Risk scores feed directly into a supervisory response matrix with five levels of response.

Key points from **the Republic of Macedonia** include:

- Stand-alone pension supervisor responsible for two pension management companies and two pension fund custodians managing mandatory and voluntary DC pension funds, with three specific objectives in this regard.
- The case study describes the RBS implementation project. It was underpinned by the following five principles:
 - **A focus** of effort and attention on those risks assessed to be the most intense; in particular, a concerted effort to drive up the standards of investment strategies and policy implementation.
 - The development and use of **quantified measures** of the risks relating to investment portfolios and activity and to reconciliation processes.
 - The selection of activities of pension funds to examine or to take action on, according to an objective and transparent assessment of risk.
 - The promotion of risk management **by the pension funds** themselves, to enable appropriate reliance on their systems and policies; and
 - An emphasis on **enforcement action that is effective** in preventing or remedying risks materializing, rather than issuing sanctions for their own sake.
- In view of the small number of supervised entities, which are all systemically important, the methodology does not need to identify which entities should be supervised.
- There is an explicit scored assessment of each entity's compliance with good investment practice, key controls to mitigate other risks and governance.
- Six outcome-based (inherent) risk categories are used: strategic investment, operational, company/fees related, affiliate data, payments out of funds, and affiliate understanding. These and their component risk factors, are weighted on a probability/impact matrix to determine the risk appetite and amount of assurance needed for each, according to strategies for each risk category.
- The assessment of risk mitigation covers risk-specific controls/systems and pension company-specific governance. The results of testing are combined in inspection worksheets using a four-point scoring scale. Governance assessments are against the following headings: management quality and structure, clarity of corporate structure/direction, quality of control framework, risk management function and process,



and propriety and transparency of decision-making. The quality of control and governance reduces the assessed level of probability, with a specific mechanism introduced to enable the risk assurance regarding high-impact risks still to be assessed as acceptable.

- There is annual self-certification (assurance) relating to the key control processes of pension companies and custodians.
- Regulations were amended regarding the adjustment of RBS, introducing the fiduciary duty of managers of companies and drawing attention to the risk-based principles for investing the assets of the pension funds.
- A comprehensive RBS manual was developed and tested through pilot inspections of pension companies.
- A cross-organisational risk committee was established for quality assurance purposes and also to oversee risk strategies, responses to new risks and the implementation of RBS.

Key points from **the Netherlands** include:

- Integrated prudential supervisor (DNB) responsible for several hundred DB and hybrid occupational pension funds, industry-wide or single-employer.
- Uses a risk scoring model (FIRM) applying to all financial markets, with one dimension broadly relating to governance and the other to solvency (combined multiplicatively) – hence, has a strong focus on governance and risk management.
- Scoring model starts with gross (inherent) risk for each risk factor, which cannot be reduced to nil even with the aid of adequate controls. The supervisor’s assessment focuses on the question of whether the institution controls the risk in an optimal manner (as well as realistically feasible). Within the model, optimal control of a certain risk, irrespective of the question of whether the risk has been reduced to nil, should lead to the assessment “strong control” (control score 1; see Figure 17). Financial buffers should be held against residual risk to mitigate the impact of risk materialisation.
- There are 10 inherent risk factors applying to pension funds: matching/interest rate, market, credit, insurance technical, environmental (market dynamics), operational, outsourcing, IT, integrity (e.g. market conduct and money laundering) and legal. Detailed guidance is provided to assess the level of each factor to each entity on a 4-point scale, with a default score for each type of entity that can be deviated from where appropriate on the basis of expert judgment. Criteria for each grading of each risk factor are provided as guidance. The total of the aggregated scores relating to the integrity risk and its controls is shown separately on the FIRM dashboard. In fact, this represents an integrity-risk-specific cross-section of the institution.
- For DB and hybrid pension funds, solvency evaluation uses a quantitative model (FTK) supplemented by continuity analysis to test long-term affordability, especially of discretionary increases in pensions. Qualitative indicators evaluate exposure to risk and the quality of its management.

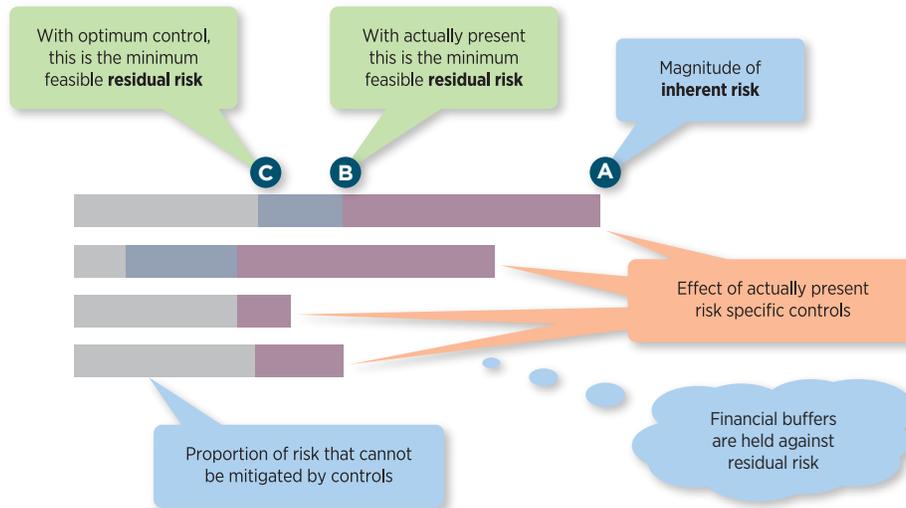


- Entity control of risk can be evaluated specific to a particular risk factor, risk-transcending controls (a five-element governance assessment framework),⁹³ and risk-mitigating effects of group functions. The elements of the risk-transcending controls are organisational structure, supply of management information, human resources, internal cooperation and communication, and audit measures. Additionally, there are management (and board) structure, strategy, risk/control attitude and management decision-making. These two sets correspond well with broader and narrower definitions of governance.
- Impact weightings apply both to size and importance of entities and to risk factors, some of which are seen as more significant than others. These are combined with inherent risk and control gradings through a mathematical algorithm. The supervisor can still apply expert judgment to the resulting ratings, however. The supervisory divisions have measures in place that seek to verify the quality of the risk analyses performed, such as the four-eyes principle, team discussions, peer reviews or quality assurance on behalf of the management of the supervisory function.
- One divisional director is responsible for the FIRM model, supported by a cross-organisational expert team and a dedicated functional application manager. Risk assessment also influences which activities are inspected at each entity.
- Thematic analyses are frequently carried out to gain insight into specific risks affecting multiple institutions (e.g. business integrity, real estate investment, the impact of the crisis), entire sectors of the financial system as a whole and the extent to which such risks pose a threat to the achievement of the supervisory objectives.
- The supervision programme takes account of FIRM entity ratings, but also includes attention to specific risk or thematic analyses.
- The focus on site is on verifying how boards and management are assured that the fund and risks are being well managed. This has more recently been supplemented in the Netherlands by rigorous fit and proper assessment.
- Open-book supervision was implemented to make DNB methodologies, such as those for thematic analyses, available to supervised entities to assist compliance with DNB expectations. The policy regarding communication of risk analysis results to the institutions is formulated by the management of the supervisory divisions. Any such information to be provided must meet certain minimum quality requirements. Moreover, an adequate understanding of the FIRM methodology by the entity concerned is important for a correct interpretation of the results.
- Organizational structure is semi-matrix in which there is a supervisory policy division with responsibilities across all types of institutions (both on site and off site) and “centres of expertise” within each of the divisions for different financial sectors. Within the pension funds unit, one department is responsible for large funds and two departments are responsible for the smaller funds. There are also centres of expertise for material compliance and reinsurance and ALM.

93. Except that the case study provides a group of five followed by a group of four – perhaps the latter set is the mitigating effect of group functions.



FIGURE 17 ■ **DNB'S CONCEPT OF RISK CONTROL**



Key points from **South Africa** include:

- Integrated supervisor (FSB) is responsible for around 13,000 trust-based occupational funds including umbrella DC and DB pension funds (mostly small).
- The risk-based approach was still being implemented, having been adapted from the Australian model. It applies to all financial institutions, assigning a risk score to each entity which then determines the supervisory approach.
- FSB states that it cannot have a zero-failure objective, especially as it is dependent on annual returns from funds and as the time delay from one reporting period to another could lead to failure of timeous detection and intervention.
- There is risk in rating both the funds themselves and the licensed administrators and fund managers that they use. Due to a large number of funds, much reliance is placed on an electronically submitted self-assessment questionnaire.
- The outcome of the risk rating will not be disclosed to funds or administrators, but will be used to identify possible high-risk or high-impact funds or administrators to be subjected to various forms of enhanced monitoring.
- Six inherent risks are identified: Counter-party, investment/expenses, operational, liquidity, legal/regulatory and strategic (including contagion). Depending on the nature of the risk, the mitigations to be assessed relate to relevant aspects of governance and risk management and relevant aspects of financial strength/performance.



- Annual returns from entities contribute early warning indicators that are analysed in a risk scoring model along with other available quantitative data. A non-routine compliance visit or inspection may be undertaken if this interim rating is too high. The entity is first asked to put effective mitigations into place and is only inspected should this not happen, after which it is given a final rating. This final probability rating is multiplicatively combined with an entity-size-determined impact rating to inform decisions on various forms of supervisory intervention where risks are high. The entities with the greatest impact (over \$13.4 million) are inspected every three years as a matter of routine, or more often if their risk rating is higher. Entities of lesser impact are inspected if they have higher risk ratings. More frequent data submission may also be required.
- Inspection visits examine risks under more detailed headings relating to financial outcomes and types of governance, management and control, guided by an in-depth evaluation questionnaire.

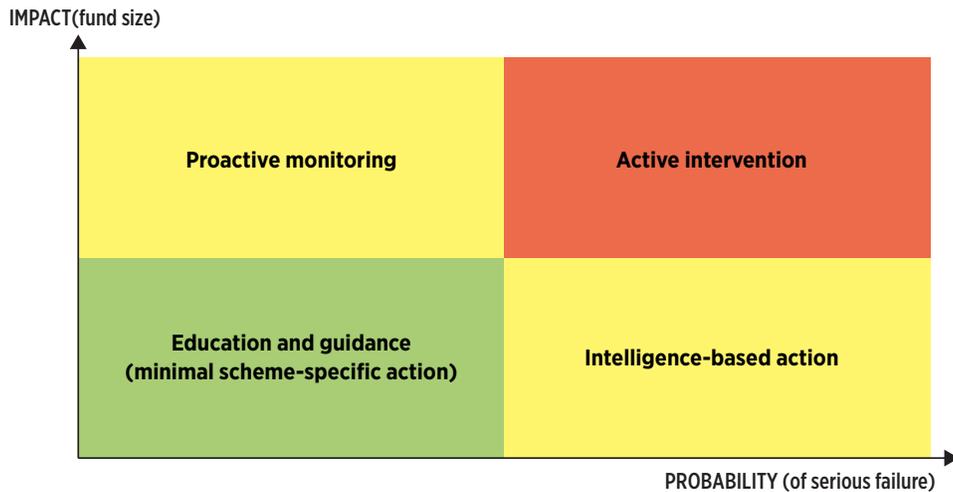
There is no recently available case study for the **United Kingdom**, but a section of Stewart (2008) provides some details.

- Stand-alone pension supervisor (TPR) responsible for tens of thousands of trust-based occupational pension funds (with a few umbrella funds) providing DB and DC benefits.
- Uses a simple risk model based on scheme size (impact) and level of assessed risk (probability) which can be illustrated on a 2x2 matrix (Figure 18). In its first few years, the primary focus was on issues relating to DB funding and sponsor support; hence, the paper largely interprets the matrix in that way. In essence,⁹⁴ large funds with significant funding issues (200–400 at any one time) are subject to **active intervention**. Around 1,000 large funds where the severity (probability) of risk is lower fall into the **pro-active monitoring** quadrant, which involves monitoring of fund, employer and market-specific data. A fund will move into the **intelligence-based action** category where data analysis (whether direct from funds or employers, from other bodies such as the police or the tax authority, or from its own scanning and intelligence-gathering activities) leads TPR to believe that there is a high probability of serious failure of some kind at a smaller fund and that scheme-specific intervention is advisable. Under this heading, there may be a thematic focus on taking action to encourage fund management to tackle specific needs and/or systemic concerns, for instance poor record-keeping. The response to funds not falling in these three moderate or high intensity categories is limited to education and guidance, including some one-off direct contacts.
- A triage approach was used to assess information regarding entity and systemic risks from a wide range of sources and to determine the appropriate level of regulatory response. High-risk work was channelled into one of three regulatory practices, with the role of triage being to manage the flow of work to and between these practices. Lower-risk cases were passed back to the customer support function to provide education or advice.

94. It should be noted that the definition of *response* will vary somewhat depending on the type of risk involved. At the time this was written, virtually all the large funds were DB. This has since changed, and a tighter supervisory regime has been implemented for DC funds, especially umbrella (master-trust) funds.



FIGURE 18 ■ TPR'S RISK AND INTERVENTION MODEL⁹⁵



A joint publication by TPR⁹⁶ provides a more recent overview relevant to DC:

The Pensions Regulator is a risk-based regulator. One of its core tasks for DC schemes is to identify and prioritise risks to member outcomes arising from how a scheme is administered or governed. This allows the Pensions Regulator to focus its regulatory interventions on areas which present the highest risks and where interventions will have the greatest impact. In order to do this, the Pensions Regulator reviews the landscape to identify areas of potential member detriment, categorises the risks and prioritises mitigation for these risks at a strategic level. The Pensions Regulator also uses risk-based business rules and triggers to ensure that case specific responses and strategic interventions are targeted and proportionate. The Pensions Regulator assesses risks proactively through thematic work and intelligence services and reactively through casework.

Conclusion – Some common themes

Assembling a coherent picture from this review of the literature associated with risk-based pension supervision is no easy matter. There are relatively few points of general agreement. While there may be more that is complementary than conflicting, a standard view on methodology remains some way distant, especially since much of the available material is descriptive rather than normative. But perhaps the following can be asserted:

- RBS needs to be built on a foundation of clear supervisory objectives reflecting desired outcomes from the pension system which are translated into a risk focus that drives prioritisation and the system's remediation and assurance strategies.

95. The impact and probability axes have been re-orientated and clarified, and quadrants recoloured, for consistency with diagrams used elsewhere.

96. Financial Conduct Authority and the Pensions Regulator (2014), "Guide to the regulation of workplace-defined contribution pensions".



- To be really responsive, RBS needs to provide early warning, address systemic risks and enable supervisory strategies to address key risks.
- It is therefore a holistic framework rather than just an assessment methodology.
- A common starting point is that zero failure is impracticable; hence, the methodology needs to indicate whether risks have been reduced far enough to match the supervisor's risk appetite (helpfully illustrated by Figure 17). This is why the assessment of the impact and probability of inherent risks provides a particularly important foundation: it enables such considerations to be embedded within the assessment model.
- Balancing judgment with consistency is a challenge which models and scoring systems can help address defensibly, but it must be recognised that the underlying assumptions still contain subjectivity and judgments regarding risk appetite and external influences. A central function of some kind is needed to oversee the development and consistency of the model.
- RBS's origins in banking and insurance supervision are still visible, but need to evolve to be more applicable to DC funds, with clear thinking about the relevant inherent risks and risk mitigation and an objective relating to the eventual retirement income.
- In particular, the management of investment risks and returns and associated governance should feature highly in a risk-based approach to DC funds – more highly than is often the case.
- The evaluation of governance is essential if serious problems are to be avoided and reliance is to be taken from the entity's own performance, risk management and controls. This evaluation should focus at least as much on culture and dynamics as on process.
- While supervisory response should be associated with net risk assessment, supervisors need to recognise that other factors, notably the amenability of entities to implement recommendations, need to be factored into such decisions.
- The challenges involved in implementation should not be underestimated, not least relating to staff attitudes and capabilities, organisational culture and supervised entity understanding and buy-in.

Drawing on these findings, five common features of RBS can be discerned, in that the supervisor:

- Focuses on **key system-wide and entity risks** to the supervisor's **long-run outcome-focused** objectives;
- Applies a **range of tools** to assess and understand risk and mitigations, including quantitative tools;
- Develops pension fund **governance and risk management** as a central way to assess and reduce risks;
- **Selects** entities and subjects for supervisory focus using **risk assessment**; and
- Seeks **prevention and remediation** first, with sanctions and enforcement for persistent or critical issues.

