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ABBREVIATIONS AND ACRONYMS

ABRAPP	The representative body of Brazilian closed pension funds
ALM	Asset and Liability Matching – an analytical approach or tool to compare the duration of assets and liabilities in a pension plan and facilitate decision making on how they could be more closely matched.
ANAPAR	A representative body for pension plan participants
ANCEP	A representative body for pension entities accountants
APRA	The Australian Prudential Regulatory Authority, which undertakes prudential supervision of pension funds in Australia
AT2000	The life (or actuarial or mortality) table recording actuarial experience in the USA as at 2000.
CGFD	The coordination (team) within DIFIS responsible for co-ordinating the implementation of the annual on-site inspection program (the PAF).
CGPA	The coordination (team) within DIFIS responsible for preparing the PAF and overseeing the implementation of RBS within PREVIC.
CMN3792/2009	The regulation (resolution) governing investment by closed pension funds in Brazil
COC	The Committee of Orientation and Consultation within the DIFIS Directorate of PREVIC
CVM	The Brazilian supervisor of capital markets and intermediaries
DB	Defined Benefit – a pension plan where the extent of the benefits payable is pre-defined, with reference to the participant's earnings
DC	Defined Contribution – a pension plan where the extent of the benefits payable is primarily determined by the contributions and investment returns received.
DIACE	The Directorate within PREVIC responsible for off-site analysis, with four coordinations responsible for investment, actuarial, accounting and research.
DIFIS	The Directorate within PREVIC responsible for on-site inspection with six regional offices, coordinated by two coordinating teams (CGPA and CGFD) based in Brasilia.
DITEC	The Directorate within PREVIC responsible for licensing and approving amendments to pension plan and fund licenses.
DNB	Der Nederlandsche Bank – the prudential supervisory authority for financial institutions in the Netherlands, including pension funds.

EFPCs	*Entidades Fechadas de Previdência Complementar* – closed pension funds in Brazil
FSAP	Financial Sector Assessment Program – a review of a country's financial systems undertaken by a team from the World Bank and International Monetary Fund.
IBA	The Institute of Brazilian Actuaries
PAF	The annual on-site inspection program
PREVIC	The National Superintendence for Pension Funds, supervisor of the closed pension fund system in Brazil
RBS	Risk-Based Supervision
SIAD	The tool used within PREVIC to access and analyze data relating to individual pension plans
SPC	*Secretaria de Previdência Complementa*r – the supervisory and regulatory authority for Brazilian closed pension funds that preceded PREVIC
SPPC	The department within the Ministry responsible for pensions that develops the regulation of closed pension funds.
SUSEP	The Brazilian supervisor of insurance
TPR	The Pensions Regulator – the supervisor of occupational (closed) pension funds in the United Kingdom
VC	Variable Contribution – a pension plan, practically unique to Brazil, where the accumulation is DC but the pension payments are DB (for all or some beneficiaries) being equivalent to a life annuity funded from within the pension fund.

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Preface

This report provides a comprehensive description of the full process for supporting the new supervisory authority for closed pension funds in Brazil, PREVIC, in particular through the development of a revised approach to the risk-based supervision of closed pension funds. This project has been delivered since early 2010 under the aegis of the World Bank and its consultants funded by FIRST. In developing the approach, the World Bank and its consultants have worked closely with the Superintendent Director and staff of PREVIC.

The report documents the approach that has been developed, giving reasoning for each aspect of practice, grounded in an assessment of the risks to closed pension funds. In this way, it is hoped that it will provide a resource for PREVIC and help inform the work of other supervisors and consultants as they help to implement or refine risk-based supervision elsewhere.

The report builds on an interim report on the evolution of the project that was delivered in 2011.

Executive Summary

1. This report documents the FIRST-funded World Bank project which, in conjunction with PREVIC, the supervisor of the closed pension fund system in Brazil (established in January 2010), has sought to provide guidance to implement a risk based supervision (RBS) appropriate to Brazilian environment, drawing on international experience. The project ran from January 2010 to March 2012. The key outputs of the project were specified as:

- an assessment of the strengths and weaknesses of the current supervisory benchmarking against best practices in RBS around the world;
- a roadmap for the implementation of RBS under the circumstances prevailing in the industry;
- proposals for regulations on selected critical elements for the implementation of RBS framework; and
- training to supervisors and senior executives of closed pension funds about the main challenges of introducing RBS.

2. In practice, the scope of the second of these tasks expanded to assisting PREVIC to develop a high level and detailed design for RBS, and facilitating its implementation, by ensuring that there is now a cadre of staff within PREVIC that fully understands how RBS can be delivered in the environment of Brazilian closed pension funds, and is committed to delivering it.

3. The underlying principle has been that risk-based supervision enables the supervisor to focus more effectively on the most intense risks, with resources released for this purpose by reducing the effort expended on lower risks. This can be facilitated by placing greater reliance on pension fund fiduciaries to manage the risks themselves, so long as their governance and risk management is sufficient. The most intense risks are those where there is a misalignment between the objectives of pension fund management and the supervisor, coupled with a lack of transparency about outcomes.

4. In support of these objectives there were nine technical assistance visits and two study tours. Comprehensive reports (aide memoires) on each technical assistance visit were provided to PREVIC and regular conference calls were held between visits to check on progress. The project had five overlapping phases:

- Diagnostic assessment
- Familiarization and orientation
- High level design
- Detailed design
- Consolidation and implementation

5. The **diagnostic assessment** (undertaken in January and February 2010) was based on meetings with PREVIC staff, other supervisors, pension fund's representative bodies that enabled an assessment of the risks in the closed pension fund system in Brazil and how overseas experience could be applied to mitigate them. The diagnostic report, agreed with PREVIC, concluded that the highest priorities for attention were the risks associated with the actuarial valuation of DB and VC pension liabilities and the investment of DC plans. Underlying these

risks was a serious concern about the governance of pension funds, and in particular, the need for the top level of pension fund governance structures, the Conselho Deliberativo and Conselho Fiscal to take on a more active and informed role in discharging their fiduciary duties.

6. The diagnosis enabled a broad-based mapping (on a probability/impact matrix) of the risks in the system, which was revised and refined in March 2012 (Figure 1)[1]. Inevitably, the most intense risks in the Brazilian pension system, as in systems worldwide, occur where there is misalignment between the objectives of pension fund fiduciaries and the supervisor. In Brazil, the conselheiros tend to be conflicted on actuarial valuation, while indifference to long term DC investment outcomes is a problem worldwide.

Figure 1: Strategic Risks Plotted on the Standard PREVIC Risk Matrix

Impact	0–1	1–2	2–3	3–4
VH	Investment (DB)			Actuarial & Sponsor Credit (DB)
H			Strategic Investment (DC)	
M		Investment (tactical & operational)		Legal
L		Operational (General)		VC specific risks

Probability: 0, 1, 2, 3, 4

VH= Very High, H= High, M= Medium, L= Low

7. The **familiarization and orientation** phase started with the establishment of the RBS team to provide leadership for RBS as recommended in the diagnostic assessment. The team was to replicate risk-based practices across PREVIC through training and ‘cell division’. Much of the training activity focused on this team, with a strong emphasis on visiting pension funds and considering the lessons learned from each so as to develop a holistic view of best practice.

8. Three members of PREVIC undertook a project-organized study tour during April 2010 comprising of a course on pension supervision at the UK Pensions Regulator and presentations on risk-based supervision at the Dutch supervisor, DNB. This experience enabled the newly formed RBS team to work together to build an understanding of RBS through reflection on how international experience and visits to a variety of pension funds could be applied in Brazil.

[1]This is a simplified version of the revised mapping in 2012 which added some granularity to the original assessment but did not change the thrust of the priorities for attention. The full matrix with key is at Figure 6 on page 40.

Further international training was provided in October and November 2010 when two other members of the team had a month's training secondment to APRA (the Australian supervisory authority). The staff concerned fed back their experiences to the rest of the RBS team, and their experience enabled development and refinement of the RBS design.

9. In practice, frequent changes in personnel coupled with the regional structure of PREVIC meant that this dissemination process did not go entirely as planned. Instead a cadre of champions for RBS gradually spread throughout the organization. This process was supplemented by other actions such as the development of and training on the on-site supervision manual and the establishment of an organization-wide risk committee which spread the concepts of RBS in an organic manner.

10. The team also developed 14 principles of RBS, specific to Brazilian circumstances, and in particular the following strategic approach to supervision:

- Educate – make it clear to pension funds how PREVIC expects them to respond to the risk, and win their hearts and minds **-** by seeking to ensure that the certification from the end of 2010 of the investment director and manager of each pension fund is effective in raising standards, encouraging the development of certification and associated training for other directors and conselheiros, and issuing a Guide on Best Practices.
- Orientate – provide 1:1 help to pension funds to help them implement PREVIC expectations – by identifying risk factors and weaknesses in governance of individual pension funds, through off-site data analysis and on-site inspection, and persuading pension fund management to make appropriate changes to address these so as to achieve compliance with the Guide on Best Practices.
- Enforce – take action against those who do not wish to comply – by limiting such action to cases where pension fund management are not willing to change, where there are serious and immediate risk to pension fund participants or there has been serious wrong-doing, with escalation up a graduated scale of responses and sanctions.

11. These principles underpinned the high level design, in which the strategic responses and success criteria were agreed for each of the types of risk in the closed pension system, along with an overall approach to measuring risk at individual pension funds. The key narrative under-pinning the RBS 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 provides and disseminates guidance, and works to obtain the agreement of the market that what is recommended is necessary if legislation and fiduciary duties are to be complied with.
- PREVIC then checks that it 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. It needs, therefore, to be able to take enforcement action proportionate to the level of risk and the willfulness of the non-compliance.

12. Taking the three most acute risks in particular:

- The principal response to actuarial risk is a strategy of persuading pension funds to adopt assumptions that better reflect the trend of falling interest rates and rising longevity, and to manage the associated risks better. This has involved establishing and publicizing a standard matrix for categorizing risk, with impact based on the level of surplus as currently measured and probability based on the strength of the assumptions used. At the end of the project a simplified refinement of this approach, more closely modeled on the Danish 'traffic light' model, was proposed. Publicizing the model is intended to encourage pension funds to reduce their risk exposure, and is supported by off-site challenge and on-site inspection. Significant strengthening of assumptions is already visible. PREVIC plans to amend the relevant regulation (Resolution 18) to underpin this approach.
- Falling interest rates will also challenge pension fund to become more sophisticated as investment managers seek to increase returns through increased risk which could have serious consequences if not well managed. For DC plans, the strong incentives to short-termist conservatism could result instead in rapidly declining returns. PREVIC's initial response is to issue guidance, to develop metrics that will enable it to assess which pension funds appear to have wrong balance between risk and return, and to inform future inspection activities (which have already started to probe investment governance more closely). The case for legislative change to enable the secure adoption of DC portfolio choice with a mandatory life-cycled default option has been successfully advanced within PREVIC.
- The strategy for assessing and addressing governance risk is focused on the publication of the Guide on Best Practices and on-site inspection against the guidance. Hence a more risk-based approach to inspection needed to be developed, focusing on governance and the management of actuarial and investment risks. The approach has been tested and refined through visits to pension funds and is being further refined as live inspections start to apply this approach. Some strengthening of PREVIC's enforcement powers (in Decree 4942) is needed to underpin this approach.

13. Fiduciary education is particularly necessary in the current state of development of the Brazilian pension fund sector. The RBS team worked together, as a first priority, to draft the first module of a Guide on Best Practices, published in August 2010. Publication was accompanied by presentations at regional seminars of the pension fund representative body, ABRAPP, with participation by the World Bank team. Work continued on four, more detailed, modules for publication during 2012, having been delayed by sever resource constraints. PREVIC would also like to encourage higher standards of pension fund governance through promoting the certification of conselheiros and directors, although this initiative has stalled.

14. The high level design enabled the project to identify what needed to be done to deliver the seven stages of the value chain for risk-based supervision (Figure 12 on page 55) which in turn meant that the roadmap could be developed. The final version of the roadmap is illustrated in Figure 2 below, noting that the process of developing the tasks in this roadmap was evolutionary and many of the timings slipped due to resource constraints.

Figure 2: The Roadmap for RBS as at October 2011

	2010 Jan Dec	2011 Jan Dec	2012 Jan Dec
Tasks	Preparation	Detailed Design	Full Implementation
Guide 1st Module			
Prepare Guide Modules 2-5			
Launch & Consult on Modules			
Write on-site Manual			
Pilot Inspections			
Full Inspection Program			
Diagnosis			
RBS Team Training			
High Level Design			
Develop & Document off-site Processes			
Develop & Implement Actuarial Strategy			
Develop Investment Risk Matrices			
Implement off-site Manual			
Information Needs Assessment			
Develop CGPA			
IT Development			
Implement Central Risk Analysis			
Licensing Project			
Revise Legislation			

15. From the value chain and the roadmap the following main strands of detailed design have been identified:

- Specifying and developing the content of the Guide on Best Practices
- The on-site supervision manual
- The off-site supervision approach and manual, including analyzes of investment risk
- PREVIC's central supervisory functions, including information, needs analysis and handling
- Applying risk-based supervision to licensing; and
- Consequential changes to legislation

16. The specification of the Guide modules, and their style, was undertaken sufficiently to inform the development of the on-site manual, but unavailability of and changes to the staff responsible for each module resulted in breaks in continuity that meant that the ground had to be covered several times. By April 2012 one of the detailed modules (investment) had been published, three more (governance, actuarial and licensing) were in draft, with publication planned by August 2012. The risk management module was held back pending completion of the other modules to avoid overlap or inconsistency. It is recognized that the Guide is just one step in educating conselheiros and managers about what PREVIC expects of them and that other actions will be needed. In the absence of a single unit tasked with the education role, designing the way forward proved difficult, but one important development was an on-line self-assessment questionnaire for conselheiros that was close to delivery at the conclusion of the project.

17. A major focus of detailed design 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 will enable PREVIC to develop a clearer view of the quality of governance across the different types of closed pension fund, so as to enable more targeted interventions in the future. While it will be some years before enough inspections have been completed to obtain a full view, the self-assessment questionnaire will provide a valuable stop-gap. The completion of and training delivered on this Manual has enabled PREVIC to move to fully risk-based inspection from 2012.

18. While the on-site manual was completed by the end of 2011, progress on the off-site manual was retarded by severe resource shortages in the relevant directorate, but processes have been proposed for inclusion in the Manual and the matrices for analyzing actuarial and investment risk off-site have been devised. As recommended by the project, PREVIC has moved from monthly reporting by pension funds to quarterly reporting, while increasing the scope of what has to be reported to enable PREVIC to analyze risk effectively.

19. It is vital that there are central functions that coordinate the process of risk-based supervision and the flows of information between different supervisory functions. The information flows and requirements were mapped and processes were specified for coordination of risk analysis. These have been supported by a new analysis tool, SIAD, developed within PREVIC, with an IT project in hand to improve the tools further. A committee (Comite de Analise e Risco) was established for this purpose of coordinating the implementation of RBS, and risk analysis, between different parts of PREVIC[2]. The central functions are also refining the methodology for the annual inspection planning document (the PAF) to make it demonstrably linked to the analysis of risks in the pension system at individual pension funds.

20. While applying RBS to the licensing directorate was not recognized as an early priority, discussions with its staff clarified the vital role it plays in addressing acute risks to participants, especially through considering license amendments that could worsen plan benefits. As their understanding of RBS grew they were enabled to produce a revised manual for licensing processes and Guide for pension funds to understand what they should do. Exploration of relevant international practice proved valuable in helping the directorate to consider what changes may be needed to address the risks from relatively new developments such as investment profiles, multi-sponsored pension funds, plans that are being deserted by their sponsors and the annuity element in VC plans.

21. While there is much that PREVIC can do through risk-based supervisory activity to increase pension fund risk focus within current legislation, there is a limit to what persuasion can achieve where the interests of pension fund managers and PREVIC are misaligned, for instance in

[2] This committee was replaced from March 2012 by a re-formulated Risk Committee, with a director chairman, and a new Strategic Research Committee, also with a director chairman that reports directly to the Management Board of PREVIC.

relation to actuarial valuation. The project has identified some legislative changes that need to be considered, which are being taken forward:

- The regulation relating to actuarial valuations (Resolution 18) should be revised to facilitate and encourage the move to best practice;
- Some changes are needed to PREVIC's governing regulation (Decree 4942) to facilitate the enforcement of risk-based supervision.
- The regulation relating to investment (primarily CMN3792) needs to cover investment profiles and life-cycling on which it is currently silent; and
- Possible regulatory changes to address the particular governance (especially conflict of interest) risks at multi-sponsored pension funds and the ineffectiveness of PREVIC actions to block license amendments that could reduce participant benefits.

Implementation and maintaining the momentum

22. The emerging design of RBS has been presented to PREVIC senior management at the close of each technical assistance visit to secure their buy-in. As different elements of the design were completed at different times, the progress on **implementation** varied too. The World Bank training activities associated with implementation in practice took on the form of **consolidation** as the involvement of PREVIC staff in RBS changed and expanded, and new members had to be inducted. By the time the project concluded, implementation had progressed as follows:

- The revised approach to on-site inspection had been piloted with considerable success at several pension funds in different regions. For example, one pension fund was visited to show new inspectors what best practice should look like, as PREVIC had never found anything wrong with it. Applying RBS, however, revealed that only the Executive President was answering their questions regardless of whether they interviewed the Conselhos, Investment Committee or Executive Directorate, and the pension fund relied totally on his integrity and competence. This serious governance issue had not been disclosed in earlier rules-based inspections. The lessons from the pilot inspections resulted in some refinement of the on-site Manual at the time of the concluding visit. It was clear, however, that RBS is practicable and all inspections from 2012 will follow this approach.
- To support risk-based supervision on-site, the process of preparing the annual inspection program, the PAF, has been progressively refined to increase the focus on highest risks in the system, governance and risk management.
- All DB pension plans have been analyzed and categorized using the actuarial risk matrix developed in 2010, and the publicity given to this matrix, and the risks that it seeks to illustrate, may well have contributed to the shift in a less risky direction across the matrix that has become apparent.
- The first two modules of the Guide on Best Practices have been published and there is some evidence that the first of these is being used by pension funds as a tool for improving governance.

23. The considerable progress that has been made by PREVIC was recognized in the FSAP report prepared by the World Bank in April 2012.

24. Throughout the project, effort has also been expended familiarizing the Brazilian closed pension fund sector with RBS and how it will affect them. In addition to the launch of the Guide referred to above, the World Bank and RBS team participated in ABRAPP's[3] annual congress in November, raising awareness in particular of the changes that will be needed to the assumptions used in actuarial valuation. PREVIC's raised expectations of pension funds was also explained during the numerous visits to funds during the design phases.

25. As the Superintendent and staff of PREVIC recognize, the full implementation of RBS will take many years, and structures need to be in place to ensure that this happens. Hence, at the end of March 2012 the Superintendent restructured the Risk Committee to give it a stronger link into the Directorate of PREVIC and established a Strategic Research Committee alongside it with a similarly strong link into the Directorate. The Risk Committee is responsible for overseeing the implementation of RBS while the Strategic Research Committee will coordinate PREVIC's response to longer-term risks in the system. At the presentation on the achievements made at the conclusion of the project (Section 7), the team identified the following high priority actions to consolidate RBS and maintain the momentum for its continuing development, which the new Risk Committee and Strategic Research Committee should take forward:

- Completing and publishing the remaining modules of the Guide on Best Practices, and ensuring that there is central coordination of a continuing program of action to ensure pension funds know what PREVIC expects of them, that, inter alia, seeks to resolve outstanding issues regarding the certification of conselheros and directors ;
- Embedding the role of the central functions as the nerve center for RBS, with the necessary supporting IT;
- Issuing the self-assessment questionnaire on governance and analyzing the responses in time for the 2013 PAF;
- Drafting the off-site manual, reflecting conclusions drawn as to how risks should be analyzed and addressed off-site;
- Agreeing on a revised approach to securing and monitoring improvements in actuarial assumptions using the variant of the Danish traffic light model as proposed during the final technical assistance visit (appendix 11);
- Developing and articulating strategies for other risks where the strategic policy is not yet clear or agreed on;
- Finding ways of communicating these strategies to stakeholders;
- Making progress on necessary changes to legislation; and most important of all,
- Ensuring that all staff in PREVIC understand and are visibly committed to RBS.

[3] ABRAPP is the representative body for Brazilian closed pension funds

Chapter 1. Background and Objectives

The Brazilian closed pension fund system

1.1 In summary, Brazilian closed pension funds are not-for-profit entities sponsored by single employers or, in the case of multi-sponsor funds, groups of employers. Plans can be defined benefit (DB), 'pure' defined contribution (DC) (with no guarantees) or DC with participants having the option of receiving a life annuity from the fund (usually priced at retirement date) (VC). Key statistics are provided in Figure 3 below.

Figure 3: Statistics on Brazilian Closed Pension Funds

Statistics	Total	DB (%)	DC (%)	VC (%)
1. Number of pension funds	337			
2. Number of pension plans	1,091	31	37	32
3. Number of plan sponsors	2,815			
4. Active plan members (000s)	2,541	21	27	52
5. Retirees and beneficiaries (000s)	684	75	4	21
6. Aggregate assets (R$billion)	601	77	8	15
7. Aggregate annual contributions (in 2011) (R$billion)	21			
8. Aggregate annual benefit payments (in 2011) (R$billion)	30			

Note: All figures as at December 2011

1.2 The pension fund management and governance structure comprises (as a minimum):

- **Conselho Deliberativo.** The governing body. Approximately equivalent to an Anglo-Saxon board of trustees. Public sector (Law 108) plans are required to have a maximum of 6 members equally divided between plan sponsor and plan participant representatives, with a plan sponsor representative having the casting vote. For private sector plans, there is no set number of members and the plan participant representatives must be at least one-third.
- **Conselho Fiscal.** This Committee oversees the acts and decisions of the other two boards. However, it can only report its concerns to the Conselho Deliberativo. Representation is broadly similar to the Conselho Deliberativo, except that for public sector plans, membership is limited to four and a participant representative has the casting vote..
- **Diretoria Executiva.** Responsible for the day-to-day management of the fund. These executives are appointed and dismissed by the Conselho Deliberativo. In public sector plans these executives cannot perform professional activities at the pension plan sponsor.

1.3 The significant expansion in recent years of closed pension funds (*Entidades Fechadas de Previdência Complementar* - EFPC) in Brazil has presented challenges to the supervisor of closed pension funds. Despite the significant volume of assets managed by closed pension funds,

supervision remains mostly compliance based, and involves limited risk assessments. The supervisor sees risk based supervision (RBS) as the normal evolution in supervision styles and as a step forward in understanding the risks of closed pension funds in Brazil.

PREVIC

1.4 On 26 January 2010 the responsibility for supervising closed pension funds passed from the Secretariat for Pension Funds (*Secretaria de Previdência Complementa*r - SPC) to the National Superintendence for Pension Funds - PREVIC. The creation of PREVIC is intended to help professionalize the supervisory functions by creating a pool of trained supervisors with the capacity to deal with the growing sophistication of the pension industry.

1.5 The Directorate of PREVIC comprises the Superintendent and four Directors who head up four directorates. One of these is responsible for administration. The three remaining directorates have been directly impacted by RBS and are:

- **DIACE**: responsible for off-site analysis, with four coordinations responsible for investment, actuarial, accounting and research.
- **DIFIS**: responsible for on-site inspection with six regional offices, coordinated by two coordinating teams based in Brasilia.
- **DITEC**: responsible for licensing and approving amendments to pension plan and fund licenses.

1.6 There is also a Secretariat to the Superintendent. The staff that PREVIC inherited from SPC were a mixture of civil servants and direct appointees, except that DIFIS is staff, and will continue to be staffed by inspectors from the tax authority. For the other Directorates PREVIC has the power to recruit directly through an official process. Only inspectors are empowered to undertake on-site inspections. Each directorate has considerable authority as do the regional offices within DIFIS. Coordination and securing consistency across the organization is hence a challenge.

Terms of reference for the project

1.7 The purpose of this project is to provide guidance to the Brazilian and its pension's supervisory authority (PREVIC) on the proper implementation of risk-based supervision. The key project outputs are:

- an **assessment** of the strengths and weaknesses of the current supervisory approach and a summary of the best practices in RBS around the world;
- a roadmap for the implementation of RBS under the circumstances prevailing in the industry;
- **proposals** for regulations on selected critical elements for the implementation of RBS framework; and
- **training** to supervisors and senior executives of closed pension funds about the main challenges of introducing RBS.

1.8 The project team was also asked to evaluate the effects of the current investment restrictions on the efficiency of pension funds and to propose any changes to the Law and regulations considered to be necessary.

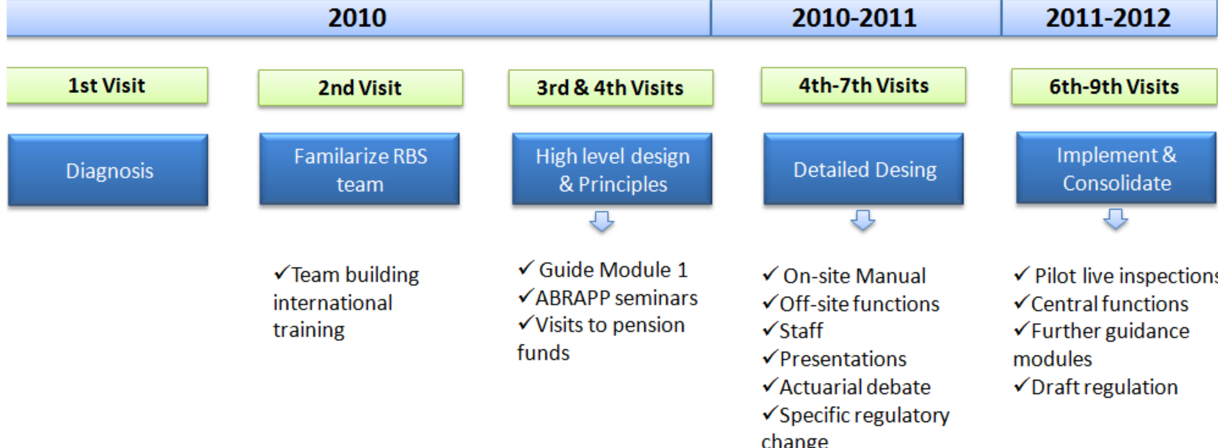
1.9 Although the application of RBS to private pension systems has been supported by studies conducted by the World Bank and the *International Organization of Pension Supervisors (IOPS)*, there is not a single model to follow and therefore it is necessary to adapt a methodology that will have to take into consideration the specific elements of the Brazilian pension system. The implementation of RBS in emerging economies is still in its infancy, especially regarding defined benefit systems. Since the Brazilian system is unique in Latin America, the project has drawn on the best experiences around the world, notably the Netherlands and the UK.

Activities undertaken

1.10 The World Bank team has comprised Rogelio Marchetti of the World Bank supported by consultants John Ashcroft (from the UK), Edson Jardim (from Brazil) and Heinz Rudolph (World Bank). It has worked closely with an RBS team. The process of developing RBS within PREVIC has followed a roadmap with the following phases, illustrated in Figure 4 below:

- Familiarization and orientation of the RBS team, established as recommended by the diagnosis, with the concepts of RBS and developing them into principles specific to Brazilian circumstances.
- High level design of the RBS approach involving strategies for education, orientation and enforcement relating to the risks facing pension funds.
- Detailed design, translating the strategies into the detailed content of a Guide on Best Practices, a Supervision Manual and a roadmap for implementation.
- Implementation involving a number of projects designed to roll out the new approach.

Figure 4: Timeline for Implementing the Project



1.11 To implement the roadmap there were, during 2010, five technical assistance visits (missions) led by World Bank staff or consultants, and visits by PREVIC staff to foreign supervisors, as follows:

- The first visit in January/February 2010 involved an intensive program of meetings with PREVIC, other supervisors, pension fund's representative bodies that enabled an assessment to be undertaken of the risks in the closed pension fund system in Brazil and the lessons to be learned from overseas experience. It concluded that actuarial and associated risks are most pressing and recommended the creation of an RBS implementation team to help develop the risk-based approach and replicate risk-based practices across PREVIC. Training activity has since been focused on this team.
- Three members of PREVIC were accompanied on a study tour during April 2010 involving a course on pension supervision at the UK Pensions Regulator and presentations on risk-based supervision at the Dutch supervisor, DNB.
- During the second visit, in May 2010, the newly formed RBS team started to work together as a team, visiting pension funds and drawing out conclusions so as to map out the landscape of risks facing pension funds and consider how UK and Dutch practice could be applied in Brazil. The material provided on the essentials of risk-based supervision is included as Appendix 2. A key conclusion was that fiduciary education phase was of particular importance in the current state of development of the pension fund sector, and that addressing actuarial risk and issuing best practice guidance should be priorities.
- During the third visit, in August 2010, the RBS team continued to work together as a team to undertake high-level design of the key concepts of RBS and their application in the context of the approach of 'educate, orientate and enforce', developing a shared vision of the under-pinning principles and strategies for tackling the key risks, notably governance and actuarial, including an outline methodology for on-site supervision. A first draft implementation roadmap was developed. The consultants reviewed the first module of the best practice guide and participated in seminars with the pension fund industry that launched it.
- During the fourth visit, in October 2010, the RBS team continued to work as a team to design further the supervisory strategies, covering success criteria, the content of the inspection manual and the approach to enforcement, and to finalize the implementation roadmap. As recommended during the third visit, the team was expanded to provide a larger core and draw in members who would participate in spreading RBS during its implementation. Considerable progress was made, in particular, in bringing new members up to speed and developing and testing the on-site supervision methodology and the manual that will underpin it.
- During November 2010 two members of the RBS team spent several weeks with the Australian supervisor, APRA, to see firsthand how their well-developed approach to risk-based supervision is applied in practice.
- The fifth visit, in November 2010, followed the attendance by some World Bank staff and consultants and the annual Congress of the Brazilian pension fund representative body, ABRAPP, at which speakers from PREVIC and the World Bank emphasized messages regarding the unsustainability of the current approach to actuarial valuation. The RBS team continued to work together as a team to develop further the thinking on actuarial strategy, education, enforcement, legislation, licensing, off-site supervision, the supervision manual and the roadmap for implementation. The process for obtaining buy-in from senior

management started during the visit and it was recognized that more needed to be done to document the thoughts behind the approach, hence an interim report on the project was started.

1.12 From 2011, the project moved into its implementation phase and the remaining four technical assistance visits focused on detailed design and operationalizing the approach across PREVIC, as follows:

- The sixth visit, in February 2011, took stock of the roadmap and refined it to take account of changes in PREVIC, in addition to the imminent change of Superintendent and delays in drafting the later modules of the Guide, and started the process of spreading understanding of RBS to other members of the inspection directorate (DIFIS). The changes needed to Resolution 18 to enable the actuarial strategy to be implemented were discussed and the approach to using a discount rate based on Treasury bond rates for three durations, plus risk buffers, was agreed and proposed to the Finance Ministry. The detailed changes needed to Decree 4942 (covering the internal regulation of PREVIC), to improve the enforceability of RBS were also agreed upon. At several sessions outstanding issues on the on-site manual were considered and resolved, with some refinements to the supervisory approach. Over a day was spent discussing the content of and approach to the first (pilot) inspection, at the end of March, with the inspectors present and involved. The creation of the Comitê de Análise e Risco was proposed.
- The seventh visit, in May 2011, focused on familiarizing the new Superintendent with RBS, refining and consolidating the messages in the original high level design. Following discussion with the new Superintendent the approach to revising Resolution 18 was modified. A presentation developed during the visit was successfully delivered to the Finance Ministry and National Actuarial Commission, with no significant problems raised. Lessons were learned from the first pilot RBS inspection, enabling the content of the Manual to be finalized. The role of the central analysis function and how it supports the Comitê de Análise e Risco was clarified. A start was made in engaging IT support to the development of database and its analytical tools. A meeting with the Licensing Directorate (DITEC) considered the steps they were taking to streamline their approach and identified how they should work with the actuarial team and take forward a response to the problems of multi-sponsored funds encountered during visits to such pension funds.
- The eight visit, in October 2011, again sought to resolve delays and uncertainties in drafting the later modules of the Guide, in addition to the appointment of a World Bank funded consultant to draft the governance module. The experience of central risk functions worldwide was considered to further define the role of this function within PREVIC, especially to support the Comitê de Análise e Risco, which had been successfully established. A presentation on RBS to coordinators and inspectors was followed by a day-long discussion of the lessons from the first four risk-based inspections. Those present generally showed commitment to the changes and a good understanding of what is involved, and some important issues were resolved. The essential elements of off-site analysis were agreed upon, and these were expanded upon in the paper from the consultants attached at appendix 5. Consultant answers to a comprehensive set of questions regarding international experience in licensing pension plans and handling various types of employer sponsor withdrawal or restructuring were considered in depth, with some agreement on actions

DITEC might take. In discussion, a way forward became clear for improving the regulation of DC investment profiles. The progress in implementing a self-assessment questionnaire for pension funds (proposed during the May visit) was reviewed. A presentation to ABRAPP and ANAPAR[4] has helped address concerns about its implications.

- Between the eighth and ninth visits, two World Bank commissioned consultants delivered a draft governance module for the Guide and a methodology for risk scoring investment risk. Their outputs were considered during the ninth visit and considered fit for purpose, subject to some detailed refinement.
- During the ninth visit, in March 2012, the team worked to ensure that the PREVIC staff recently appointed to the central functions leading on the implementation of RBS fully understood and could operate it and that the newly recruited specialists had a good familiarity with it. A good cross-section of regional staff attended two days of the visit and actively participated in many of the discussions, demonstrating a good appreciation of what is required from on-site inspection. The content of the governance, risk management and actuarial modules was discussed, and a draft licensing guide was reviewed. Some of the issues await broader policy decisions, for instance on investment profiles, and indeed a legislative way forward for investment profiles was considered. Further discussion of the central functions was the finalization of the model on how the various risk analyzes and matrices fit together, so that PREVIC now have a coherent risk assessment framework that can drive planning, which is supported by the impressive progress made in developing the central database and supporting analysis tools. Furthermore, the overall risk landscape for PREVIC was re-visited and greatly refined, the role of the Risk and Strategic Research Committee in developing strategic policies was mapped, and the scope for using the key risk matrices to drive assessment of the progress of RBS was agreed upon. The new 'traffic light' approach to actuarial risk was developed (appendix 5). The risks that DITEC seek to mitigate were identified and a start made on mapping them. Discussion of these and the Licensing Guide showed that their processes are already risk-oriented but that enforcement is an issue. Finally the team presented to the Superintendent and Directors what needs to be done if RBS is to be championed, sustained and refined in the years to come.

1.13 After each visit comprehensive reports on what was achieved were circulated in PREVIC. Regular conference calls were held to check on progress.

Content of this report

1.14 This report covers the objectives of the project and the phases of the implementation of RBS (Figure 4 above) under the following headings:

- Section 2: Diagnosis, covering:
  - The risks in the Brazilian closed pension fund system
  - Risks to the development of RBS within PREVIC
  - Summary of Strengths, Weaknesses, Opportunities and Threats (SWOT)
  - Priorities for PREVIC

[4] ANAPAR is a representative body for pension plan participants.

- Section 3: Capacity development, covering:
    - Formal training activities
    - Familiarization and orientation
    - Raising understanding at closed pension funds
- Section 4: High level design, covering
    - Principles and strategic narrative
    - The components of the design process
    - Strategies for educate, orientate and enforce
    - Strategies for key risks
- Section 5: Detailed design and implementation, covering
    - Central risk assessment and information flows, and their supporting functions
    - Developing strategic policies
    - Off-site analysis functions
    - On-site supervision approach and Manual
    - Licensing
    - The Guides of Best Practices and self-assessment questionnaire
    - Performance measurement
- Section 6: Proposals for changes to regulation
- Section 7: Summary of the implementation

Chapter 2. Diagnosis

The assessment process

2.1 To enable an assessment of the risks and issues in the Brazilian closed pension fund system and its supervision, the World Bank team held meetings with officials and directors from PREVIC; directors and senior managers from 10 closed pension funds; senior officials from other Brazilian financial services supervisors, Banco Central, CVM, and SUSEP; and industry representative bodies, ABRAPP, ANCEP and the Institute of Brazilian Actuaries; and other professionals in the pensions and financial services industry including from Deloitte, Risk Office and Towers Watson. The initial diagnosis was then exposed for comment to the superintendent and some staff members of PREVIC.

2.2 While the initial diagnosis provided a prioritization for subsequent work, formal mapping of the risk landscape was undertaken at a later stage in the project, while subsequent visits to pension funds and further discussions with the PREVIC team highlighted some other risks not identified earlier. In the remainder of this section of the report, the initial diagnosis has been augmented and, where appropriate, revised to take account of this later material.

2.3 The team's assessment of the Brazilian closed pension fund system was made against the broad categories of risk that are internationally accepted as being relevant to all financial service entities[5] as adapted for pension funds, but has been reorganized, where appropriate, below to bring the material in line with the risk categories adopted by PREVIC, which are:

- Governance
- Actuarial
- Solvency
- Asset/liability mismatch
- Investment - market risk
- Investment - credit risk
- Operational
- Out-sourcing
- Legal

2.4 In addition, the team considered the risk of participants' understanding of the fee structure although PREVIC does not have this as a separate risk category. The focus of the diagnosis was principally on the larger pension funds. This is where most of the risk lies. The top 30 funds hold 78% of the assets. It was recognized, however, that these funds mostly have better governance than is found in many smaller funds.

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[5] *Risk Based Supervision*, Tony Randle - primer series on insurance issue 14, December 2009 non-bank financial institutions group, global capital markets development department, World Bank lists the following categories (amended for relevance to pension funds): Governance and management risk; Legal risk; Actuarial risk; Sponsor credit risk; Investment risk (including market credit risk); Liquidity risk; Operational risk; Charging risk; Member understanding risk

Governance risk

2.5 The good governance of pension funds underpins the management of all the other classes of risk. The team looked in particular at the risk that those responsible for directing and managing pension funds might not be competent to discharge their role effectively, might be unduly influenced by conflicts of interest, or might fail to put adequate processes in place to secure effective risk management and internal controls.

2.6 There are some strengths in pension funds governance. Legislation, especially Resolution 13, appears to have ensured that the funds have, since 2004, established proper structures of governance with a clear separation between the directive and oversight boards (Conselho Deliberativo and Conselho Fiscal) and the executive directors and common functional roles for the latter. Resolution 13 also requires some form of risk management. Most funds provided some evidence on actions taken to implement Resolution 13. It would be reasonable to assume that the actions of the SPC materially contributed to this state of affairs.

2.7 These developments were associated with a strong compliance culture in some larger pension funds that have sufficient resources to implement such a culture. In particular such funds have well established compliance and internal audit functions, reporting directly to the president of the executive board and the Conselho Deliberativo. Furthermore, they have made some progress towards implementing risk management systems, sometimes of considerable sophistication, although in others the system appeared to be taken straight from a textbook. The team was told that few funds have used expert external support in developing the systems. Some managers, conselheiros and consultants demonstrated some knowledge of the key risks and issues facing pension funds and the techniques that funds could use to manage risk, such as ALM. When coupled with the processes put in place this provides some confidence that the best pension funds are run professionally and effectively - a supposition that appears to be supported by ABRAPP survey evidence.

2.8 PREVIC therefore has the opportunity to build on some strong foundations. The structures for good governance exist and can be used to enable change. PREVIC should have some allies among those pension fund managers who already understand the important issues and how they should be managed. There are, however, some fundamental weaknesses.

2.9 Firstly, the position in many funds is understood to be very different from the good larger funds, with considerable dependence on the sponsor and inadequate resources or processes. Even in larger funds, the pensions understanding and insight of members of the Conselho Deliberativo and Fiscal appears to vary considerably. This is a major issue in any system which, like Brazil, draws its fiduciaries from 'lay-people', as it is difficult to vet candidates in advance. Furthermore, some pension fund directors and managers are politically appointed.

2.10 The UK response to variable fiduciary understanding has been to legislate for such fiduciaries to gain a specified level of knowledge and understanding within six months of appointment with a detailed syllabus and on-line education tool supplied by the supervisor. Training efforts in Brazil appear to be less systematic than this and several managers had a low opinion of the capability of their conselheiros. Although the requirements are loosely defined,

CMN Resolution 3792/2009, PREVIC should foster greater professionalization by requiring the certification of investment directors and managers from the end of 2010, although in the absence of any role for PREVIC, it is not clear how effective certification is proving in practice.

2.11 It became clear that in many pension funds the Conselho Deliberativo does not always act proactively or ensure that key issues, such as actuarial assumptions, are regularly reviewed, (even though Resolution 13 requires the Conselho Fiscal to present reports on the adequacy of actuarial assumptions to the population characteristics). Nor is it obvious that they are maintaining effective oversight of the management, while the sponsor's view on issues such as actuarial assumptions tends to prevail too readily. It would appear likely that the situation is particularly bad in smaller funds which do not have the will or resources to provide training or a proper infrastructure of compliance and risk management.

2.12 There are, in some pension funds, serious issues relating to conflicts of interest. These can be particularly problematic, as conflicted conselheiros and directors can override all but the most robust internal controls and risk management. Although legislation has sought to establish a balance of interests in the governance structure through participant (and sponsor) representation, the experience elsewhere in the world and Brazil is that this cannot be relied upon, especially where participant-elected directors have limited knowledge of pension issues. Significant conflicts are evident where conselheiros or directors let the interests of the pension fund be overruled by the wishes of the sponsors that appointed them, or trades unions they represent. In one case, for instance, conselheiros appointed by the sponsor and staff opposed any move to more realistic actuarial assumptions because this would increase the contributions they would pay.

2.13 Conflicts are also evident in multi-sponsored pension funds where the fund is effectively run for the benefit of the financial services company that provides all or most of the services, and where sponsors may have disproportionate influence over investment strategy and actuarial assumptions (covered further under out-sourcing risk below).

2.14 One control mechanism found in other jurisdictions is the protection of whistle-blowers among the staff and suppliers of pension funds when they report failings to the supervisor, coupled with a requirement to do so. This feature is largely absent in Brazil where whistle-blowing by senior managers may well, we were told, be constrained by their personal liability in the event of breaches of the law. The consensus is that such a provision would not work within the Brazilian culture. There might, however, be value in PREVIC providing guidance in assigning a whistle-blowing role to the Conselho Fiscal.

2.15 In summary, while pension funds are largely well-structured, and many have control and risk management processes, significant issues with the competence of the boards of pension funds, and their management of conflicts of interest, mean that PREVIC cannot rely on pension funds being well governed. This in turn means that the management of other risks may be suspect, especially where they are complex and involve potential conflicts. Raising standards of governance should therefore be a priority for PREVIC.

Actuarial risk

2.16 This is the most important risk in the Brazilian closed pension system, and indeed is of most concern to DB supervisors worldwide. For DB plans, the risk is that the funding accrued to cover the promised benefits may prove to be insufficient over the long time-scales over which the benefits mature. Brazilian VC plans write annuities funded from the participant's accrued balances that run the risk of creating a cross-subsidy between different classes of members. The risk is particularly intense in Brazil because of the conjunction of the following factors, each of which is considered further below:

- The failure of the governance process to recognise parametric transparency;
- Doubts about the reliance that can be placed on actuaries;
- Doubts about the robustness of mortality assumptions, at a time of increasing longevity;
- The use of a fixed discount rate that may prove to be set too high;
- The risk that distributed surpluses are illusory; and
- Specific risks relating to annuities issued by VC plans

Parametric transparency

2.17 Supervisors of DB pension systems should expect pension funds to have reliable processes for evaluating the risk involved on both the liability side (notably longevity and inflation proofing) and the assets (market, duration and credit risk). A risk-based approach recognizes that circumstances of pension funds vary and that a one-size-fits-all funding standard can be sub-optimal. The Brazilian approach is risk-based in as far as pension funds have discretion in determining the parameters to be used, subject to minimum standards established in Resolution 18. This Resolution requires that actuarial assumptions must be justified by the actuary, the governing body and the plan. It does not, however, provide detailed guidance on the processes to be followed in establishing the parameters to be used or require them to be transparent.

2.18 While many larger funds use ALM and other relevant techniques to help make informed decisions on the parameters to be used. The choice, in practice, is strongly influenced by the funding position. Pension funds are often only willing to strengthen their parameters if sponsoring employers are willing to accept the consequences. Decisions are also affected by the unwillingness of participant representatives to support changes that would result in higher contributions. The team repeatedly heard statements to the effect that more conservative parameters would only be adopted if this did not cause a deficit, or that more conservative parameters had been adopted to reduce the size of surplus. Consequently, there appears to be a positive correlation between the conservatism of the assumptions and the strength of the fund and its sponsors, when logic would suggest that an inverse correlation would be more appropriate.

2.19 The funding position and sponsor attitudes therefore drive the choice of parameters (i.e discount rates and mortality tables) rather than objective valuations determining the funding position. Around a third of DB plans use the minimum mortality table and maximum discount

rate specified in Resolution 18, which has therefore become the default position[6]. While legislation and regulation clearly state that actuarial assumptions must be adequate to the population characteristics of the plan, determining whether this is indeed the case requires subjective judgements and it could prove hard to convince a court that judgements are inadequate. It is hence unlikely that conselheiros or managers could be held liable in court for applying the minimum standards in Resolution 18 The management of some funds may therefore consider themselves to be personally quite safe in applying them, however much it may damage the long term sustainability of the fund. Because of its role in drafting and enforcing legislation that specifies such defaults, the accountability has effectively moved to PREVIC. The challenge will be to move the accountability back to the pension funds.

2.20 This is essentially a governance problem, with many pension funds being unwilling to set parameters that would upset the sponsor (or participant representatives looking for lower contributions). The issues of capability and conflicts of interest referred to above clearly have much to do with this situation. A contributory factor may well be a lack of transparency in the processes for overseeing funding valuations. While there is a view that it is often the pension fund management rather than the sponsor that opposes the adoption of more conservative assumptions, it is understood that at one large fund, the Conselho Deliberativo had not considered whether the discount rate used was appropriate. Pension funds would, therefore, benefit much from greater guidance on or prescription of the processes they should follow in order to ensure that their discretion on actuarial matters is applied objectively and transparently.

Actuaries

2.21 If a pension supervisor is to rely on actuarial valuations, it needs some confidence in the professionalism and independence of the actuaries performing the work. This too is a concern in Brazil.

2.22 The actuarial profession is only loosely organized and PREVIC can place only a limited reliance on actuarial work. The Institute of Brazilian Actuaries (IBA) does not have the capacity to act as a professional body. It cannot effectively discipline its members and has issued only few professional standards for pensions work. The methods and assumptions used by actuaries have hardly been questioned, and it is possible that some actuarial valuations may reflect the bias of the actuary. Anyone can register with the State and practice as an actuary so long as they have passed an actuarial degree course, over which the IBA has no control (although only IBA members can sign of reports to PREVIC). Nonetheless, IBA follows recommendations of IAA (International Actuarial Association) and, to become a member, the actuary must pass an exam provided by IBA. Only around half the IBA's members pay their subscriptions leaving it under-funded to support the profession.

2.23 There is a proposal to establish a professional council for the actuaries which could set and enforce professional standards for all actuaries and sponsor essential research. This development is outside the control of PREVIC. The IBA is not yet, however, well prepared to

[6] This is the figure for 2010 – the trend for pension plans to move to stronger assumptions has undoubtedly reduced this proportion since.

take on such a role, and governmental authorities, including PREVIC, might beneficially use their influence to help ensure that such a body delivers what is needed.

Mortality assumptions

2.24 The IBA stated that underfunding seriously constrained the work it could do. In particular, it has not undertaken studies of Brazilian mortality experience. The insurance industry has, however, recently sponsored an IBA member to review experience from an insurance standpoint, while PREVIC and the National Commission of Actuaries are conducting studies on the present status and trends in mortality rates compared with the AT1983 table that Resolution 18 sets as the minimum standard. To date, Brazilian pension funds have largely relied on US mortality tables which are likely only to be approximate and do not make explicit allowance for future mortality improvement (vital in a country where longevity is increasing fast), albeit that can make adjustments to the table better to reflect the plan population.

2.25 Many pension funds have moved to the more conservative AT2000 table but, as indicated above, the move has taken place where the fund could afford it or as a means of reducing the surplus. Hence, there may not be a risk-based rationale for the choice of table. While the fund actuary is meant to consider actual mortality experience in validating the choice of table, few pension funds are large enough to measure reliably their own mortality experience and hence justify a change of table from their own experience or make adjustments to the table to fit their experience. Most importantly, while longevity is improving no pension plan makes explicit allowance for the highly likely future improvement.

Discount rates

2.26 Until relatively recently the 6% real maximum discount set in Resolution 18 provided plenty of margin for error in the choice of other assumptions, with investment returns commonly in double digits (real) and long-dated government bonds available paying well over 6%, which funds can use to match liabilities. This large margin of relatively secure returns over the discount rate has provided a substantial margin for error elsewhere. The complacency this healthy position has engendered, coupled with the inherent need in any system of fixed rates for the Conselho Deliberativo to make a conscious decision to change the rate, pose a serious threat. As real interest rates of government bonds have fallen during the last few years, and by 2012 they have dropped below 5.5%, risks or errors elsewhere in actuarial calculations, for instance relating to longevity, become significant.

2.27 Despite the occasional upward move in rates, the trend in interest rates has been steadily downward and is likely to continue with Brazil receiving investment grade status, achieving sustained economic growth and relatively low inflation. It would be reasonable to expect real rates in the longer term to trend down towards the 3% real normal in the developed world, and indeed the current President stated that she would like to see rates falling to 2.5% real. Even in early 2010, the World Bank team became aware of cases where annuities were bought at plan termination for discount rates of 4-4.5% – which was therefore probably the real discount rate for guaranteed delivery of the benefits at that time (when government bond rates were still around 6.5%).

2.28 A sustained fall in real interest rates would increase the cost of funding all liabilities that are not duration-matched, and hence reduce the discount rate that should be used. A prudent interest rate that enabled a pension fund to be confident in paying liabilities when due should be a bit below the relevant government bond rate for duration matched liabilities, and no more than 4.5% for unmatched liabilities. In practice, only a few pension plans use a rate as low 5% and most are using rates that are too high to ensure liabilities are covered. Furthermore, no plan uses a market-reflective discount rate, which may impede effective asset liability matching and means that changing the discount rate is a big issue.

2.29 International experience suggests two options for responding to these issues:

- In systems where the sponsor must guarantee the plan, such as in the UK, using discount rates higher than the government bond rate is accepted, but introduces significant sponsor credit risk. This is less practical in Brazil, where in the event of a deficit in Brazil, public sector (Law 108) pension funds must require that 50% of the cost of recovery be met by the participants - a practice also adopted by many Law 109 funds. Were such action required in large funds as interest rates trend downwards, the impact on the reputation of the pension system and the supervisor could be very serious. As indicated in the next section, the impact is potentially worse still in the event of plan terminations. The UK approach in any case requires tough (and costly) action to enforce the sponsor debt and a (costly) pension guarantee scheme, and would be worth avoiding if possible.
- The other alternative is (as in the Netherlands) to use a discount rate reflecting the best estimate return on assets with mandatory risk reserves (buffers) on top to provide for the risk of negative events. In practice many pension funds have large reserves so that their choice of discount rate may be less of worrying, if they do not distribute the surplus, see below. In the absence of any requirement on pension funds to maintain reserves, PREVIC might find it hard to require risk buffers.

Surplus distribution

2.30 The strong investment returns noted above have led to the emergence of large surpluses (as measured by pension funds applying Resolution 18). Pension funds have been free to distribute surpluses in excess of 25% of the vested benefit liabilities, and have been obliged to consider distributing such surpluses where they persist for three years. Some funds have in recent years made substantial distributions in the form of enhanced benefits or reduced contributions. If however, longevity increases and interest rates fall the distributed surpluses may come in future to be seen as illusory. In view of the large uncertainties inherent in the valuation of assets and liabilities over future decades, and the likely trend that liabilities will increase and asset returns fall, 25% could be seen as a relatively slim margin.

2.31 The surplus distribution risk has been substantially reduced by Resolution 26 which requires more conservative assumptions to be used before distributing surplus (AT2000 and 5%). It has enabled some pension funds to take a cautious approach to retaining surplus and has encouraged some tightening of actuarial assumptions. There must be a risk that less cautious funds may still contrive to reduce ‘surpluses’, at least through contribution holidays. Resolution 26’s enabling of an additional reserve where modelling shows that distribution would be

imprudent creates a reserve similar to the risk buffers required in the Netherlands and Germany[7], and could provide a foundation for introducing the approach into Brazil.

Transfer values

2.32 While the impact of most pension funds using actuarial assumptions that appear insufficiently conservative may be mitigated in many cases by their large reserves, the practice still exposes participants to risk if they transfer out the pension plan. This often happens where participants terminate their employment with the sponsor, although they can normally choose the financially better option of staying in the plan. The impact is potentially greater where plans re-structure from DB to DC and participants have minimal choice at the time. There is a risk that if too high a discount rate is chosen, they will lose benefits and may even take action through the courts.

2.33 The valuation of transfer benefits is further distorted where, as is common, DB pension plans use mark to curve to value longer term bonds in an attempt to avoid the distortions arising from marking bonds to market while using a fixed discount rate for liabilities, see the section on asset/liability mismatch below.

Annuities

2.34 There are particular risks associated with self-annuitization feature within VC plans. Unless fund managers are clairvoyant, annuity calculations must result either in a deficit or a surplus, either of which could potentially impact adversely on participant benefits. In view of the limited transparency of the calculation, there is a potential risk to pensioners from fund management, especially if conflicted, setting a rate that is too low. The risk of a deficit is, however, probably more likely and potentially more damaging. Firstly, because life annuities are just one of several options offered, there is a potential adverse selection risk if funds pricing on the mortality experience of the general population is wrong. Adverse selection may also result in more annuities being bought when assets prices are above average and hence annuity rates favorable and fewer when market prices are unfavorable[8]. Hence, the assumption of long term averaging of returns may be undermined. Finally, so long as the discount rate used is fixed by the Conselho Deliberativo rather than the market, directors (especially when participant elected) will be constrained from taking prudent decisions by their awareness that pensioners will lose pension from a cut in the rate.

2.35 The ideal solution might be for a separate competitive annuity market to develop (as in Chile), but so long as pension funds can use a 6% (real) discount rate while insurance regulation requires insurers to use 0%, it seems unlikely that the latter could compete for the business. Furthermore, it has been suggested that insurers and their holding companies, would prefer retirees to use income drawdown products, because profit margins are greater for investment

[7] It should be noted that the purpose of the buffers is to ensure that there is sufficient up-front funding and to prevent distributions of surplus by means of enhanced benefits where this would pose a risk to longer term sustainability. Few European countries allow pension surpluses to be returned to the sponsor.

[8] This risk is currently muted by the relatively low proportion of volatile assets held by pension funds but as market conditions change this proportion could well increase).

management than insurance business. Hence, insurers are said to adopt highly conservative pricing assumptions that exacerbate the differences in regulatory regimes. One possible way of encouraging competitive entry would be for the industry, for instance through ABRAPP, to organize auctions of annuity requirements that would have sufficient value to attract insurers to price competitively.

2.36 In the absence of a competitive market, ring-fencing of the funding earmarked for self-annuitization would be an improvement. It is wrong that a single plan and investment policy should cover the very different investment objectives for accumulation and deccumulation. The retirement fund could be run as a mutual insurer (like a European pensionkasse) with any surpluses above the level of reserves needed to guarantee payment of promised benefits being re-distributed to participants.

2.37 It should be noted that many VC pension plans give participants a choice of retirement options and that few participants currently choose annuities. Hence, the systemic risk may not be that intense. For those VC plans where annuities are the standard option, however, there is a very serious risk.

Conclusions

2.38 With practice generally not keeping pace with changing market conditions in part because discount rates are not market reflective and the maximum rate set in legislation being too high, there is a high probability that liabilities are not properly valued by pension plans. Furthermore, assumptions about participant mortality have not always kept pace with increasing longevity, and no pension plan makes explicit allowance for future improvements in longevity. As a consequence, there is a risk that pension funds may become insolvent and that participants may lose benefits, see unexpected increases in contributions or lose out when they transfer out. The impact on the reputation of the system, and PREVIC, could be immense. Furthermore, any move to a more prudent system would need a transitional period to avoid serious impacts on some pension funds, but the duration of such phasing adds further to the risk exposure. Hence, the sooner the transition starts the better.

Sponsor credit risk

2.39 Brazilian DB and VC funds are subject also to sponsor credit risk, most commonly where a deficit emerges. While there is legislation governing how deficits are to be apportioned and cleared, actual practice is not necessarily transparent, involving as it does a negotiation between the fund and the sponsor, where the directors of the former may have conflicts of interest. There are particular issues where participants are not well-placed to make up their share of the deficit - the sponsor may then meet the entire deficit, but is not obliged to. Hence, the risks to participants depend on the attitude and strength of the sponsor, along with the willingness of the pension fund to negotiate strenuously, which should be assisted by the presence of participant-elected directors.

2.40 PREVIC has therefore experienced difficulties in persuading pension funds to remove deficits as it has no power to compel sponsors to pay what they owe, and the alternative of winding up the pension plan may leave participants even worse off.

2.41 Sponsor credit risk becomes more serious where the sponsor becomes insolvent. In this event, any deficit may well not be paid off and funds would be unlikely to be available to buy annuities in the market equivalent to the promised benefits (given the difference between the market rate for annuities and the discount rates used by pension funds). Indeed participants are at risk where a solvent sponsor terminates the plan and does not fund annuity purchase (as there is no requirement for it to do so).

2.42 Participant exposure to sponsor credit risk can be increased by plans being transferred or merged in a way that substantially reduces the plan sponsor's ability to make good deficits[9]. PREVIC's licensing directorate is aware of this risk and scrutinized changes in plans that might have this effect, but it is not obvious that they could tackle this risk robustly, even with a proposed new Resolution on mergers, sponsorship withdrawal and acquisitions (although this should help).

2.43 As with any system where contributions, including those from employees, are paid into funds by the sponsor, there is also a risk of late or non-payment of contributions. This does not appear to be significant in Brazil, especially as funds 'fine' sponsors for lateness, but should be monitored by PREVIC.

Investment risks

Asset/liability mismatch risk (including liquidity risk)

2.44 DB pension plans can minimize their exposure to market risks through matching liability durations with assets. The availability of long-dated government bonds at attractive rates means that some pension funds have matched much of their liability. Some plans, however, hold government bonds of an average duration many years shorter than the duration of their liabilities, exposing them to significant re-investment risk. By the time these bonds have to be re-invested, it is quite likely that Brazilian real interest rates will be much lower. There is disincentive to match more closely, however, because of the use of fixed discount rates which introduces spurious volatility and market risk into fund valuations.

2.45 It is increasingly common worldwide for the discount rates used to value actuarial liabilities to be marked to a market parameter such as a bond rate or swap curve. This would be possible in Brazil, subject to the maximum discount rate of 6% real that Resolution 18 prescribes. Standard practice, however, is to use a fixed rate. In some cases, the disincentive is reduced by marking the matching assets to curve (which reduces the risk but increases risks relating to transfer values). A move to market reflective discount rates would address this issue and provide an incentive to duration match. But, there is resistance to such a move, because it removes discretion from the conselheiros and therefore ultimately the sponsor.

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[9] In the UK there have been cases of plans moving to a sponsor that is effectively a 'shell' company with minimal assets

2.46 The sense of PREVIC staff is that substantial mismatching occurs in a relatively small proportion of plans, but that the potential impact in these cases is severe. It should be noted that duration mismatch is a common feature of DC plans and is covered in the section on investment below.

2.47 A further mismatch risk arises because bonds are often indexed to a different inflation index to the liabilities. Although the index (INPC) used by most funds and that applying to recent issues of government bonds (IPCA) should converge over the long term, this could have a significant impact on year-by-year matching of liabilities and necessitate some reserving. It is, however, a second order issue compared with duration mismatches.

2.48 Liquidity risk is a special case of mismatch risk. Pension funds do not experience the same risks of customers withdrawing their balances at short notice as insurers and banks and hence are much less exposed to liquidity risk. It can, however be relevant for mature funds whose outgoings exceed their income, which is increasingly the case for Brazilian DB plans. In such cases pension funds need to hold sufficient liquid assets matched to forthcoming liabilities to be immune from having to sell unmatched assets at times of market stress. Given pension funds' large holdings of matched government bonds and cash this is not in practice much of an issue. (Indeed it has been observed that funds generally have too much liquidity). The one pension fund visited by the team where liquidity is a real issue was applying effort to managing the risk.

Investment market risks

2.49 This risk takes two forms:

- The strategic asset allocation may be suboptimal. The most common problem worldwide is that the duration of investments does not match the duration of liabilities or benefit payments. Either the investments may be too short term, exposing participants to the risk of unfavorable market movements before maturity, or too long term exposing participants to undue risk from pricing volatility[10]. The main risk evident in Brazil is the former, especially if seems likely, asset returns are likely to fall sharply in the coming years.
- The tactical choice of assets within the asset classes specified by the strategic asset allocation may prove to be suboptimal resulting in below average returns or above-average volatility. This is associated in practices with several risks commonly classed as operational.

2.50 As a result of Resolution 13, larger funds generally appear to have a basically sound framework of control over tactical investment risks. For instance, there are controls and compliance checks over asset purchase, pricing and custodianship with annually reviewed investment policies and, in most cases, independent custodians ensuring that transactions are in

[10] For this purpose equities can be seen as variable return bonds of infinite duration, suitable only for matching long term liabilities/benefits.

line with policies and properly priced[11]. The use of regulated clearing houses and exchanges facilitates control of counter-party and pricing risks. The SPC also used monthly data to check investment practices (probably unnecessarily). That said, best practice in investment process may well be absent in smaller pension funds, or where governance is weak, so that the overall risk exposure is not negligible. Furthermore, the exposure will increase as interest rates fall and pension funds increasingly look beyond government bonds for investment instruments that deliver the returns they are seeking.

2.51 In view of these strengths, the major risk appears to relate to strategic asset allocation, especially as international evidence suggests that strategic asset allocation has the greatest impact[12]. For DB plans, strategic investment risk is effectively asset/liability mismatch risk, already considered above.

2.52 The position is more complex for DC plans because, if a single portfolio is used for participants of all ages there is no single duration for the benefits. This is being addressed worldwide by various forms of life-cycling, but there is no evidence of their being extensively used in Brazil. Otherwise, the DC plan should target an average duration reflecting the age profile of the participants, recognising that participants close to retirement will be exposed to some volatility risk. In practice, concerns about volatility appear to have led to pension plans concentrating on short term investments exposing most participants to serious duration risk, especially as most DC plans and their participants are relatively young.

2.53 There are some mitigating factors. It is common for Brazilian pension funds to set a target return for DC plans which enables the use of sophisticated tools such as ALM to seek to optimize the risk/return trade-off. Some pension funds do this. Unfortunately much of the benefit of this sophistication is lost where conselheiros worry unduly about short term volatility, or, as in the case of multi-sponsored funds, allows sponsors to ignore expert advice and choose more short-termist asset allocations[13]. There is also a move to investment choice where participants can choose their own portfolio within the plan, which could enable them to select a portfolio that more closely optimizes their risk/return profile. International experience is, however, not reassuring on this point and, in practice, pension fund decisions on the choice of default portfolio have a major bearing on participant benefits.

2.54 Most importantly, investment legislation[14] provides for the prudent person principle which is defined in some detail and hence conselheiros (Board Members) and managers are under a clear fiduciary duty to use their skill for the benefit of participants and the sustainability of the pension fund. The regulation also requires certification of persons occupying key investment positions.

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[11] Pricing risk has been a serious concern in the past, but supervisory attention combined with a move to electronic platforms and implementation of Resolution 13 appears to have reduced the incidence of false pricing. It may now be most likely in those pension funds that do not use an independent custodian.

[12] For instance, Heinz Rudolph has estimated that strategic asset allocation is responsible for 90% of the returns on a portfolio.

[13] Such short-termist portfolios are generally referred to as 'conservative' It should be noted that for a long-term investment product they are far from being conservative because of the serious exposure to re-investment, and hence interest rate, risk.

[14] Regulation CMN3792/2009

2.55 There are reasons for thinking that 'prudent person' may not be entrenched. Pension fund investment is currently heavily concentrated in government bonds. So long as bond returns (and most other asset classes) have comfortably out-performed the discount rate, it has not required any great skill or diligence for funds to meet and beat their investment goals. A sustained fall in long term interest rates or asset performance coupled with the acknowledged shallowness of Brazilian capital markets would rapidly change this position, necessitating greater skill by the investment community and understanding by fund management and directors, in the context where knowledge and understanding appear limited. Furthermore, it would appear that the capacity of smaller funds to manage their investments proactively is poor. Pension funds may not adapt quickly enough to avoid serious mistakes.

2.56 Legislation also sets quantitative limits on asset allocation and concentration. While limits have the potential to prevent funds from reaching the efficient risk/return frontier, this possibility was raised by only a few stakeholders, concerned primarily about the restrictiveness of the conditions attached to foreign investment and 8% limit on direct investment in real estate. In reality, however, few funds are giving any thought to foreign investment and even fewer have investment portfolios that are at all close to the limits, so the debate is fairly hypothetical at present. It is in any case understandable that regulators wish to see evidence of the prudent person principle being effective before considering further liberalisation. It should also be noted that the limits would not by themselves prevent imprudent behaviour such as concentration of risk in some asset classes or sectors if the economy – hence the implementation of 'prudent person' is highly relevant.

2.57 It would appear that there is a medium high probability of a medium to high impact on DC plan participants[15]. Before PREVIC can move to address this risk it needs to address two issues:

- PREVIC has inadequate information on the investment strategies of DC pension plans and the durations of their portfolios. It has no information on how portfolios are designed where portfolio choice is offered. Such information is needed, at least, for a sample of pension funds before strategic decisions can be made.
- Legislation is silent on the design of and safeguards in portfolio choice. It is not even clear how quantitative investment limits and license amendment requirements impact such plans. There is no mention of life-cycling.

Investment credit risk

2.58 There is a risk that pension fund managers choose investments with a significant exposure to credit or counter-party risk. The use of regulated clearing houses and exchanges facilitates control of counter-party and pricing risks. The quantitative limits prescribed by legislation should help reduce this risk and PREVIC uses pension fund data to check investment practices.

[15] Until recently, the wide availability of low risk short duration investment products offering high real rates of return made investment choice easy. As interest rates and investment returns fall and are expected to fall further, the risks from over-investing in short term products increase substantially. Hence this risk is moving from low to medium.

2.59 The recent requirement for qualified investment managers and directors also appears to be an appropriate response to this threat, but still leaves PREVIC with the task of ensuring that professionalization is effective and avoids imprudent decisions – as discussed below it is not self-evident that PREVIC has the tools to do this. Improvements will in any case take time to become apparent – PREVIC studies on the process of certification of corporate directors show that beneficial impacts are achieved after four years. Furthermore, there is a serious reputational risk for the pension fund sector and PREVIC if pension funds suffer significant losses from making imprudent investments. As easy investment returns disappear the risk that they may be tempted by high credit risk investments increases, necessitating PREVIC vigilance.

2.60 Hence, while credit and counter-party risk is not as serious a threat as actuarial, legal or strategic investment risks, it cannot be ignored by PREVIC.

Charging risk

2.61 Where pension fund costs are recovered through charges levied on participant balances there is a risk that these will be set too high, commonly for commercial gain, with a consequential reduction in pension outcomes. For single-sponsor funds in Brazil there appears to be little risk of this happening, as sponsors tend to bear the costs themselves. The inherent risk is much greater for multi-sponsor funds where the fund holding company may seek to enhance the profitability of the operation at the participants' expense, especially if governance is weak. This will need to be monitored in the future, but the risk is currently reduced by the early stage of development of the funds which are seeking new sponsors and, in one case claim to be running at a loss to the sponsor. While costs may be more substantial at smaller funds, their sponsor to tend to pay their administrative costs.

Operational risk

2.62 Most operational risks do not appear to be a significant issue for large funds with sufficient managerial resources and effective controls implementing aligned to Resolution 13. There is no evidence of significant problems or concern within pension funds under this heading. Furthermore, most funds experienced little difficulty in supplying PREVIC with extensive monthly data. More generally, there is an alignment of interest between pension funds and PREVIC – neither wish to experience operational problems and pension funds can usually be relied upon to take appropriate measures to mitigate risk.

2.63 There may be some isolated problems with the quality of participant records in remote locations, the absence of specialist software and of one fund that replaced its out-sourced administrator because of inadequate service levels. These might all be issues to monitor, but, generally speaking, this risk area does not appear to be a priority for PREVIC.

2.64 Operational risks associated with investment have been largely covered under investment market risks above. So long as there is strong control within the pension fund the probability of significant exposure is low. Such control cannot. However, be relied upon, and PREVIC need to give some priority to seeking and mitigating this risk, primarily in pension funds with weak governance

2.65 There are two specific types of operational risk that are potentially more serious in the Brazilian context, covered below under ‘out-sourcing’ and ‘legal’.

Out-sourcing risk

2.66 There is potentially more exposure to operational risks, and indeed poor performance in relation to functions such as investment, where they are out-sourced, as the alignment of interest may be diluted or absent altogether, or worse still there may be conflicts of interest between pension fund and supplier. Many pension funds out-source most or all of their functions. This may cause problems if the conselheiros (Board Members) and managers do not monitor the performance of providers effectively or where there are conflicts of interest. The view of PREVIC staff is that the single-sponsor pension funds that out-source extensively pose little risk where, as is often the case, they are sponsored by multi-nationals who ensure that there is a strong control environment and that interests are aligned.

2.67 Multi-sponsored funds pose much more risk. They commonly out-source investment management to subsidiaries of the company owning the pension fund, which removes the discipline that the pension fund could potentially change provider if performance is poor. The situation is still worse where the investment adviser is out-sourced to another subsidiary and there is a risk that the fund will not even be told that performance is poor. Similar issues of control and monitoring may arise where administration is out-sourced to the pension fund owner.

2.68 Problems also arise in multi-sponsored funds where, as is common, the sponsors can dictate the investment strategy or choice of actuarial assumptions. In such a case the pension fund has effectively out-sourced these decisions without any accountability mechanism, as conselheiros (Board Members) representing other sponsors will not interfere in the decisions of other sponsors.

Legal risk

2.69 This is a type of operational risk that may be peculiar to Brazil, and takes the form that the definition of benefit entitlements are imprecisely or incorrectly defined or prove to be different from expected. It arises because of the unusual contractual position of closed pension funds. Elsewhere there is a contractual relationship between the employer and the participant, which in occupational pension schemes is (usually) supplemented by a contract between employer and pension fund, or in personal pension and most mandatory systems by a contract between the participant and the pension fund. Hence the pension fund acts an agent of the employer or the participant (on whose behalf whom the State acts in mandatory systems). In Brazil there has since the 1990s not been a contractual relationship between employer and participant. Instead the pension fund contracts with both. An employee can only seek redress for a perceived unfairness in the pension contract is through taking action against the pension fund – elsewhere he/she could act directly against the employer. Hence, an industry has grown up to pursue such claims.

2.70 The absence of a contract between participants and employers may also confuse the judiciary, who assume such a contract exists, as indeed it did until the 1990s. This may well

explain why some such cases are heard in the labour courts, which strictly speaking have no authority.

2.71 For example, in recent years former participants and retirees have instituted claims that their DB benefits have not been properly calculated. The most common cases relate to the calculation of inflation during the 1990s and the treatment of payments in kind such as a luncheon vouchers or overtime. Such cases can be taken by State civil courts or Federal labour courts which do not necessarily appreciate the finer points of pensions legislation. Or they see the issues as relating to consumer protection of employee rights, where the plaintiff is at an advantage, rather than contract law. While the issues may be considered in a more balanced manner at the level of Federal appellate courts, they will only take a case if they are convinced that it poses wider issues and cannot consider new facts. Furthermore, smaller funds may not call on pension expert lawyers in their defence so that cases are lost needlessly.

2.72 As a result, judgements have proven to be inconsistent with the risk of precedents being set inadvertently that could have major ramifications across the sector. The amounts involved are potentially substantial, and as the potential increases in benefits are unfunded, such cases threaten the viability of parts of the DB sector. The issue appears to be systemic although better management of benefit contracting and calculation at pension funds should mitigate the risk. PREVIC has recognised this risk, and is working with ABRAPP to improve judicial understanding of the pension system. This should also be a risk that can be subject to inspection at those funds DITEC identifies as being particularly exposed.

2.73 There is also a legal risk to multi-sponsor funds from cross-contamination between plans. While Articles 22 and 23 of Complementary Law 109/2001, issued under the responsibility of the CGPC (now CNPC), has established separate registration and accounting for plans, in law it is the fund not the plan that is the legal entity. Hence a court might require the fund might to take money from other plans in the event of financial problems in one plan.

2.74 The unusual contractual situation means that it is necessary for PREVIC to license individual plans with as these represent the only contract that the participants have, and this process is more resource-intensive than in other jurisdictions. This provides some safeguards against legal risk and participants losing their rights, although the powers of conselheiros and PREVIC to block damaging changes may sometimes be very limited[16].

Participant understanding risk

2.75 This is a risk to the extent that participants do not understand the differing risks to their benefits depending on the type of plans to which they belong, or do not understand the impact of the choices they have to make. Several stakeholders identified it as a serious risk and mentioned the low level of understanding of pensions in Brazil (although the country is far from unique in this regard). Resolution 23 encourages pension funds to communicate clearly to participants,

[16] Because participants cannot directly seek enforcement of any contract with the sponsor, the onus for enforcement action rests with the pension fund, and if that is ineffective, PREVIC. This is particularly relevant to DB and VC plans where PREVIC must assess whether changes to the sponsor or the plan impact negatively on participant rights. Hence the licensing directorate has an important role in mitigating sponsor credit risks.

and some funds have evidently put considerable effort into web-based communication, although there is a limit to how accessible documents such as actuarial valuations can be made. It is less evident that this has made that much impact.

2.76 The problem faced by supervisors worldwide is that there is little evidence that improving communication by itself has a material impact on understanding. If additional effort is to be applied in this area, the biggest risks are of participants:

- making ill-informed decisions on transfers out of pension plans – in one case a large number took a lump sum equivalent to the real value of their contributions instead of retaining a right to a much more valuable pension benefit;
- losing out from a voluntary transfer between pension plans – the funds that have promoted such transfers gave evidence to the mission that the transfers have not been detrimental, but there is scope for less scrupulous funds to erode participant benefits in this way;
- taking legal action where they wrongly perceive that they have lost out from decisions made on their behalf, or have misunderstood that the target return that has to be used by DC funds represents a promise, especially in view of the legal risks referred to above[17];
- choosing inappropriate investments where choice is offered; and
- choosing inappropriate income tax treatment for benefit pay-out.

2.77 The amount of priority to be given to this risk depends on the extent to which PREVIC can ensure that pension funds exercise their fiduciary duties in a way that leaves participants least exposed to risk and hence minimizes the need for participants to have pensions understanding. This is not currently a priority.

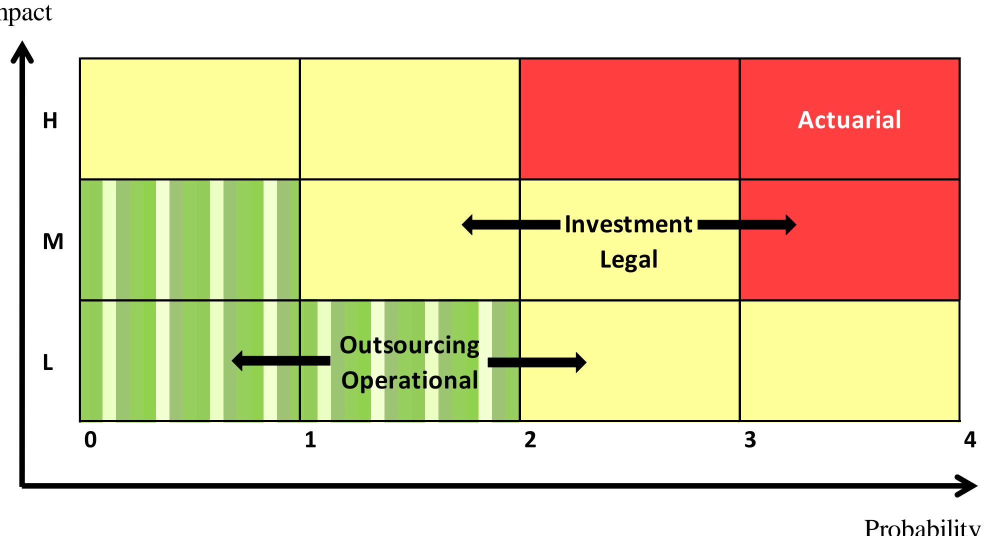
The risk landscape

2.78 In considering the risk landscape it is helpful to distinguish between direct risks that impact directly on participants and indirect risks that increase the likelihood of direct risks materialising. In discussion with the PREVIC team, the level of risk associated with groupings of direct risks were considered above were mapped onto the initial 3x4 matrix (Figure 5 below)[18]. This mapping confirmed that PREVIC should prioritize actuarial risk (including DB investment mismatch) and also to give particular attention to strategic investment risk for DC plans. Legal risk is also a serious risk, but different approaches will be needed to address it. Operational and out-sourcing risk is much less serious.

[17] One professional believed this to be one of the most important risks facing PREVIC.

[18] The mapping exercise considered separately large and small pension funds, and not surprisingly the probability of risks occurring was considered greater in the latter. This explains in part the way that investment and operational risk spread across Figure 5. The other reason is that some kinds of investment risk, notably duration mismatch are considered more probable than other types, such as credit risk and market volatility, which are in turn more likely than liquidity risk.

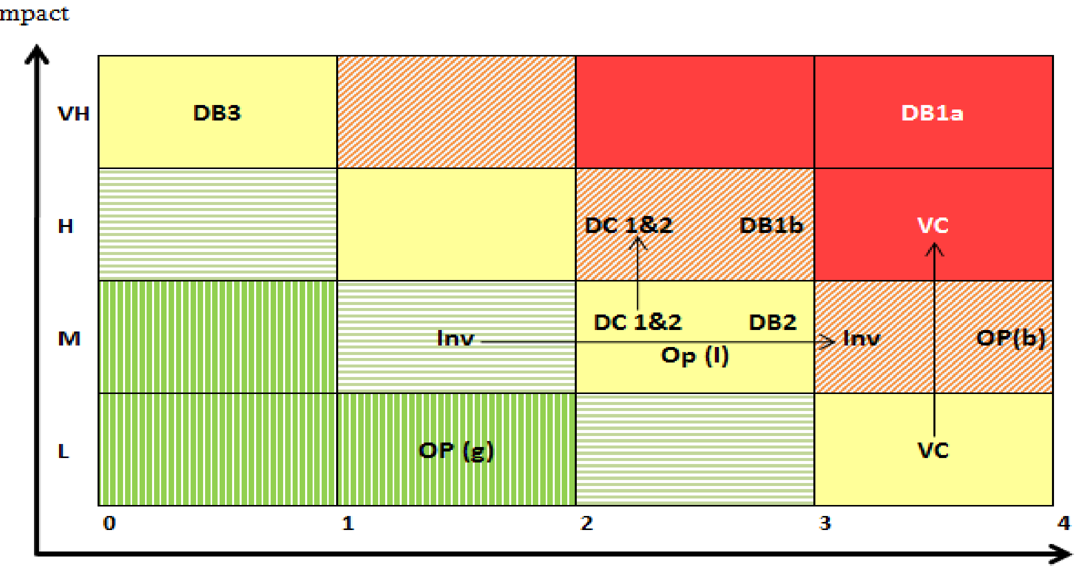
Figure 5: Mapping the System-wide Risks



H= High, M= Medium, L= Low

2.79 In March 2012 the mapping was repeated at a higher level of granularity and using the 4x4 matrix that became standard during 2011 (Figure 6). The number of risk categories increased, although some of these still group several related risks and several less significant risks for which DITEC is solely responsible were omitted[19]. There would be value in this exercise being repeated annually as RBS settles in to reflect the improving understanding of the system.

Figure 6: Revised Mapping of the Risks in the Closed Pension System



VH= Very High, H= High, M= Medium, L= Low

[19] The full list of risks covered by DITEC is set out in paragraph 5.74 below.

Key to risks:

- **DB1**: actuarial assumptions for DB plans too weak which could result in future deficits and hence lower benefits - the assessment varies according to deficit situation and pension fund category, with Article 108 plans, plans in multi-sponsored funds and those with deficits rated riskier (**DB1a**) than the others (**DB1b**)
- **DB2**: sponsors avoid paying off DB plan deficits, which could include terminating or migrating the plan without honouring their full liabilities.
- **DB3**: mismatch between DB plan assets and liabilities which could result in future deficits.
- **VC**: annuities incorrectly funded in VC plans due to incorrect assumptions or simply the lack of ring-fencing that is standard for these plans, which could result either in retirees cross-subsidising active participants, or vice versa.
- **DC1**; actual assumptions for future DC benefits too optimistic resulting in contributions being too low to deliver the intended benefit.
- **DC2**: failure to optimize DC portfolios which could result in returns being lower than they could have been and reduced benefits – unless plans are structured to reflect participant circumstances, through fund choice and life-cycling inadequate optimisation is virtually inevitable. Governance failures may exacerbate this risk in multi-sponsored plans.
- **Inv**: risk of losses (in any type of plan) being not properly managed resulting unrewarded risks and lower benefits or higher deficits.
- **Op(I)** operational risks related to investment which could result in investment losses (or failure to deliver returns envisaged in the plan's strategy) and hence lower benefits or higher deficits.
- **Op(b)** operational and legal risks related to benefit calculation, which could result in participants receiving less benefit than intended or law-suits exploited ambiguity or error in the calculations that reduce the funds available for other participants or cause deficits.
- **Op(g):** other operational risks – of which there is a large number but which are considered to pose a low risk.

2.80 Indirect risks, such as from poor governance cannot be plotted on the matrix, as the impact of failures depends on which direct risks they cause to materialise[20]. While this category can include risks such as failures of competition or the quality of staffing, in a system such as Brazil's that relies heavily on fiduciary duty to minimize direct risks, governance and risk management is by far the most important indirect risk, and the evidence shows that there is a strong probability in practice that governance is deficient. It should be noted, however, that governance cannot be relied upon to reduce other risks where there is an inherent misalignment of objectives, as discussed above.

2.81 The conclusions from the risk-mapping are consistent with a view that the most intense risks in the system arise where there is a misalignment between the objectives pension fund fiduciaries and the long term interests of participants. This is certainly the case with actuarial risk where employer sponsors, and their representatives in the Conselho Deliberativo have a vested interest in minimising the actuarial valuation of plan liabilities, and may also be the case for DC investment where there is little incentive on fiduciaries or managers to optimize long term returns or minimize risks. On the other hand, sponsors and fiduciaries have a strong interest in managing operational risks, including those associated with investment, so as to minimize the costs and effort required to remedy problems that occur.

[20] Indirect risks can alternatively be seen as risk mitigants which the supervisor seeks to rely on to reduce the probability of direct risks materialising. In this case, the quality of governance is a factor that reduces the probability of other risks.

Risks to the development of RBS within PREVIC

2.82 The World Bank worked with PREVIC to update an assessment made against the IOPS Principles of Private Pension Supervision in early 2009 in conjunction with Colin Pugh. This exercise (Appendix 3) concluded that the creation of PREVIC has improved the assessment in several substantive ways, but, in particular, there remain some aspects of independence that are of concern.

2.83 The assessment, coupled with World Bank diagnostic analysis, identified that some of the pre-requisites for risk-based supervision were present, and hence should be **strengths** for PREVIC:

- some stakeholders praised recent legislation, such as Resolution 26 and Regulation 3792/2009, as demonstrating a good grasp of important issues;
- PREVIC collects and processes large quantities of data pertinent to its responsibilities which means that much of the data needed to support RBS should be in place;
- the legal duties of pension funds are legislatively defined and PREVIC has the powers needed to enforce legislation (subject to the caveats below);
- legislation provides PREVIC with some flexibility in running its own internal affairs to enable a transition to RBS; and
- the supervisory approach has already moved some way from a sanctioning approach to encouraging remediation by seeking only to apply sanctions where compliance is not forthcoming.

2.84 It was concluded that PREVIC had to address the following **weaknesses**:

- Most pension funds did not perceive the SPC's supervision style as adding significant value, and in particular saw inspectors as focusing on points of detail and issues that could be sanctioned rather than strategic issues;
- In one case SPC inspectors failed to raise some major risks apparent from a fairly short interview, and instead just reported a procedural breach;
- Pension fund representatives claim that inspection teams ask for data already provided to PREVIC (for monitoring purposes) and that there are inconsistent judgements between different teams;
- The SPC has insufficient expert staff, in particular in relation to actuarial and investment risks, and paid limited attention to actuarial risks before 2010;
- In particular, it has been acknowledged that the SPC struggled to adopt a focus on pension fund risk management, despite the provision of training risk-based supervision since 2004, in part due to legislative requirements for compliance-based supervision and in part due to the difficulties inspectors found in evaluating risk management; and
- While the selection of pension funds for inspection is based on risk indicators so as to reflect the different levels of risk indifferent funds, and different inspection plans have been adopted for different types of fund, the industry still complains of insufficient differentiation in approach between different sizes and types of pension fund, with well managed large funds and small DC funds receiving disproportionate attention.

2.85 It was considered that PREVIC could exploit the following **opportunities** in moving towards RBS:

- The work undertaken on building risk factors to inform the annual program of pension fund inspections (PAF), provides a foundation for further developing thinking on risk;
- The increasing realisation within the pension fund industry of the need to drive up the quality of actuarial valuations;
- The desire of pension funds to see greater differentiation of approach between sizes and types of entity; and
- the experience of other financial services supervisors in Brazil (who have all taken some steps towards RBS) and of pension supervisors internationally..

2.86 PREVIC also needed to be mindful to the following **threats**:

- Applying RBS inevitably requires supervisors to make subjective judgements on risks and how they can be mitigated and hence depends heavily on having staff with sufficient experience and expertise to be credible in convincing pension fund management to make changes, along with as good documentation.
- This is especially so as the key Resolutions relating to pension funds are (quite properly) framed in terms of principles and aspirations such as fiduciary duty, good risk management and 'prudent person'. It is hard to convince any non-specialist court that what a pension fund has done falls short of these concepts, especially a court used to applying a civil code. Hence, moral persuasion is likely to be more effective than legal coercion in achieving results.
- Any form of persuasion or coercion towards best practice is more likely to succeed if PREVIC issues detailed guidelines as to the procedures that meet its expectations and hence will not give rise to intervention, perhaps emulating the 'internal instruments' that CVM has issued.
- The credibility of supervision may also be compromised if PREVIC is not, or is not perceived as, independent and hence the shortfalls in this regard may prove significant. For instance the ability of another arm of government to dictate the organisational structure, as happened with the SPC[21], could hinder any re-organisation linked to RBS.
- Furthermore, the possibility that PREVIC directors may change with a change of government could put at risk the authority's commitment to implementing RBS.
- Because PREVIC directors are externally appointed there is a serious risk that a 'silo-mentality will work against a consistent strategic response to pension fund issues.
- PREVIC may also be constrained by the requirement applying to all civil servants that they pursue all legal infractions – unless amended or re-interpreted this may make it difficult to oblige inspectors to take a risk-based approach. While engaging staff on the tax auditor career path has advantages in terms of the salaries that can be paid and the talent pool available, such personnel (currently former social security auditors) may experience divided loyalties, unless they are fully committed to PREVIC's risk-based approach. .
- While PREVIC has some experience of winning hearts and minds, industry views are mixed on its consultation processes, and more attention will be needed to this issue, along with

[21] The Controladoria Geral da Uniao recommendation that there should be separate departments for on-site and off-site supervision may constrain future re-organisation.

generally greater transparency, if PREVIC wishes to take the industry with it. A continuing emphasis on sanctioning (minor) infractions could have negative effect on the willingness of pension fund management to co-operate with PREVIC and be open about their failings and where they need help.

- More generally, PREVIC will have to recruit staff within the constraints of legislation and government rules. PREVIC needs to ensure that the staff it is being allowed to recruit have personal qualities relevant to RBS as well as the good qualifications being sought, and that new staff are properly inducted.
- The regional office structure, while unavoidable in view of the large size of Brazil, may complicate the implementation of a new culture, at least unless some supervisory roles are concentrated in a single location.
- PREVIC will need to manage unrealistic expectations of the speed of change.
- There may be a reduction in the number of Closed Pension Funds arising from the increased emphasis on conselheiros and directors being competent and taking full responsibility for complex decisions (although any transfer of pension plans from small to large funds would probably be an improvement).

Summary of the strengths, weaknesses, opportunities and threats

2.87 The most important strengths, weaknesses, opportunities and threats identified above are summarised in Figure 7 below.

Figure 7: Summary of Analysis SWOT

	Strengths	**Weaknesses**
Internal	➢ Legal powers ➢ Data ➢ The move away from sanctioning ➢ Examples of RBS implementation in Brazil and elsewhere	➢ Credibility and expertise of supervisory staff ➢ Unpredictability of enforcing principles as opposed to rules ➢ Major recruitment process ➢ Organizational structure
	Opportunities	**Threats**
External	➢ Compliance culture ➢ Good governance structures ➢ Strengthening of actuarial profession ➢ Developing pension fund risk management ➢ New prudent person investment rules with certification of investment directors & managers	➢ Actuarial (DB and VC) ➢ Legal uncertainty of benefits ➢ Competence & independence of some governing bodies ➢ Falling interest rates ➢ Distribution of surpluses ➢ Perverse incentives towards over-conservative investment freedom ➢ Legal uncertainty regarding DC profiles

2.88 On the basis of the above diagnosis, some features of RBS found in other countries appeared to be have relevant to preparing the roadmap for RBS in PREVIC. Figure 8 summarizes these, referenced to the key features of RBS set out in Appendix 1.

Figure 8: Benchmarking of RBS in other countries to PREVIC

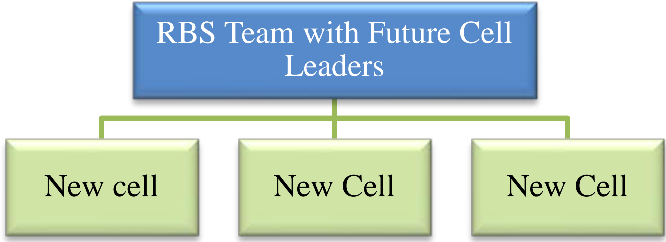
Key feature	Country	Relevant experience
The supervisor places most of its focus on a relatively small number of **key system-wide risks**	UK	Initial focus on DB actuarial and sponsor credit risks which appears very relevant to the similar weaknesses and threats visible in Brazilian DB and VC plans, turning more recently to a focus on key risks to DC benefits.
	Neths	Supervision is focused on the FTK system used to set risk buffers for DB pension funds covers actuarial and investment risk.
Quantitative risk-identifier tools are applied to help evaluate risks more clearly and change pension fund behaviour	Neths	Risk buffers are calibrated to reduce the risk of funds becoming under-funded below 2.5%
	Denmark	The supervisor specifies detailed stress tests are used to determine the level of risk to the fund's objectives, using traffic light system.
	UK	The supervisor published the quantified criteria relating to funding used to select funds for examination, so as to influence fund decisions.
The supervisor actively seeks to promote improved **pension fund risk management**	Australia	The supervisor has focused its licensing and inspections on the risk management processes of funds, with detailed guidance on key aspects of risk management such as investment.
	Neths	Pension funds are allowed to use internal models rather than the supervisor's model if they can demonstrate a good grasp of risk management.
	UK	The supervisor has issued a code of practice on the risk management processes that should be used to identify key internal controls.
The supervisor selects funds (and subjects) for inspection on the basis of an **individualised evidence-based risk assessment**	Australia & Neths	Both supervisors use risk scoring systems that encompass both inherent risk, as measured by funding or investment risk and the quality of risk management and governance in each pension fund.
The focus of supervisory intervention is on **prevention and remediation** rather than sanctioning	UK	The supervisor has put considerable effort into winning hearts and minds so that pension funds voluntarily comply with its recommendations. Its inspection approach is to persuade pension funds to adopt good practice through questioning their assumptions with sanctions held as a last resort for wilful non-compliance due to conflicts of interest.
Implementation process	Chile	Avoiding unnecessary sense of urgency
	UK	A pilot team developing the approach to the first risk focused on (sponsor credit) and this approach was then replicated in the next specialist area.
Organisation of supervision	Chile	Separating accumulation from payout phase.
	UK	Established a specialist team to analyze data from all sources and in conjunction with specialist intervention teams assign a priority to identified risks
	Chile & UK	Reorganized to reflect the new approach adopted.

2.89 It was evident that a substantial shift was needed in the expertise, culture and credibility of PREVIC's supervision functions, to build on the moves towards RBS that had taken place

since 2004. A change in culture cannot be achieved quickly and needs effective leadership. There was a good case for learning from experience elsewhere in Brazil and beyond of establishing a team that develops and implements the new approach and culture, before disseminating this throughout the supervisor. It was therefore recommended that PREVIC established an RBS team for this purpose, which would:

- be hand-picked with staff that have the right skills and competences, including in particular:
  - the necessary quantitative skills so as to understand and be able to evaluate risk management processes and risk methodologies (such as ALM)
  - the integrity and motivation to focus on making their approach genuinely risk-based,
  - ability to lead change within PREVIC by example and by convincing colleagues within the organisation
  - eagerness to learn about best practice and to apply it in PREVIC
- train itself up on key risk issues by seeing best practice in action as well as training from other pensions supervisors and leading edge consultancies in Brazil
- build on the World Bank diagnosis to establish a definitive analysis of the impact and probability of the risks in the Brazilian closed pension fund system so as to justify the choice of key risks to focus on and develop approaches to lesser risks
- learn from trial inspections of best practice pension funds before moving on to the less good
- develop and refine the necessary quantitative measures
- develop and consult on specific guidance on governance processes
- put policies and business rules in place for risk-based inspection and intervention arrange general training across PREVIC
- train leaders of replicated teams, as 'secondees' to the RBS team. It was considered that once the team has established itself and undertaken a few pilot inspections using the methodology it has developed, it could replicate itself by providing team leaders for new teams that will replicate the approach and culture of the RBS team (its DNA) across a wider range of inspections (Figure 9).

Figure 9: Replication of the RBS team 'DNA'



Priorities for PREVIC

2.90 The project diagnosis pointed to the highest priorities for PREVIC being:

- Establishing an RBS team, see above.
- Addressing actuarial risk and the need for pension fund technical provisions and reserves to be based on realistic assumptions that reflect each fund's sponsor credit risk and investment

risks. This may necessitate the adoption by PREVIC of quantitative tools to analyze risk off-site, as is already being planned, detailed guidance on processes to be followed by funds that lack a robust process, a credible inspection process for funds at serious risk and changes to legislation.

- Encouraging the further development of risk management within pension funds, with a particular emphasis on investment risk management. This may necessitate general communication of expectations combined with inspections of funds so as to evaluate risk management in practice; and
- To support both these priorities, increasing the competence and autonomy of pension fund governance. While the certification requirements in CMN 3792/2009 provide a good starting point, they apply only to directors and management involved in investment, but PREVIC is now taking forward a draft resolution on the certification of all pension fund managers. There needed to be some further detailed guidance to improve transparency of process, enhance the adoption of existing codes of ethics and clarify the levels of knowledge and understanding expected.

2.91 It was agreed that once this agenda had advanced PREVIC would be able to turn its attention to a few other important risks, especially the investment risks inherent in DC pension plans. In practice, as the project developed, the DC risk and some others risk started to receive some priority.

Chapter 3. Capacity Development

3.1 A central element of this project has been to develop the capacity of PREVIC and the closed pension fund sector in Brazil to operate in a more risk-based manner. This has involved the following activities:

- Formal training activities for PREVIC staff;
- The familiarization and orientation of the RBS team within PREVIC; and
- Raising understanding at closed pension funds.

Formal training activities for PREVIC staff

3.2 The following formal training activities have been undertaken:

- The study tour to the pensions supervisors in the UK and the Netherlands during April 2010, as outlined in paragraph 3.3 below;
- In order to raise the capacity of the RBS team to be consider the details of the actuarial strategy and participate fully in its implementation, Edson Jardim delivered an actuarial training course on 12 and 13 August 2010, which was extended to the eight other members of PREVIC; and
- A study tour to the Australian pensions supervisor, APRA in November 2010.

3.3 In addition presentations have been given on several occasions to regional staff within PREVIC and new specialists recruited by PREVIC. The slides used are included in the folder of slide packs that accompanies this report.

3.4 Two members of the RBS team[22] accompanied PREVIC's Director of Supervision on a study tour in Europe, receiving training from the pension's supervisors in the UK and Netherlands. The following conclusions were drawn:

- The UK Pensions Regulator (TPR) places a strong emphasis on supervisory communication to the fiduciaries (trustees) running pension funds on the behaviors and actions that are expected of them and on raisin their level of knowledge and understanding. The Communications team, and the teams that prepare content for dissemination, are a strong, professional and integral element in TPR's organization. The on-line Trustee Toolkit learning tool for trustees is especially impressive. This approach is consistent with TPRs belief that the role of front-line supervision should rest with the trustees, who therefore need to be properly equipped and enabled.
- TPR is also strong on internal communication, ensuring that all staff are clear about their mission and role and that intelligence about the market is passed rapidly to where it is needed.
- TPR stressed the degree to which the move to RBS had necessitated a change in culture among the staff. Some had been keen to make the transition and had been nurtured. Others proved more resistant and were sidelined.

[22] Carlos Eduardo Gomes and Estevam Brayn

- Both TPR and the Dutch Central Bank (DNB) place emphasis on supervisory teams working together to use off-site data and analysis, and their own experience, to determine the penetrating questions to be asked of pension fund fiduciaries during inspections so as to ascertain how effective the control and risk management is within each fund.
- Like TPR, DNB place emphasis on communicating their understanding of good practice to pension funds. While DNB have various forms of binding guidelines or regulation available to them, the good practice guidance is issued under the guise of helping pension funds understand what DNB will be looking for during inspections, as part of open book supervision, as well as helping to raise fiduciary standards. This is effectively a '**comply or explain**' approach.
- DNB have an impressive system for identifying risk within each pension fund, taking the magnitude of the impact of each type of risk materializing and the likelihood, which in turn derives from an assessment of governance (which is seen as a mitigator rather than a risk); hence the emphasis on asking probing questions of the governing body.
- DNB also have a relevant system for assessing the funding that pension funds need to cover their technical (mathematical) provisions (calculated using a market consistent measure - the swap curve) and the risk buffers required to cover six major risk categories, most notably interest rate and market risk that correlate to measure mismatch risk.
- DNB had supplemented their routine inspections of pension funds with a specialist in-depth thematic review of the governance and risk management of alternative investments. It was notable that this had been informed by data on reported investment losses greater than would be expected from applying the funding model, to identify the funds to examine. The review was undertaken by specialists recruited from the financial markets. It provided an excellent example of a thematic review, an important tool in RBS, as well as highlighting the importance of expert staff covering specialist areas.

3.5 Overall, the team and the then Director Superintendent (Ricardo Pena Pinheiro) considered from this experience that PREVIC should give priority to issuing good practice guidance to pension funds, against which PREVIC staff could supervise the funds, and in due course building the capability to ask penetrating questions during supervisory inspections. The RBS team were particularly mindful of the three-step model developed by the UK Pensions Regulator:

- **Educate** – make it clear to pension funds how PREVIC expects them to respond to the risk, and win their hearts and minds
- **Enable** – provide 1:1 help to pension funds to help them implement PREVIC expectations – also may involve changing incentives or legislation
- **Enforce** – take action against those who do not wish to comply, applying an enforcement pyramid.

3.6 These views strongly informed the high level design phase that followed, documented in Section 4 below.

Familiarization and orientation

3.7 A central element of the project has been to raise the capability of PREVIC to undertake risk-based supervision. As recommended in the diagnosis phase, an RBS team was established within PREVIC to lead and champion the development of risk-based supervision. The process of developing RBS for Brazil involved RBS team discussions during the technical assistance visits at which the World Bank team presented basic concepts and international experience and the RBS team discussed these and developed the thinking on how key concepts in risk-based supervision should apply in Brazilian circumstances. This work was supplemented by learning from visits to nine pension funds and drafting of products between technical assistance visits. The content of each visit has been outlined in paragraphs 1.11 and 1.12 above.

3.8 As recommended by the World Bank team, the RBS team expanded in October 2010 to provide a larger core, drawing in staff who would participate in spreading RBS during its implementation, and progress was made in bringing these new members up to speed. During 2011 some team members left the team, or at least Brasilia, to be replaced by others brought in from outside PREVIC or from its regional offices. Only one team member was present in Brasilia throughout the project. Fortunately several of these new team members, in key roles, fitted into the team quickly due to their prior experience of working with the team.

3.9 The frequent changes, and the competing pressures of other tasks, severely curtailed the ability of the team members to deliver products between visits, and meant that a significant part of many of the visits was spent bringing new team members up to speed. The members of the RBS team comprised a large proportion of the managerial staff at PREVIC's headquarters in Brasilia, and if other work was needed, they were called upon to deliver it. On the other hand, the changes have meant that there is now a significant cadre of staff across the organisation who have worked on RBS. In particular, former key members of the team are to be found in each of the three largest regional offices which should ensure that there is effective implementation in those places.

3.10 The change of Superintendent Director in early 2011 also caused some break in continuity as effort was put into explaining the risk-based approach and some modification of emphasis was needed to meet the concerns of the new Superintendent (Jose Maria Rabello).

3.11 One further change to the familiarization approach was occasioned by the strict controls on expenditure applied during much of 2011 which meant that only the first pilot inspection was undertaken in line with the cell replication approach proposed in Figure 9 above, drawing in team members from across the regional structure. Furthermore, resource constraints restricted the extent to which members of the RBS team could actually participate. The pilot inspections that followed were undertaken by teams based in each regional office. In the event, some of these inspections proved highly successful showing that there was a pool of staff in DIFIS who had understood RBS and were able to apply it. This change was under-pinned by targeted familiarization events organized during the technical assistance visits and by the availability a draft Manual which repaid the effort expended by the team in developing and documenting on-site processes and the first-hand experience of RBS in Australia.

3.12 The design set out in Sections 4-6 below has been very much developed as a partnership between the RBS team and World Bank consultants, and has benefited enormously from the input from the team (and regional staff too) regarding the particular circumstances and issues in Brazilian closed pension funds. Sections 4-6 therefore provide a summary of the outcomes from the discussions that were held. From the end of 2010 onwards it became clear that members of the RBS had gained a strong grounding in and understanding of RBS and were increasingly able to apply the concepts unaided.

3.13 Another significant delay in designing and implementing RBS was the delay in recruiting the 130 new staff that were promised to PREVIC in early 2010. 100 of these were to be specialists and the project team helped PREVIC to devise the requirements and questions for the open competition that was organized to recruit them. In practice 25 new inspectors arrived in September 2011 and 23 specialists in February 2012. Prior to the arrival, there was very limited capacity to undertake detailed design work, draft modules of the Guide on Best Practices, let alone start implementation. Hence the roadmap slipped progressively to the right.

3.14 The project provided assistance with the preparation of induction materials for both cohorts of new staff, which also drew extensively on the material developed during the high level design phase, and presented RBS to the specialists during the final visit.

Raising understanding at closed pension funds

3.15 The project has also supported activities to raise understanding at pension funds, through:

- Including ‘education’ as one of the three modes of influencing pension fund behaviour, thereby ensuring that the education of pension fund conselheiros, directors and staff has a high priority within PREVIC’s activities;
- Assisting the development of PREVIC’s Guide on Best Practices, the first module of which was published in August 2010, with further modules being published during 2012 (covered further in paragraphs 5.87-94 below);
- Participating in a series of regional seminars held by ABRAPP during August 2010, which supported the launch of the Guide on Best Practices, and enabled speakers from the project to explain key concepts and international experiences in risk-based supervision;
- Explaining the role of the project to conselheiros, directors and staff of the pension funds visited;
- Giving presentations at the ABRAPP annual conference in November 2010 intended to raise awareness of the risks from insufficient risk management of actuarial liabilities and associated investments. ABRAPP are publishing several of the papers; and
- Presenting the risk-based approach to a meeting of the ABRAPP Governance Technical Committee in Brasilia in February 2011;
- Meeting with ABRAPP and ANAPAR in October 2011 to present and discuss progress on implementing risk-based supervision. A presentation developed with RBS team input was well received and understandable concerns about the implications for pension funds allayed; and

- Developing a self-assessment questionnaire for pension funds which should further raise awareness of best practice in governance, as well as providing PREVIC with useful information on the current state of governance in the sector.

3.16 As RBS is implemented it will continue to be important for PREVIC to engage extensively with ABRAPP and the others in the market to ensure that there is a good understanding of the greater demands that it will place on their conselheiros and recognize the consequences if pension funds fail to improve their governance and risk management.

Conclusion

3.17 In conclusion, while the approach to cell replication to spread the DNA of RBS throughout the organization and effect culture change did not proceed as planned, the approach forced upon the project actually proved quite successful. With hindsight it might have been better if the project had engaged with more PREVIC staff earlier and focused on obtaining buy-in to the high level design from across the organization. An even faster expansion of the RBS team would also have helped.

Chapter 4. High Level Design

4.1 This section of the report documents the design principles and high level design of risk-based supervision developed for closed pension funds in Brazil by the RBS team in PREVIC with World Bank consultancy assistance.

Principles

4.2 On the basis of the World Bank diagnosis (Section 2 above), the study tour in Europe (Section 3 above), and other international experiences, the RBS team developed 12 principles to under-pin RBS in Brazil, for use in presentations to PREVIC staff, Figure 10:

Figure 10: PREVIC's Principles of Risk-Based Supervision

A paradigm shift	Implementing these principles requires a change of behavior in pension funds and the supervisor.
Focus on risk, not just compliance	By both the supervisor and the pension funds
Educate, enable and enforce	Recognizing in particular that education is a supervisory tool
Deserved autonomy	The supervisor should place fewer demands on pension funds that have proved themselves well run
Comply or explain	Pension funds should either comply with good practice guidance or be prepared to explain why they have not
Put right not punish	The emphasis of the supervisor should be on ensuring pension funds put things right (or indeed prevent problems in the first place) rather than on punishment – the TAC should help implement this principle
Anticipate future problems	Both the supervisor and the pension fund should identify and address serious risks before they become problems
No surprises for pension funds	The supervisor should clearly communicate what it will expect from pension funds so that they are not surprised by what the supervisor raises during inspections
Consistency but not uniformity	The supervisor treats similar issues at similar pension funds in the same way but takes account of the legitimate differences between different types and sizes of pension fund
The supervisor and pension funds are on the same side	Both seek to protect the long term interests of pension fund participants, but while the former focuses on the sustainability and health of the pension system, pension funds are concerned with just their own plans
Expect more from pension funds than compliance with minimum requirements	Hence the supervisor should expect pension funds to strive to implement best practice
Expect conselheiros to fulfill their responsibilities as the front-line supervisors	Not because they do what PREVIC or the law tell them to do but because they see it as their job

The strategic narrative

4.3 The essence of risk-based supervision is that the supervisor identifies the most serious risks and applies more intense supervisory approaches to mitigating these risks. It releases resources for this purpose by reducing the attention it applies to less serious risks, in particular by placing more reliance in a structured and defensible way, on the governance and risk management of the supervised entities to control those risks, with the supervisory role focusing on ensuring that governance and risk management can be relied upon. The most intense risks are those where there is a misalignment between the interests of entity management and those of the supervisor. In the case of Brazil, as indicated in paragraphs 2.78-81 above, these are the proper valuation (and duration matching) of actuarial DB liabilities and the short termism of DC investment. Credit and legal risks can also be serious. Serious issues with the quality of governance and risk management in many pension funds mean that raising standards in this area to enable supervisory reliance is also a major challenge, and hence a key focus for PREVIC.

4.4 The strategic **narrative** can be articulated as follows:

- PREVIC aims to raise the standards of governance and risk management of pension fund management to a level where they manage all the risks in the system themselves in line with their legal fiduciary duties.
- To do this PREVIC provides and disseminates guidance, and works to obtain the agreement of the market that what is recommended is necessary if legislation and fiduciary duties are to be complied with.
- PREVIC then checks that it is being applied. Where individual pension funds are not implementing the guidance PREVIC identifies and recommends ways in which they can implement the guidance - 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. It needs therefore to be able to take enforcement action proportionate to the level of risk and the willfulness of the non-compliance.
- Furthermore, for the serious risks where governance cannot by itself be relied upon, due to misalignment of interests, PREVIC needs strategies to compel pension funds to manage the risks, which are likely to involve the strengthening of legislation

4.5 The third principle in Figure 10 above summarizes how this narrative can be approached in practice, through three different types of activity:

- **Educar (Educate)** – make it clear to pension funds how PREVIC expects them to respond to identified risks (for instance by issuing guidance, running seminars and telling pension funds what risks or good practices the supervisor will look for during inspections);
- **Orientar (Enable)**- provide 1:1 help to pension funds to help them comply with PREVIC's expectations of how they manage risk, by sign-posting good practice, making specific recommendations for improvement or encouraging them to take remedial or preventive actions;

- **Fazer Cumprir (Enforce)** - take action against those who do not wish to take actions to tackle risks, by applying sanctions or issuing binding directions as provided for in legislation.

4.6 In essence, the strategy focuses on changing behavior in relation to three different reasons for non-compliance. Education is aimed at those who do not comply because they are ignorant. Orientation focuses on changing the behavior of those who cannot be bothered to comply, through on-site inspection supported by off-site analysis. Enforcement focuses on those who deliberately choose not to comply. The strategic thinking relating to how each approach to supervision can be applied is set out below. The way the approaches fit together can be illustrated on a stylized 2x2 risk matrix, Figure 11.

Figure 11: Stylized Representation of Different Responses to Different Risk Intensities

The components of the design process

4.7 To help consider how to apply the RBS principles, discussion started by considering a value chain illustrating the various conceptual steps in applying a risk-based approach to supervision, which, it was agreed, informed the overall approach to developing RBS (Figure 12).

Figure 12: The Value Chain for Risk-Based Supervision

Notes:
'a. Obtain information' includes specifying data needs and analyzing incoming data
'c. Formulate response' may include changing legislation and reporting requirements as well as defining supervisory response
'd. Communicate response' includes articulation, justification, consultation, and winning hearts and minds
'e. Verify compliance ' includes checking data or certification on off-site and inspecting for compliance on -site
'f. Enforce as needed' includes taking enforcement action in line with the formulated response

4.8 Applying each stage in the value chain in turn involves:

a. Ensuring that the supervisor has the right data for the stages that follows and that this is converted into useable **information** through appropriate analyzes. The RBS team identified this as an important issue for PREVIC as, although much data is obtained, it is diffused through the organization and there is inadequate software for bring in together and analyzing it. It was agreed that an early task for the team was to initiate an **information needs and gap analysis** to start the process of addressing this issue.
b. Analyzing the available information to establish the intensity and probability of the **risks in the pensions landscape**. The RBS team undertook this analysis on two occasions as a means of developing their understanding of the risk-based approach – the results of the second analysis are included in Section 2 above.
c. For each identified risk in the system there should be consideration of the appropriate **strategic response**, within an overall RBS strategy. The response should consider a range of options and may involve several different activities such as education and inspection to support the 'educate, orientate and enforce' approach. The strategic responses developed are set out below.
d. The strategy should be communicated within the supervisor and to the supervised community. While consideration is being given to **communicating the strategy** for addressing actuarial risk, more will need to be done to communicate strategy more generally. Most, if not all, strategic responses are likely to involve changes in the behavior of pension fund management and this too needs to be communicated, and indeed will be a major part of the communication exercise. PREVIC is therefore giving high priority to developing a **Guide on Best Practices** for pension funds.
e. Verification **of pension fund compliance** with the behaviors that PREVIC has said it expects. This is undertaken by inspection, either on-site or off-site, focused on the highest risks at the pension funds needing the most attention. The RBS team therefore worked to make their inspection process more risk-based, and to help develop **manuals** to document the new approach.
f. As part of the development of the inspection process the RBS team has also considered how **enforcement activity** would fit within the approach, and what legislative changes would facilitate it.
g. The process for **reviewing outcomes** should flow naturally from the metrics being established in on-site and off-site supervision.

4.9 Two complementary types of strategy were developed in parallel. Set out first below is the strategic thinking on changing behavior through education, orientation and enforcement. It is followed by strategies for tackling specific risks at pension funds.

Strategies for educate, enable and enforce

Education strategy

4.10 Education forms an important strand of the supervisory approach. The RBS team recognized the importance of tailoring the strategy to the intended audiences and identified the following elements in the strategy:

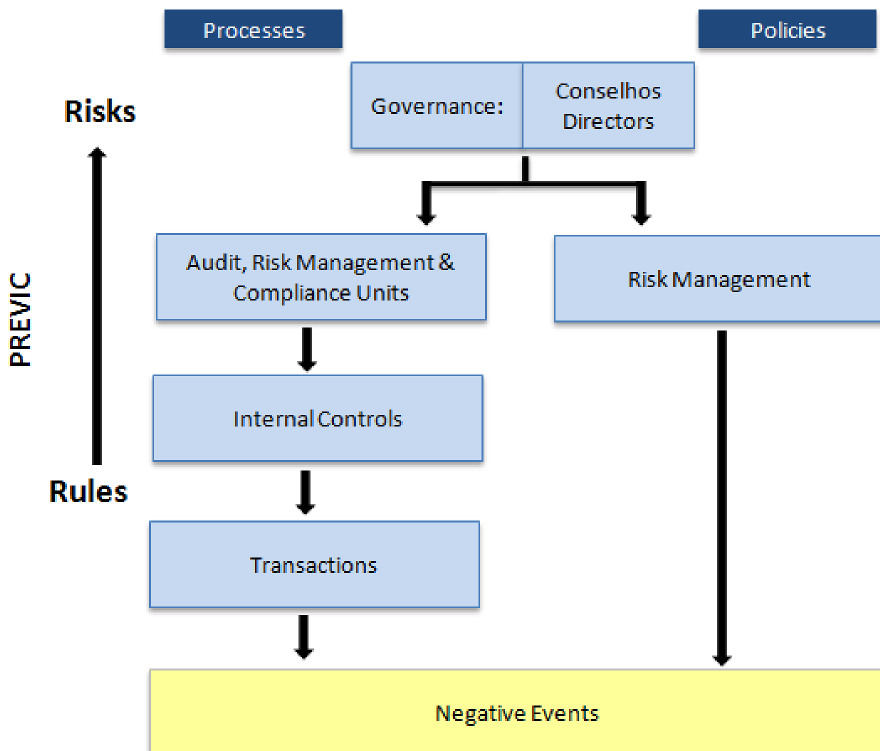
- The financial education of the Brazilian public, in partnership with other authorities within the Government. This recognizes that it is part of PREVIC's objectives to encourage greater participation in complementary pensions – and hence people who do not yet belong to a complementary plan are a legitimate and important audience for PREVIC. There is already a strategy for this activity, which has been implemented from 2010.
- Developing the understanding of pension fund participants so as to help them make the right choices (e.g on contribution levels) but also with the aim of encouraging participants to take an interest in how their funds are run, so as to add pressure on the management of pension funds to achieve high standards. This can be achieved both by helping pension funds communicate with participants (which will require PREVIC guidance) and also through direct communication from PREVIC. This is also covered by an existing strategy.
- Raising the understanding and skills of pension fund conselheiros, by:
  - Publishing a guide on pension fund best practice (see paragraphs 5.84-94 below)
  - Making it clear in this guide that conselheiros are personally responsible for taking the actions needed for their members to be sufficiently expert
  - Delivering short conference presentations, seminars and workshops delivered by PREVIC to help raise understanding of targeted issues
  - Advising on the syllabuses to be used by providers of training to conselheiros which will outline the expected knowledge and competences. This recognizes that PREVIC is not resourced to deliver the detailed training that is required but that pension funds should be able to afford to buy such training from the market.
  - Encouraging the market, including ABRAPP, to deliver this training.
  - Encouraging the market to test and certify the understanding of course participants to ensure that they have learnt what is expected of them.
- Using inspection visits as an educational tool to spread and reinforce the understanding of conselheiros and directors of what is best practice and how it can be implemented.

4.11 In addition, a Guide on Licensing is being issued in 2012, see paragraph 4.19 below.

Orientation strategy

4.12 The approach to orientation is to identify risk factors and weaknesses in governance at individual pension funds through off-site analysis and on-site inspection and to persuade pension fund management to make appropriate changes to address these. The aim is to move behavior so as to achieve compliance with PREVIC's guidance on best practices. The approach to inspection changes from a focus on transactions and individual controls to a primary focus on higher level governance processes within the pension fund, those processes that the conselheiros should rely on to be assured that the pension fund is well run. Looking at the higher level also enables a focus on whether pension fund policies are right, that may be missed altogether by a more traditional approach. This transition is illustrated by Figure 13 below.

Figure 13: Supervision, control processes and pension fund policies



4.13 The initial focus of the design work was on the development of an approach to on-site inspection visits assessing governance and risk management in the context of the management of actuarial and investment risk, along with the development of off-site analysis of actuarial risk. The development of off-site analysis of investment risk started in 2011. While detailed inspection techniques are considered in Section 5, the way risk at supervised entities is assessed is of strategic importance, and received extensive consideration. The aim is to plot PREVIC's conclusions relating to the level of risk in each pension fund on a 4x4 risk matrix, in which:

- the vertical axis reflects a **quantitative assessment of the impact** of risks materializing, in terms of the number of participants affected (or value of assets placed at risk), either in the system as a whole (for a system-wide analysis) or an individual pension fund. Four levels of risk are to be used; and
- the horizontal axis reflects a **qualitative assessment of the probability** of the risks materializing, in relation in particular to the **quality of governance** as it affects the risks, either across the pension fund sector (for a system-wide analysis), or in a particular pension fund[23].

4.14 There was some discussion as to whether PREVIC could properly use pension fund size as the criterion for assessing impact risk for governance. It was noted that the UK Pensions Regulator could use size because whereas the participants in small pension funds could rely on

[23] Drawing on the experience of other supervisors (e.g in the Netherlands or Germany), it is better to use an even number of levels of risk, in this case four, so as to compel a subjective judgment to be made as to whether the assessment is below or above average.

the Pension Protection Fund (PPF) in the event of failure, the failure of a large fund might de-stabilise the PPF, and hence such funds had much greater systemic risk. There is no equivalent justification in Brazil, and there could be resistance to participants in smaller pension funds receiving less protection. On the other hand, supervisors without a PPF, such as in Australia and the Netherlands, also use fund size as an impact criterion. Their justification is that a failure in a large fund has a reputational dimension for the whole system which could impact all pension fund participants (and the supervisor). This logic, coupled with the natural public concern on how failures might impact on individuals, would suggest that the number of participants should be used as the measure (rather than asset size)[24].

4.15 There was a debate as to whether risk assessment should continue at the plan level or move to the fund level. Governance is a pension fund level activity and hence can only be assessed at the pension fund level. On the other hand, actuarial and investment risks are specific to, and can differ between, each plan, while the size of plans also varies significantly. Hence the impact of deficient governance could vary substantially between plans. The ideal solution therefore is for assessments to be made at the plan level, while recognizing that the assessment of governance must be made at the pension fund level, and this approach has now been adopted[25]. PREVIC has in recent years applied a number of risk factors in selecting pension plans for inspection, some of which already relate to actuarial or investment risk or to governance. Others relate to compliance with regulatory requirements, such as money laundering or cost plan regulation, and the annual planning process also needs to ensure some coverage of these. The aim should, nonetheless, be to focus most inspections on the highest risks.

4.16 Off-site inspection is also important for orientation as it helps PREVIC to identify the intensity of key risks at pension plans and hence prioritize on-site inspection and, in serious cases, direct intervention. This requires the development of metrics for each key risk. As actuarial risk was identified as the highest, the development of metrics started in 2010. Investment metrics proved to be a more complex challenge as a number of different risks are involved. A consultant hired by the World Bank, Ghilherme Benites, provided metrics for this purpose in early 2012.

4.17 Metrics were also developed for governance as part of the development of on-site inspection processes, but there has been little evidence to enable the level of governance at each pension fund to be assessed without actually inspecting the fund., which in turn means that a full assessment of the level of governance and where the biggest risks are found, has to await the completion of on-site inspection of all funds. A rough and ready short-cut will be provided, however, by the self-assessment governance questionnaire developed in late 2011, information from which should be available in time for selecting the funds to be inspected in 2013.

4.18 It was agreed that the risk-based approach to on-site supervision should be expanded and documented in an **on-site manual** (which might at a later stage be extended to cover off-site supervision). The development of the manual should include calibration of the parameters used.

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[24] Using asset size as the criterion may also mean that new pension plans receive little attention despite their potentially large size in the future.

[25] This means that where the pension fund responsible for a pension plan that is selected for inspection has itself been recently inspected there may be no need to re-visit its governance.

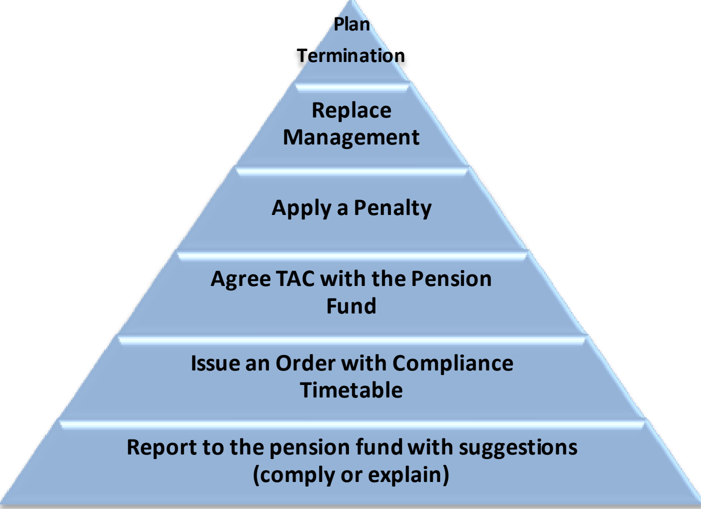
because of the inherent subjectivity of assessing governance, even with internal guidance, PREVIC will need, at least in the early years of RBS, a process to secure consistency (not least to fulfill the key principle in this regard and reflecting the division of supervision between regional offices had to be developed.

4.19 The licensing directorate (DITEC) also has an important role in orientating pension funds and their sponsors by examining proposals for license amendments, assessing the risks involved and seeking to negotiate improvements. PREVIC has the power to act as a mediator in law and hence is strongly placed to resolve issues by mutual agreement. Where DITEC identify risks such information is passed on to DIFIS, and DITEC's assessment of risk should in future be influenced by the central DIFIS assessment of governance and DIACE risks.

Enforcement strategy

4.20 Risk-based enforcement requires that the action PREVIC takes where legal infractions are found is proportionate to the risk that they cause. In particular, formal enforcement action should be restricted to cases where pension fund management is unwilling to change or where there is a serious and immediate risk to pension fund participants or there has been serious wrong-doing. Such a proportionate response to problems found necessitates a graduated scale of responses, illustrated by the enforcement pyramid (Figure 14) developed by the RBS team. It is important that the level of enforcement activity determined after an inspection is validated for consistency with the risk assessment. PREVIC needs to be prepared to take serious action, such as suspending the board, where serious problems are found. It is clear, in particular, that there will be an important role for the use of TACs[26] as a tool where pension fund practices are sufficiently problematic that purely voluntary compliance is insufficient.

Figure 14: PREVIC's Enforcement Pyramid



[26] Using the newly introduced TAC procedure PREVIC will be able to negotiate a binding agreement with a pension fund, or its managers, where a violation is found, in which the fund (or managers) agrees to rectify the problem within a specified timeframe but does not have to concede guilt.

4.21 Making PREVIC action proportionate to the level of risk can be a particular challenge in a country, such as Brazil, with a Roman Law tradition. On the one hand, it has to be established that PREVIC can waive action where the risk is low, taking account of the response of the pension fund to PREVIC's report on the matter. This does not appear to be a problem. On the other hand, PREVIC has to find a way of enforcing principle-based legislation such as the requirements for sound internal controls and risk management in Resolution 13, actuarial prudence in Resolution 18 and the Prudent Person Principle in CMN3792. The strategy for making principles more enforceable is to provide guidance on the types of actions that a pension fund could take to comply with the principle on the basis that if pension funds do not take such actions they need to explain why what they have done instead is also compliant (**explain or comply**). A key purpose of the Guide on Best Practices is therefore to provide details of the types of processes and actions that should be seen at pension funds that comply, which it is hoped will set a generally accepted base-line for what a well-run pension fund should do.

4.22 The hope would therefore be that PREVIC could seek to enforce principle-based legal requirements by pointing to the failure to follow best practice. In considering the likelihood that such an approach to enforcement would be successful, the RBS team noted that pension fund management fall into two categories:

- "Aligned" who would accept PREVIC's best practice guidance and voluntarily seek to implement it because they agree that its application is in the best interests of participants. This might be because the management is enlightened or because the sponsor (e.g a multi-national) is keen that the pension fund should be well run. In such cases, a report with suggestions should normally suffice, with an order or TAC being reserved for particularly serious issues. So long as what PREVIC wants can be found in the Guide on Best Practices compliance should follow.
- "Non-aligned" who would not be willing to accept PREVIC guidance, commonly because the conselheiros or directors are conflicted. In such cases, PREVIC's suggestions would not be accepted and some escalation up the pyramid would be necessary. This would in turn need a legal infraction upon which the action could be hung.

4.23 In practice, most pension funds might be expected to be aligned where implementing best practice has minimal cost but many might be non-aligned where a PREVIC recommendation impacts the sponsor (or indeed some participants) financially. However, the RBS focus on the highest risks, where alignment may be poor, and on governance, will undoubtedly result in more enforcement issues – that will be a measure of its success. As such findings will be more substantial than in the past they are more likely to be resisted. Furthermore, many of the negative findings will not constitute an explicit breach of the law, only of legal principles and the best practice in the Guide. It has therefore been agreed that revised Decree 4942, which covers PREVIC's duties and powers, should be amended in an attempt to make principles more enforceable, where supported by the Guide on Best Practices, or at least make the threat of using sanctions more credible (which may suffice in some cases). This proposal is considered further in Section 6 below.

4.24 In addition, the experience in the UK was discussed of adopting an 'Al Capone' strategy[27], where the supervisor uses threat of action on those legal infractions that can be proved to persuade pension funds to take the action it really wants, or to convince a tribunal to appoint new management that will take the appropriate action. This still needs there to be some relevant provisions in the law that can be activated. For instance, in the UK the law on conflicts of interest was used to prevent pension fund trustees from agreeing to a change in its rules, that were otherwise not illegal, that would have been disadvantageous to participants.

4.25 The difficulties DITEC experience in blocking plan amendments that potentially leave participants worse off was discussed in this context. The UK experience is that conselheiros (trustees) should be persuaded, with threats if necessary, to oppose such proposals, or at least to ensure that participants obtain a share of the benefits sponsors derive from such changes. DITEC already tries what it can to oppose such deals, but sometimes the law gives them and the conselheiros no option but to agree. It was agreed that the law needed to change (see Section.6).

Strategies for each of the key risks

4.26 As well as deciding how in general terms PREVIC should educate, orientate and enforce, it needs strategies for the key system-wide risks identified in Section 2. It was noted, in particular, that while on-site inspection is a powerful tool, it is not necessarily the only supervisory tool available and that the following other tools could be considered:

- specialist team inspection
- off-site analysis and follow-up
- self-reporting
- self-certification
- complaints investigation
- approval of new licenses and amendments to licenses

4.27 Consideration was given to which tool might be most appropriate for each of the 10 system-wide risks. The conclusions drawn are set out below and summarized in Figure 15 along with the **success criteria, metrics and strategy for each risk**.

[27] Just as the US Government was able to prosecute Al Capone for tax fraud as a way of addressing his more serious crimes, so the pensions supervisor can use breaches of legislation to obtain leverage on pension fund management in relation to unrelated matters.

Figure 15: System-wide Risks (Success Criteria and Strategies)

Risks	Success criteria/measures	Strategies
Actuarial assumptions too weak, including sponsor credit risk	Conselheiros and Directors have a true appreciation of risk and take action to make assumptions more realistic and improve funding Pension funds move up risk categorisation Sponsors take responsibility for paying off their full liabilities	Educate: • Paper for ABRAPP Congress • Develop a 'traffic light' methodology for pension funds to use • Module in best practices guide Orientate: • Off-site collection & analysis of data • On-site inspection • Negotiation on license amendments Enforce: • Revise Resolution 18, to enable action to be taken against non-compliant plans and their sponsors • Licensing amendments approved only where compliant with policy
Investment (asset-liability matching for DB and VC plans)	The liabilities of DB and VC plans are duration matched so far as possible Reduction in risk exposure as measured in DIACE	Educate: • Investment and actuarial modules in the Guide • Publicity given to a traffic light approach that penalizes unmatched liabilities Orientate: • Off-site analysis of duration matching • On-site inspection
Investment (strategic for DC plans)	The risk profile and duration of assets in the default portfolio reflect the needs of participants at different points in their life-cycle Improvement in balance between risk and return as measured in DIACE	Educate: • Develop and publicise policy on promoting/mandating life-cycling • Revise investment module and Licensing Guide Orientate: • Off-site analysis of risk/return profiles of default portfolios • On-site inspection • Discuss good practice in context of license amendments Enforce: • Revise regulation to require good practice in design of DC portfolios • Prevent non-compliant license amendments
Investment credit (and liquidity) risk	Full compliance with regulatory limits on concentration. Pension funds have effective processes for minimising unrewarded credit risk exposure and achieving diversification Improvement in balance between risk and return as measured in DIACE	Educate • Investment and risk management modules in the Guide Orientate: • Off-site check against regulatory limits and risk analysis • On-site inspection Enforce • Secure compliance with limits and adequacy of diversification

Investment (tactical & operational)	Conselheiros and Directors have effective control over day to day investment activity and monitor performance/risk	Educate: • Module in Guide on Best Practices Orientate: • On-site inspection for best practice • Off-site monitoring of deviations from investment strategies Enforce • Take action where investment governance weak
Operational (general)	Strong control environment with risks understood and managed Overall assessment of governance improves	Educate: • Guide on Best Practice, covering risk management Orientate: • on-site inspection – focus only for smaller/weaker pension funds
Out-sourcing	Conselheiros and Directors let contracts properly and check, audit and monitor performance and controls, especially in multi-sponsored funds	Educate: • Guide on Best Practices – investment and governance modules • Promulgate policy for multi-sponsored funds Orientate: • on-site inspection Enforce • Change regulation so that current poor governance practices become explicitly illegal
Legal	Participant benefits defined ambiguously leading to fewer successful lawsuits against pension funds	Educate: • Judiciary • Pension funds, especially through Licensing Guide Orientate: • Licensing of new plans and approval of license amendments
Governance	Improvement in PREVIC assessments of pension fund governance	Educate: • Guide on Best Practices • Encouraging training programs and certification • Self-assessment questionnaire Orientate: • on-site inspection Enforce • Take action against conselheiros where governance too weak

4.28 The references to licensing in relation to actuarial and legal risks refer to checks that plan rules do not leave pension funds exposed to risk because of ambiguity in promised benefits or cross-contamination between benefit types. The remainder of this Section expands on Figure 15.

Actuarial and sponsor credit risks

4.29 The risks associated with actuarial valuation and sponsor credit risk are related and can be subject to a common strategy. The inherent difficulties involved in obliging sponsors to pay off

deficits and preventing them circumventing their liabilities through various forms of re-structuring, make the most desirable strategy to be one of seeking to ensure that funding levels are strong enough to avoid having to call on the sponsor for more money. It should also place pension funds and PREVIC in a stronger position when negotiating on re-structuring proposals.

4.30 There are a variety of approaches worldwide to securing this objective, but most involve the establishment of a fairly rigorous funding standard supplemented in some cases by buffers/reserves designed to ensure that there is usually a surplus over the funding standard[28]. The possibility of designing a standardized approach for liability measurement and reserving for risks of each fund using a common formula reflecting key risks at each pension fund, as in the Netherlands, was therefore considered. It was concluded that it would be very difficult to secure agreement to such an approach within PREVIC, let alone within the industry. Furthermore, PREVIC would need considerable resources for analysis.

4.31 Instead, it was agreed that the responsibility for choosing the assumptions used for valuing liabilities should remain with pension funds, subject to minimum standards in legislation as well as a principle-based requirement to choose assumptions appropriate to the plan. To promote a move to stronger assumptions, PREVIC should publish what comprises best practice in its Guide, supplemented by the categorization model that it uses to assess the strength of these assumptions. It should then assess risk using a risk matrix that combines assumption strength with the funding level, as a basis for decisions on the priority for inspection and intervention at each plan. .The aim is that most conselheiros, under pressure from participants, will wish to improve assumptions and funding levels so as to reduce their risk level, leaving PREVIC free to apply pressure on those who do not move in the right direction.

4.32 It is particularly important that for license amendment proposals submitted to DITEC, where decisions could permanently compromise participant benefits if based on inadequate funding assumptions, a funding level equivalent to PREVIC's strongest categorization be expected before approval is given (Where PREVIC' powers do not give it or the conselheiros a veto, it should at least be the starting point for negotiation). Examples of such amendments include the conversion of DB benefits to DC and the repayment of 'alleged' surplus to the sponsor where a plan is restructured.

4.33 In March 2012, it was proposed that this approach should be refined further by the risk levels against which pension plans should be assessed being re-cast as traffic light indicators[29], along similar lines to the approach adopted in Denmark. Further details are given in Section 5. Figure 16, below, illustrates how the traffic lights might be presented. The strategy in any case needs to be under-pinned by changes in Resolution 18, as indicated in Section 6, to raise the minimum standards in law and encourage best practice such as risk buffers, the traffic light assessment and market consistent valuation of assets and liabilities.

[28] The UK is the most obvious exception, as the funding standard is not prescribed – assumptions have to be prudent – and there is no requirement for buffers but in this case there is very strong legislation to ensure that solvent sponsors cannot avoid their liabilities in the event of a deficit.

[29] It should be noted that as the traffic lights (red=solid dark grey; yellow=solid light grey; and green=vertical stripe) categorise the risk that a pension plan will have a future deficit, there are in fact four levels of risk, with a current deficit being the highest, and above red.

Figure 16: Traffic Lights for Evaluating the Risk Exposure of a Pension Plan

Funding position of plan	Action PREVIC should require
Deficit Using Realistic Assumptions	**Take Immediate Corrective Action**
Surplus under 10% with mild Shock- approximately equivalent to move to Res26 & mortality improvement	**Recovery Plan**
In between red and amber	**No surplus distribution and aim to build reserves**
Surplus under 10% plus buffers to cope with a large shock - 20% fall in market interest rate for unmatched liabilities + large mortality improvement	**No Action needed and can consider surplus distribution**

Red =solid dark grey & white letters; yellow= solid light grey; and green= vertical stripe

4.34 The first major step in rolling out the strategy was a member of the RBS team presenting a summary at the ABRAPP Congress in November 2010, with a matrix showing how pension plans scored. This was enhanced by with a meeting, involving World Bank experts as well, with representatives of ABRAPP's technical committees. Subsequent data analyzes undertaken by PREVIC have shown that pension plans are progressively moving up the levels, (in the context of falling interest rates that means that some movement is in any case to be expected), but that there remains a hard core of pension plans that are resistant to change. For example, the management of one pension fund that the RBS team visited was explicit that it would change assumptions only if required to do so by legislation.

4.35 Further action is needed to win hearts and minds and neutralize potential opponents through meetings with key stakeholders. This should be followed by a publication setting out the strategy and publication of the best practice guide module on this subject. PREVIC will in due course have to publish a document explaining the risk parameters adopted with reasoning. Before doing so, PREVIC should consult informally with the leading actuarial consultancies and other stakeholders, such as trades unions, as informed by a full stakeholder analysis.

4.36 Hence, PREVIC is now engaged on a twin-track approach of influencing pension plans with the highest risks to become more prudent, and changing Resolution 18

Asset-liability mismatch risk (encompassing market volatility risk)

4.37 The underlying assumption is that market volatility is only a problem where assets have to be sold at a time when the market is in a downturn, and hence pension funds need strategies for matching assets to their liabilities so as to minimize re-investment and market volatility risks. For a long term product such as pensions this should be largely manageable through a strategy that matches asset duration to the timing of necessary asset sales. In that context, equities can be

treated as securities of an infinite duration that never need to be sold to meet maturing liabilities but can be managed to generate additional return without exposing the plan to excessive risk. Brazilian pension funds are fortunate in having available a good supply of long-dated index-linked government securities that can be used to implement a matching strategy, but as interest rates decline other financial instruments may need to be used.

4.38 This is a fundamental risk at a strategic level, for DB and DC plans but has different characteristics for the two types of plan. Enforcing best practice in matching assets to liabilities is a challenge as the legal requirement is limited to a phrase in the prudent person principle articulated in CMN3792, which may not be easy to enforce unless PREVIC guidance can be used evidentially. For DB, however, it can be addressed by the approach to actuarial risk. Pension plans should be expected to hold additional assets to provide against the risk that assets shorter than the duration of liabilities may have to be re-invested in financial instruments giving a much lower return than is available today. This expectation should increase the incentive on pension funds to match liability durations – in fact many pension plans are already well matched. Analysis of degree of matching within investment portfolios should provide an input to actuarial risk categorisation of pension plans. It will also contribute to the generic assessment of investment risk in DB plans.

4.39 In considering investment risk, particular attention needs to be given to DC plans as investment, and the apparent over-conservatism of such plans, represents the biggest risk inherent in that type of plan. Furthermore without addressing this risk, PREVIC would be giving only limited attention to DC, a fast growing area. Since DC benefits are very sensitive to investment return, and 90% of the performance is said to derive from the strategic asset allocation[30], the primary focus should be on strategy, including how well the duration of investments matches the term of the benefits. This suggests that techniques like ALM should be a general feature of pension fund best practice[31] and that PREVIC should analyze the duration of pension assets relative to DC benefit payment dates.

4.40 This means that while a major focus for encouraging best practice in developing strategies for DC investment should be the publication of a module on investment best practice and on-site checking of compliance with it, some off-site analysis can also be undertaken to support the prioritization of this activity and indicate questions that should be asked. The extent to which DC assets can be matched to benefit payment dates depends, however, on the extent of life-cycling within portfolios. Otherwise, the tendency is for portfolios to be matched to the duration of the oldest participants and kept highly conservative, a problem that will become more serious as the returns available in the market fall. While many pension funds have been implementing portfolio (profile) choice, life-cycling is unusual. Another leg of the strategy is therefore to promote the adoption of life-cycling in a manner that is consistent with the Brazilian pension system, and hence does not exacerbate legal risk. Changes to legislation (section 6) will be central to this strategy, alongside awareness raising by PREVIC.

[30] Source: Heinz Rudolph in his presentation at the ABRAPP Congress on 18 November 2010

[31] Several larger pension funds are indeed applying ALM techniques to DC plans.

Credit (and liquidity) risk

4.41 Another major risk associated with investment, in any jurisdiction, is that investment instruments are chosen with a higher than intended or desired credit risk, particularly if they are novel or unusual. This risk applies equally to DB and DC and is most likely to materialise where governance and risk management is poor. There is also the related risk that pension funds invest too heavily in financial instruments of restricted liquidity which could result in losses when assets have to be sold to fund benefit payments or transfers. In any event, the standard mitigation is to diversify assets sufficiently and to analyze new instruments to identify potentially unremunerated credit or liquidity risk.

4.42 Credit risk is a classic risk for off-site analysis, as serious cases are not that usual but need to be identified and resolved quickly. Analytical tools such as comparisons between actual and benchmark returns for the same asset class allocation can be used to pin-point potential issues. Furthermore, many of the quantitative investment limits applied by CMN3720 are designed to prevent excessive concentration in asset classes with significant credit or liquidity risk (or prevent them being held at all).

4.43 The strategy is therefore to analyze risk and compliance with the limits off-site coupled with checking on-site for compliance with the best practice specified the investment module of the Guide on Best Practices.

Investment (tactical & operational) risks

4.44 While the development and periodic revision of the investment strategy should mitigate the most serious investment risks, this will happen only if day-to-day investment operations comply with the strategy. Non-compliance with strategy or implementation of the strategy in a way that exposes the fund to greater risk (or lower return) than intended can expose the pension fund to serious risk, especially if investment activity is driven by conflicted interests. Off-site analysis should be able to identify non-compliance with the strategy or other deviant activity. This needs to be supported by on-site checking of compliance with the best practice specified the investment module of the Guide on Best Practices

Operational risk (general)

4.45 While there is a wide range of ways in which pension funds can be exposed to forms of operational risk not covered under other headings, the exposure should in practice be small because the interests of participants and pension fund management are aligned – neither wish to see this risk materializing. Significant problems are therefore most likely to arise where governance is poor and hence the pension fund does not have the mechanisms to control this risk itself. The primary supervisory strategy should therefore be to largely covered by the on-site assessment of governance and risk management. Where, however, the on-site scrutiny does identify particular serious risks, these should be followed up at the pension fund, and flagged up so that inspectors are alert to the risk at other pension funds.

Out-sourcing risk

4.46 The potential exposure to risk can be greater where an pension fund operations are out-sourced and the interests of the contractor are not aligned with those of the pension fund, hence necessitating strong control by the pension fund. There is only limited scope for off-site supervision of this risk. Following up complaints from participants may be one suitable approach and there might be scope for asking pension funds to confirm that they are managing this risk effectively, so as to encourage them to take the control processes concerned seriously.

4.47 Supervision has therefore to be mainly on-site, checking that there are effective governance and risk management processes covering out-sourced functions, especially in multi-sponsored funds where this risk is most intense, as there is a more general issue of misaligned governance. This issue will need to be addressed by seeking to agree acceptable practices across this sub-sector. Although some change may be driven through the recommendations arising from on-site inspection and the approval by DITEC of new plans within these funds, it will need to be under-pinned in due course by legislative change. PREVIC needs to develop a policy line as to what governance changes would suffice to manage this risk.

Legal risk

4.48 This risk is associated with participants exploiting the judicial system to win benefits to which the pension fund does not think they are entitled, or from one category of participants benefiting from assets applied to a different category due to inadequate ring-fencing between types of benefit. The miscalculation or misrecording by the pension fund of participant entitlements is a risk in some types of plan, which is a major cause of these problems. PREVIC is already working with ABRAPP and the judiciary to raise pension fund awareness of how to counter the risk and improve judicial understanding of pension law. The licensing process can, however, be used to prevent pension plan designs with inadequate ring-fencing, backed up by guidance in the Licensing Guide, and on-site inspections can also be used to draw pension fund attention to changes that could be made to plan design and bylaws to mitigate risk, as well as checking the way they calculate and record participant entitlements. This should therefore be a focus of such inspection at the small subset of funds particularly exposed to this risk.

4.49 There are particular new legal risks associated with the increasing use by DC plans of investment profiles, and these are considered further in Section 6 below.

Risk arising from inadequate pension fund governance and risk management

4.50 The strategy is to ensure that there is good awareness of the practices that constitute good governance, through the Guide on Best Practices and certification of conselheiros. Compliance with such good practice can only really be assessed on-site, recognizing that different issues arise in DB and DC plans. There is also some scope for DITEC to probe whether appropriate governance and management processes are in place when new pension funds or plans seek a license, making recommendation accordingly and alerting DIFIS to potential shortcomings. A self-assessment questionnaire for Conselhos can be used to help them understand how they can

improve their governance and to give PREVIC some indication of the current position in each pension fund.

4.51 Consideration could also be given to asking Conselho Fiscais to copy to PREVIC the reports they provide the Conselho Deliberativo so that some off-site assessment can be made of risk management and control at each pension fund, and also, hopefully, to encourage the conselheiros to take their responsibilities seriously.

The roadmap for detailed design and project implementation

4.52 Arising from the strategies for mitigating the principal risks, the following supervisory functions were identified as a basis for the detailed design:

Back-office

- A central analysis function which knows where all the information about each pension fund and plan and is responsible (with IT support) for ensuring that information can be accessed by everyone in PREVIC who needs to access it. This is conceptually the 'nerve centre' of PREVIC.
- Policy research to ensure that PREVIC has a clear understanding of the practices and risks at pension funds including market trends to inform the development of its supervisory strategy, by analyzing the data PREVIC receives and data from other sources and sponsoring research as necessary.
- Legal support

Middle office

- Off-site specialist functions for analyzing information, developing policies and guidance and initiating action where it is needed, covering:
  - Actuarial issues
  - Investment issues
  - Accounting issues

Front-office

- On-site inspection
- Communication and education
- Licensing

Chapter 5. Detailed Design and Implementation

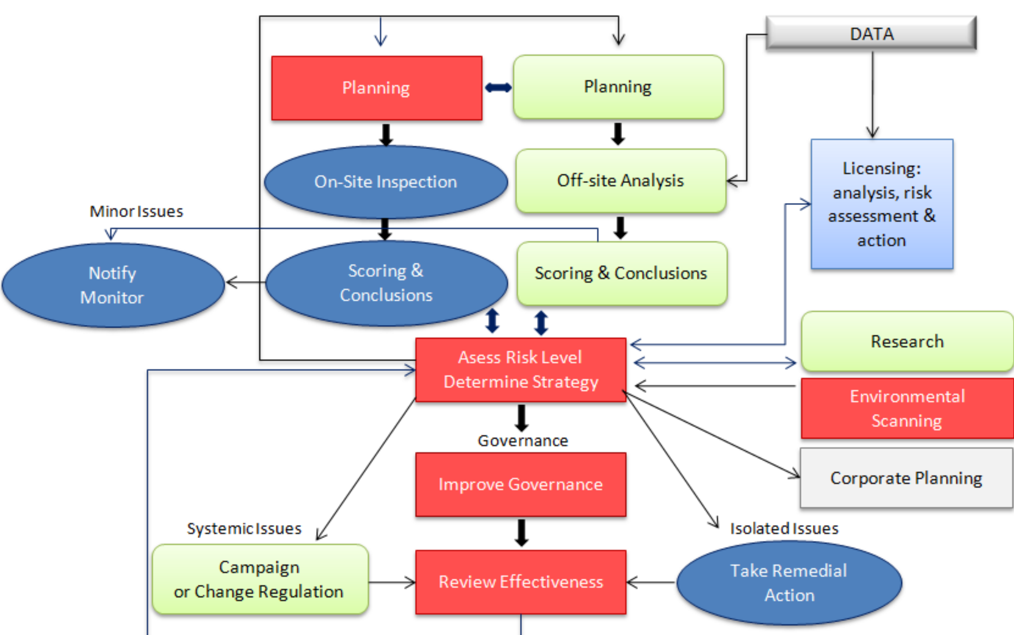
5.1 Once the high level design was completed, the team started to flush out the detail, (some of which took place concurrently with high level design). While the high level design was framed in terms of principles and strategies, detailed design flushed out the components of the risk-based supervision process so as to support the strategies and the value chain illustrated at Figure 12 above – the steps in the value chain are used to summarize what has been achieved, and what remains to be implemented (in Section 7 of the report) while placing the content of this Section more clearly in context.

5.2 The design activities were plotted on a roadmap (Figure 2 above), and were as follows:

- Central risk assessment and information flows, and their supporting functions
- Developing strategic policies
- Off-site analysis functions (within DIACE)
- On-site inspection (within DIFIS)
- Licensing (DITEC)
- The Guide on Best Practices
- Performance measurement[32]

5.3 Figure 17, below, shows how these functions fit together in RBS, with an emphasis on the flows of information needed for the structure to work effectively. One learning point from the project was that the structure for risk assessment should have been designed much earlier, in practice it was left until mid-2011.

Figure 17: The Structure of Risk Assessment within PREVIC



[32] This subject was additional to the roadmap and considered during the final technical assistance visit.

5.4 The shapes coding reflects the parts of the organisation most involved, with white-words-rectangles being used for the central functions (the CGPA and CGFD coordinations within DIFIS and the Superintendent's Secretariat and the two new risk committees), ovals being the DIFIS regional structure, rounded rectangles DIACE, and the square DITEC. From this diagram it can be seen that there are some central co-ordinating functions, that between them, have the following roles:

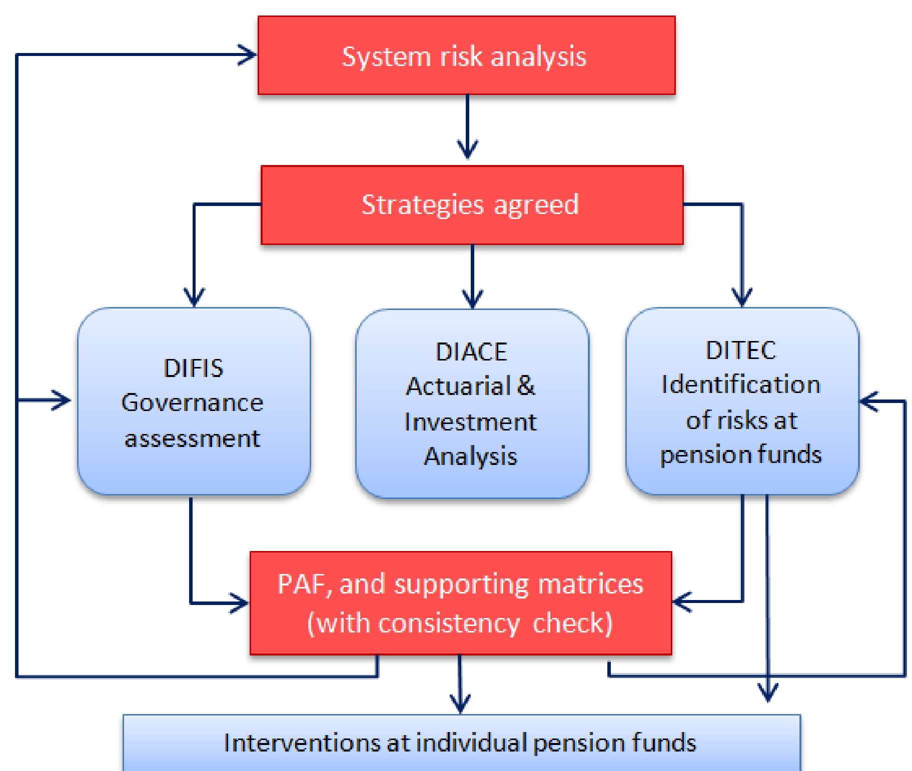
- To undertake and update an analysis of the risks in the pension system so as to determine what priority should be assigned to them and to identify new or enhanced risks needing attention (the Risk Committee supported by CGPA with help in particular from DITEC)
- To develop, review and refine strategies for particular risks, or groupings of risk, in the system, especially where the response to the risk requires a range of actions or involves more than one directorate (the Risk Committee and Strategic Research Committee, and their secretariats)
- To help implement these strategies, to undertake analyzes of risk levels at particular pension funds or plans on the basis of information on risk supplied by DIACE or DITEC, and assessments of governance and key risks made by DIFIS inspections, so as to inform the PAF and provide risk analysis information for use across PREVIC (CGPA). The detail of this process is covered within the paragraphs below on off-site supervision.
- To prepare the annual on-site inspection plan (PAF) on the basis of the overall risk assessment with individual pension funds or plans selected according to how seriously they exhibit those risks (CGPA) – the detail of this process is covered within the paragraphs below covering on-site supervision.
- To oversee the consistent implementation of the PAF and modify in-year if particularly serious risks are identified at pension plans by DIACE or DITEC (CGFD with help from CGPA).
- To consider what action should be taken where serious risks are disclosed by the work of DIFIS, DIACE or DITEC, either through intervention at a pension fund or strategic actions across all or a subset of pension funds (the Risk Committee supported by CGPA).
- To provide guidance and training to DIFIS staff on the application of RBS in inspection, and assist DIACE and DITEC management in providing training and understanding in those directorates (CGPA, with help from CGFD)).

Central risk assessment and information flows, and their supporting functions

5.5 A risk-based supervisor needs to obtain and use information so as to assess risk at system and entity level to develop strategies to mitigate the identified risks. This requires a central function that coordinates the collection of data, handling and analysis of information, commissioning of research and development of supervisory strategies and policy guidance for pension funds. In practice, it is unusual for all aspects of these functions to be located in a single department, which makes it even more vital that responsibilities for undertaking these functions are clear and coordinated.

5.6 Figure 18 re-works Figure 17, above, to provide a graphical representation of how risk assessments across PREVIC fit together in a comprehensive framework.

Figure 18: Different types of risk assessment (matrices) across PREVIC



5.7 Taking each box in turn:

- The system risk assessment is covered in the paragraphs that follow.
- The development and agreement of strategies in the section on risk committees and policy formulation is set out in paragraphs 5.13-18 below.
- The DIACE actuarial and investment analyzes and matrices are covered in paragraphs 5.23-46 below.
- The methodology for assessing governance during an on-site inspection is covered in the on-site manual. Until PREVIC has inspected pension funds using RBS the data on governance at individual funds will be limited. It will, however, be improved when the results of the self-assessment governance questionnaire become available. Its content has been determined and at the conclusion of the project DIFIS was waiting for the IT Department to put it on-line – they were confident that results would be available before the PAF 2013 process starts in July 2012. There was discussion as to what should happen if an inspection concludes that the probability of actuarial or investment risks materialising differs from DIACE's assessment. It was agreed that in this case DIFIS should consider moving the plan one box to the left or right in the matrix, as appropriate.
- DITEC must largely react to cases submitted, although the PAF analyzes can help prioritization of workload and effort expended, and they already have a process for notifying

CGPA of pension funds or plans where particular risks have been noted that should be considered for follow up during inspection.

- Three matrices should be central to the selection of pension plans (funds) for the PAF, the governance matrix, the actuarial risk matrix (by size of plan) and the investment risk matrix for DC and VC plans (by size of plan). In addition plans referred by DITEC should be considered. Consistency checking is considered below.
- The strength of intervention at individual plans should be informed by the risk assessment made after the inspection and the enforcement pyramid, with CGPA and CGFD input, see below.

The central functions and committees

5.8 The central analysis and policy making functions of PREVIC for RBS are undertaken within three teams:

- CGPA which analyzes risk within DIFIS, supports the Risk Committee and leads on preparing the annual inspection plan, the PAF;
- CGFD which oversees the implementation of the PAF across DIFIS and coordinates the Regional Co-ordinators; and
- The Superintendent's Secretariat which supports the Strategic Research Committee and briefs the Directorate on the implementation of RBS, as well as co-ordinating the Guide on Best Practices.

5.9 A starting point for considering the role of these teams was to consider the role of central analysis functions in Australia and the Netherlands, which are:

- In the Netherlands (DNB) the FIRM Expert Team maintains the risk model; gives support to users; and is responsible for risk definitions, assessment criteria and default values
- APRA has a Supervisory Framework Team that maintains and develops the risk framework; monitors supervisory activity; trains supervisors and gives them guidance; and is responsible for control reference points (default scores) and peer review panels.

5.10 It was agreed that the role of the central analysis function would have many similarities with both models. Appendix 4 sets out the World Bank's advice on this subject, reflecting discussion during a technical assistance visit. Initial consideration of the central functions in late 2010 led to the conclusion that because different types of risk assessment are spread across three directorates and several teams within those directorates, a formal coordination mechanism and forum was essential for PREVIC. Hence a Risk Committee was established chaired by the head of CGPA. After a slow start as those concerned felt their way into a development that in some senses ran counter to the existing culture, this proved increasingly effective at enabling a corporate focus on common issues. It suffered, however, from lacking executive authority, and potentially from the wide breadth of its remit.

5.11 In considering how the leadership of RBS was to be taken forward from the end of this project, the Superintendent Director therefore decided to re-formulate the Risk Committee, with tighter terms of reference and a director chairman who could directly seek decisions to action its conclusions at PREVIC's management board. This Committee was due to meet for the first time three days after the project finished, with an agenda focused on developing a replacement roadmap for RBS implementation. At the same time the Superintendent Director also established a Strategic Research Committee, chaired by a different director, which will consider longer term risks. .

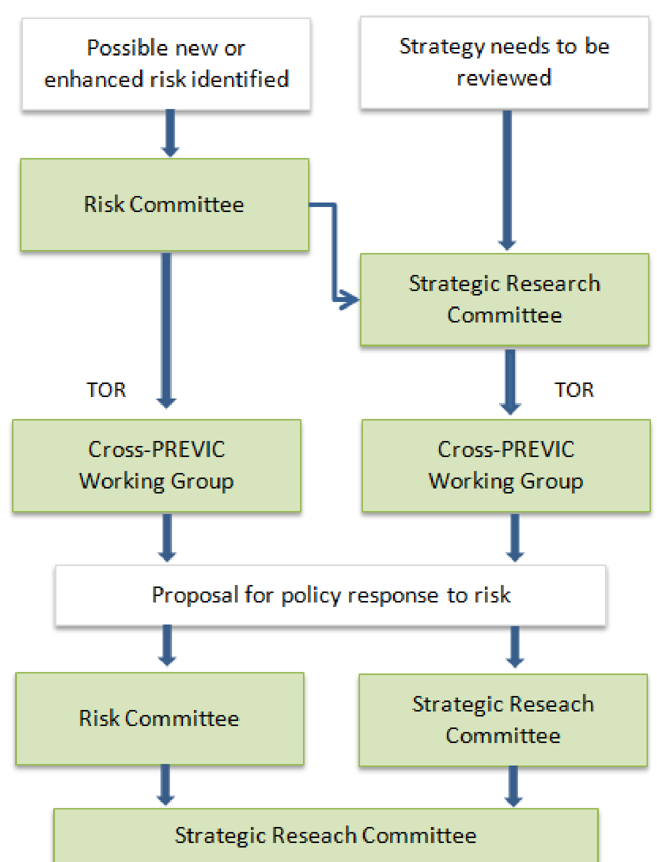
5.12 While two committees are considered necessary in view of the amount of work to be undertaken, care will be needed to ensure that their roles do not duplicate, that their decisions are consistent and that issues do not fall between the two committees. The cross-membership of the committees should help, but their respective secretariats will need to liaise closely. The proposals should cover the full value chain in Figure 12 (page 55 above), that is:

- Ensuring that there is sufficient information (evidence) available to support the proposal, which may need to be augmented by targeted research and analysis commissioned by the working group;
- Analyzing the current and expected future impact and probability of the risk, including which groupings of funds or plans are affected;
- Articulating the current strategy, if any, that is relevant to this issue;
- Proposing a strategic response to the risk; that is, PREVIC's policy on what pension funds should ideally be doing to manage the risk, tempered by any over-riding considerations of practicality, and including
- Considering how the policy is to be communicated to stakeholders in the industry and Government, including suggestions for guidance and information campaigns.
- Determining how the implementation of the policy by pension funds is to be supervised, including proposals for changes to manuals etc.
- Considering the enforceability of what is being proposed and any changes to legislation that are needed or desirable so as to improve enforceability.
- Articulating what success will look like and how it can be measured.

Developing strategic policies

5.13 From the paragraphs above it can be seen that a key role for the new Committees, considered during the final technical assistance visit, is that of enabling PREVIC to take strategic policy decisions effectively, especially as a back-log of decisions was affecting the finalisation of the Guide on Best Practices and Licensing Guide. A flow-chart for this process was sketched out, Figure 19 below.

Figure 19: Process for Determining and Revising Strategies and Strategic Policies



5.14 The essential elements of the process are that:

- The Risk Committee refers matters of a longer term strategic nature to the Strategic Research Committee, retaining to itself issues of implementation, such as the drafting of manuals, consideration of serious cases and other public communications
- The Strategic Research Committee also includes within its agenda a program of determining or reviewing the main supervisory strategies of PREVIC, see paragraph 5.17 below.
- The development of substantial proposals is undertaken by working groups in accordance with terms of reference set by the relevant committee. In practice, the secretariats to these committees will need to be responsible for preparing draft terms of reference for consideration by the committees and over-seeing the preparation of the proposal reports.
- Because the chairman of each committee is a director, there is someone to speak for the proposal when it goes to the Directorate.

5.15 The terms of reference for the working groups should include:

- the risk that is being considered
- the reason why it is being examined now
- the matters that should be considered by the working group;

- any research or analysis that needs to be commissioned;
- the composition of the working group; and
- a timetable for its work, including the date its proposal should be submitted back to the Committee

5.16 A distinction needs to be made between policies, which are PREVIC's views on what pension funds should be doing to manage and mitigate risk, which are strategic where they have a substantial bearing on the achievement of supervisory strategies, and the strategies themselves. For instance, in the case of multi-sponsored funds, the policy would be the revised structure of governance that PREVIC considers would reduce the risks inherent in existing arrangements, while the strategy would be the whole approach to improving governance in pension funds, including supervising the adoption by multi-sponsored funds of PREVIC's policy.

5.17 In principle, there should be a strategy for mitigating every risk that PREVIC has identified, which are set out in Figure 6 in Section 2 above. In considering what strategies PREVIC needs to develop, it has to be recognised, however, that it would be too unwieldy for PREVIC to have a supervisory strategy for every risk in the system, and the risks that need to be addressed should be grouped. The nine supervisory strategies below illustrate one way of grouping them:

- Actuarial risk (DB) plus investment mismatch plus participant migration between plans
- Sponsor debt (DB) plus plan termination, re-structuring
- Actuarial (VC) plus orphaned funds plus retirement options (keeping retirees in pensions)
- Actuarial (DC) plus member understanding plus investment profiles (Inv & legal)
- Investment (credit risk, DC duration/ returns, operational)
- Operational risk (non-investment) including legal
- Fees and costs
- Governance including risk management and multi-sponsors
- Other risks for which DITEC is responsible (e.g new plan viability)

5.18 During the final technical assistance visit the need for strategic policies to cover the following issues was considered especially urgent, the first three of which look most appropriate for the Strategic Research Committee and the second three for the Risk Committee:

- Investment profiles
- Multi-sponsor funds
- Retaining pension plans following sponsor withdrawal, which could be linked to some similar issues relating to the retirement phase of VC plans (in both cases there is unlikely to be any new money once the arrangement is made)
- Risk management models in pension funds
- Revising the actuarial strategy in response to the proposals in appendix 1
- Approving the new DIACE approach to modelling investment risk

Coordinating information for supervision

5.19 Risk-based supervision requires the right information to be available to enable risk-based decisions throughout the organisation. Reliable and up to date information is needed on individual pension funds and on bigger picture in terms of trends and risks within the pension sector. In particular, there is a crucial distinction between data and information. Data is processed or analyzed to create information. While the former is what is collected, it is the latter that is actually of value to supervision. PREVIC collected and generated large quantities of data but did not necessarily undertake the analyzes necessary to convert it into information. There is a risk to a supervisor in holding data that has not been analyzed and converted into information. The data may disclose problems that the supervisor will fail to notice, leaving it exposed to the risk of subsequent criticism. It should therefore, ideally, not collect more data than it needs to generate information.

5.20 The need for an information system, encompassing a database and appropriate tools, to supplement the pre-existing systems scattered across the organisation in various forms of software was identified early in the project. It was therefore agreed at an early stage in the project that there would be value in the RBS team undertaking an information needs assessment, along with a specification for how the information should be held. Under the leadership of two members of the RBS team, plus colleagues in the regional offices, data sources and analyzes in PREVIC were identified. The next stage was to clarify the information actually needed for RBS in each part of the organisation, map the necessary information flows and specify the software needed to handle the information in one place so that it is generally accessible. From this work a specification for IT development needed to meet the gaps was developed from May 2011 and from late 2011, in liaison with PREVIC's IT team and supplier, technical solutions were identified and evaluated. At the conclusion of the project decisions were awaited as to how these were to be implemented.

5.21 By this stage, a working database had already been established within DIFIS that will form the basis of a pan-organisational data resource. This is augmented by the SIAD analysis tool based in CGPA that enables all parts of PREVIC to have visibility of risk analyzes undertaken in DIFIS, and in due course all parts of PREVIC. This has already enabled direct communication between DIACE, DIFIS inspectors and DITEC.

5.22 Gaps were identified in 2010 in the information available for actuarial risk analysis and these were filled from 2011. The information gathered on investments will be augmented from 2013 to fill gaps identified in specifying the investment risk model, while from 2011 the collection of investment data moved from a monthly to quarterly basis to ease workload pressure in DIACE examining data that the project team concluded was received more often than needed. It has also been identified that there is insufficient information available within PREVIC on the current or planned use by DC plans of profiles for participant investment choice. When pension plans seek a change to their licence to reflect the move to profiling, the Licensing Department does not capture the information in a form accessible to the rest of PREVIC. Action has been put in place to gather more information in this regard.

The off-site analysis functions (within DIACE)

5.23 Off-site supervision is the most efficient way of assessing quantifiable risk factors at pension funds, so as to enable specific interventions and inform the on-site supervision function. It is particularly valuable for identifying risks that are relatively unusual but high impact. Moving to RBS requires a greater focus and selectivity in the analysis of data and a well-documented process for assessing risk on the basis of this data. Each function has to focus on a different range of risks and requires a different approach.

5.24 The four teams in DIACE cover actuarial, investment, accounting and research. In discussion, the generic objectives of off-site supervision were identified as:

- Providing information to inform the development of the PAF
- Monitoring risks so as to assess the quality of pension fund controls
- Checking the level of risk of those pension funds not in the current year's PAF, and communicating directly with pension funds where appropriate
- Checking compliance with CMN3792 and other relevant legal requirements
- Passing on information to the on-site department on pension funds requiring further attention or enforcement action
- Providing intelligence for studies, publications and strategies
- Developing PREVIC's policy view on what represents best practice and helping to publish this information, so as to educate those running pension funds
- Consulting on publications and proposed strategies
- Following up actions promised by pension funds

5.25 The processes needed to support these objectives will be documented in a manual to help ensure consistency, transparency and effective communication with other functions in PREVIC. Preparation of this manual was continually delayed by severe resource constraints within DIACE. The World Bank provided guidance on its content, appendix 5. The following paragraphs summarise the consideration given to each team during the project, recognising that full implementation awaited the arrival of the promised new staff who finally arrived in February 2012.

Actuarial team

5.26 This team is implementing the actuarial strategy described in paragraphs 4.29-36 above, with the collection of actuarial data, analysis of that data, risk assessment and action where risks are most intense. The assessment of intensity is based on a matrix where the impact (y) axis represents the level of funding and the probability (x) axis represents the quality of funding assumptions. The original categorisation was:

- level 3-4 – the plan uses the minimum requirements of legislation
- level 2-3 – the plan establishes reserves based on more conservative assumptions - those required by Resolution 26

- level 1-2 - the plan establishes its mathematical provisions and reserves using more prudent assumptions than in level one, for instance making allowance for mortality improvement or using a market-reflective discount rate
- level 0-1 – the plan follows a fully risk-based approach to setting mathematical provisions and reserves along the lines adopted in the Netherlands, as will be recommended in the Guide on Best Practices.

5.27 As government bonds comprise the largest part of pension plan portfolios, it is appropriate that the market reflective discount rate should be the government bond yield for the duration of liabilities –I in practice a simplified model has been adopted with three ranges for the duration of liabilities. There was some discussion as to whether it would be more robust to link the discount rate to the average of the corporate and government bond rates, as suggested by Professor Vittas[33]. This led to the conclusion that this would be too complex for now, but may need to be re-considered in due course. At present, there is no liquid market for longer duration corporate bonds so that the yield curve would have in any case to be based on the government bond curve re-based for the rate applying to corporate bonds of zero duration.

5.28 The three categories originally adopted for categorizing the impact of a risk materializing were:

- High risk: plans with a deficit (on their current methodology)
- Medium risk: plans with a surplus, including buffers, of 0-25% above their liabilities as currently measured
- Low risk: plans with a surplus including buffers greater than 25%.

5.29 An additional level of impact risk became available by the decision of the RBS team to move to a 4x4 matrix, and the consequent changes are set out in Appendix 6. In essence it splits the medium category into two.

5.30 The risk categorization model outlined above is important not just for PREVIC's internal purposes but also as a tool for changing behavior. The expectation is that publicizing the risk categorization would reinforce the impact of the guidance on best practice. It should provide an incentive for pension funds to move towards a lower risk category, because there would be fewer inspections (in line with the principle of deserved autonomy). Other incentives might also be provided, such as waiving the requirement for some authorizations. Furthermore, it is to be

[33] Discount Rates and the Valuation of Pension Liabilities - Dimitri Vittas: consultant World Bank, November 2010 as presented to the 31st ABRAPP Congress. The logic is that linking the discount rate to a single market rate leaves pension funds exposed to erratic movements in financial markets, as happened in 2008 when a flight to security artificially lowered government bond rates and inflated corporate bond spreads. Using two reference points reduces this risk, hence making the discount rate more robust. While using an average of government and corporate bond rates introduces some credit risk, making the discount rate less 'risk-free', this can be compensated for by using a compensatory risk buffer.

hoped that participants and their representatives should be keen to see standards raised in their plans and hence apply pressure for actions to be taken to improve their risk rating. The assessment of each plan should therefore be made public to apply pressure on conselheiros to improve practice[34].

5.31 In addition to incentives, pension funds can be pressured to improve through off-site contacts from the specialist actuarial function. Off-site interventions can, however, only promote voluntary compliance, and where this is ineffective PREVIC will need to reinforce its actions by undertaking an on-site inspection, bearing in mind that enforcement action can only be initiated by on-site inspectors. On-site inspection considers why the governance of the pension fund fails to ensure the effective management of actuarial risks allows and if necessary initiates enforcement action.

5.32 Two potential difficulties with the approach were considered:

- There is a possibility that the categorization would not properly recognize cases where pension fund adherence testing showed that the mortality table (AT2000) used in Resolution 26 was too conservative. This can be addressed by including the option for plans to use their own mortality experience where it is reliable.
- More seriously, incentives and persuasion may by themselves be insufficient to compensate for the significant increases in funding consequent upon moving up the levels. PREVIC questioning whether the conselheiros and directors of lower level plans are properly implementing Resolution 18, with the veiled threat of supervisory action might provide some disincentive for staying at a lower level. It was, however, also concluded that persuasion would not always be sufficient and that a change to Resolution 18 would be needed to make it easier to enforce best practice.

5.33 It proved relatively straight-forward in late 2010 for PREVIC to categorise DB plans using the original matrix with plans allocated to a box in the matrix according to the level of funding using the plan's assumptions and the strength of the assumptions. Figure 20 shows the number of plans and the aggregated size of their mathematical provisions, surplus or deficit and special reserves.

[34] Unlike more subjective governance assessments where publication could lead to unhelpful disputes or litigation regarding PREVIC´s judgment

Figure 20: PREVIC Analysis of Plans in each Actuarial Risk Category

	Level 3 Table AT-2000 or higher Interest Rate <= 5% Without reserves for amortization Reduction in mortality hypothesis Risks	Level 2 Table AT-2000 or higher Interest Rate <= 5% Without reserves for amortization Reduction in mortality hypothesis	Level 1 Table AT-2000 or higher Interest Rate <= 5%	Level 0 Worse than Level 1
Déficit	0 Plans	0 Plans	0 Plans	41 Plans: R$ 32 Billion of Mathematical Reserves and R$ 5,6 Billion of Déficit
Without special reserves for plan adjustment	0 Plans	20 plans: R$ 7 Billion of Mathematical Reserves and R$ 1 Billion of Surplus	5 plans: R$ 850 Million of Mathematical Reserves, R$ 140 Million of Surplus and R$ 18 Million of Reserves for Amortization	152 plans: R$ 156 Billion of Mathematical Reserves, R$ 6 Billiomn of Surplus, and R$ 3 Billion of Reserves for Amortization
With special reserves for plan adjustment	0 plans	30 plans: R$ 10 Billion of Mathematical Reserves and R$ 6 Billion of Surplus	2 plans: R$ 1,5 Billion of Mathematical Reserves, R$ 580 Million of Surplus, and R$ 44 Million of Reserves for Amortization	53 planos: R$ 100 Billion of Mathematical Reserves, R$ 51 Billion of Surplus, and R$ 13 Billion of Reservas for Amortization

Source: PREVIC

5.34 Data analysis was then undertaken to give some indication as to the impact on the sector of moving up though the levels on funding requirements and pension contributions for a variety of pension funds. This was intended to help PREVIC decide a speed of transition that would be reasonable and counter-act the more alarmist predictions.

5.35 While the methodology outlined above was loosely based on the traffic light approach applied in Denmark, the World Bank FSAP team suggested that it could become more explicitly based on the Danish good practice. The way this could be done was discussed during the final technical assistance visit, and the approach set out in appendix 6 was agreed at co-ordinator level and presented to the Superintendent Director, who agreed to give it serious consideration.

5.36 In essence, pension funds should be asked to test the strength of their funding against the current level of liabilities calculated using market measures and two PREVIC-suggested stress scenarios that would increase the liabilities. Ideally, the existing matrix would be refined and retained using the more approximate measures readily available to PREVIC primarily for internal prioritization purposes. The shapes coding from this matrix would be an input to a CGPA matrix with plan size as one of the dimensions. To implement these proposals fully would need legislative change, but some progress could be made by incorporating the concepts in the actuarial module of the Guide. In this context, PREVIC were left to decide whether the modified matrix should be an internal tool with pension funds undertaking their own traffic light assessment, or whether it should be published to be used alongside or instead of the pension fund traffic lights proposed.

5.37 The move to a more explicitly 'Danish' model can also take account the proposal to change the minimum discount rate assumption in Resolution 18 to 5.5% (see Section 6). By the conclusion of the project 5.5% was looking as weak as 6% did at the start, due to the fall in interest rates to around 5.3% in the interim. Consideration was, nonetheless, given to how PREVIC would reconcile the use of market consistent discount rates with the new lower limit were interest rates to be above 5.5%. It was clarified in such a case it would still be best practice for a pension plan to use a discount rate higher than the new 5.5% maximum for matched liabilities, so as to avoid a spurious deficit on matched liabilities, so long it is used a rate well below that figure for unmatched, or provided risk buffers with an equivalent effect. PREVIC need to make it clear in the Guide that this would be the case.

5.38 As risk buffers may play a part in keeping funds within the law, and may include an allowance for longevity improvement should the forecasts available be insufficiently robust to include in the assumptions used to calculate the liabilities themselves, it is proper that the buffers be included within the reserves pension funds use as the basis for Res26 calculations. That is, the 25% margin used in Res26 should be applied on top of the buffers. This too should be made clear in the Guide.

5.39 DITEC also take decisions regarding the acceptability of actuarial funding assumptions. Where pension funds wish to merge DB plans or convert DB into DC plans the actuarial assumptions used are vital for ensuring that participants do not lose benefits or weakening in the financial position of DB plans. PREVIC's decisions are intended to ensure that re-structuring is legal and fair and has been subject to due process. It is therefore important that the Department in future follow the same strategy as the off-site supervision department and this was agreed. Furthermore, the priority DITEC give to checking proposals for pension plan re-structuring could vary according to the DIFIS assessment of the pension fund's governance.

Investment team

5.40 The investment team collects and analyzes data on detailed investments and some limited data on strategy. Analysis of the data should help with:

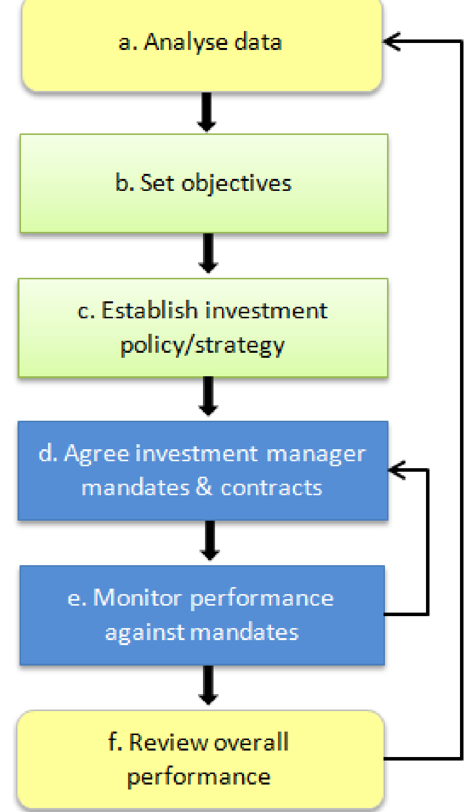
- Reviewing the pension fund's investment policy (strategy). In practice there is insufficient data submitted for an in-depth examination, and it appear to make more sense to review the whole policy for those pension funds considered (as a result of analysis and the DIFIS governance assessment) to be particular risky.
- Summarising each pension fund's strategic asset allocation, using actual figures in the data submitted, supplemented so far as worthwhile by data on targets submitted with each investment policy, so as to assess, in combination with liability duration (DB) or participant ages (DC) the level of mis-match in the fund.
- Monitoring the use by pension funds of 'exotic' classes of investment that may pose enhanced credit (or liquidity) risk, using data on investments by type submitted by pension fund.
- Monitoring the price paid for investments by pension funds against the relevant market price, so as to detect cases of false valuation or malpractice. While this has been a serious issue in the past, such malpractice is now much less common as pension funds have moved to

electronic platforms, and the team should be more selective in their monitoring of such transactions.

- Monitoring compliance with quantitative limits in CMN3792 using data on investment portfolios – again the intensity of check should vary with the assessed quality of governance.

5.41 For the purposes of the Guide and supervision, a good first step is to focus on the investment process (Figure 21 below). Boxes b. and c. represent the main steps in establishing the investment strategy, supported by analysis and review, and it is on these parts of the process that PREVIC should particularly focus. Boxes d. and e. illustrate the key steps in tactical management of investment where the control of credit and liquidity risk is particularly important, and where PREVIC should expect to see effective risk management. Boxes 'a' and 'f' illustrate the analysis that should be undertaken to support the preparation of the investment strategy and to review the performance against the strategy - in practice once the strategy is established this may be the same process.

Figure 21: Stylized Investment Process Diagram



5.42 Visits to pension funds indicated that not all DB plans are well matched and that many DC plans are short-term. Such behaviour will increasingly expose participants to risk or low returns unless it changes soon. One objective of analyzing investment data should be to provide PREVIC with evidence on the extent to which investment portfolios are duration matched to the benefits to be delivered. Analyzes are also needed to assess the exposure of other pension plans to other investment risks such as credit and market volatility. The dimensions and intensity of

these other risks are different from duration (interest rate) risk, and it proved a challenge to devise an approach that combined different types of investment risk to give an overall assessment. There appears to be no experience of pensions supervisors doing this in a quantitative manner elsewhere in the world[35], and hence in 2011 the World Bank therefore specially commissioned Guilherme Benites to develop a methodology.

5.43 The methodology he developed combines different types of investment risk applying to different types of financial instrument into a single score. It was deliberately not limited to data already collected by PREVIC, and his methodology will require some additional data to be collected, which it will be from 2013. Hence, the scoring of plans can only be approximate before then.

5.44 The risks covered are 'mismatch' which is given a plan-dependent weighting compared with the others which are credit, market, systemic and liquidity. The methodology still needed some refinement in view of the following issues:

- The model's inclusion of an extra risk for larger plans appears to run counter to the common observation that larger plans are better able to spread and manage risk and should be deleted. The plan size dimension is better captured through a separate analysis (matrix), see below.
- The weightings for mismatch risk whereby DB plans have a higher weighting than DC and mature plans a higher weighting than DC, are not easy to justify. The exposure of DC participants to duration risk appears to be as great for DB participants, while it could be argued that re-investment risk (due to over-short durations) increases with immaturity. The idea these weightings are rightly trying to capture is that matching is most important for mature DB plans as the impact of their not being matched is greatest. Impact should, however, be plotted on another dimension from probability, using an analysis subsequent to the calculation of risk score, see below.
- A more sophisticated approach is needed to comparing asset and liability duration.

5.45 More generally, analysis of market data should enable PREVIC progressively to refine the other assumptions. It was proposed that the combined risk score should be used as an input to the following analyzes, illustrated in Figure 22, below:

1. Analyzing the risk score against the return from the portfolio, both one-year and over longer periods, so as to identify which plans appear to be sub-optimally invested. While shorter time periods would be useful for identifying trends, a 5 or even 7 year return would be better at smoothing out short-term effects. On the other hand, the portfolio on which risk is measured becomes increasingly misaligned with that generating the return as the period lengthens, so a balance has to be struck. This analysis would be particularly relevant for DC plans where maximizing risk adjusted returns is an important objective. The first matrix in Figure 22 shows how a single score might be obtained from this two-dimensional analysis, by seeing which plans lie below and above the average risk, average return and the line of mean risk/return.

[35] While some supervisors of DB plans use a methodology to combine the risks of plan insolvency, including the one-year risk of adverse movements in asset prices, these are by their nature short-termist in outlook and are focused on the adequacy of technical provisions rather than the quality of investment practice.

2. Analyzing the score from analysis 1 against the size of plan, to enable prioritization of examination by DIACE and DIFIS (the second matrix in Figure 22).
3. Analyzing the investment risk exposure of DB plans, where, if mismatching risk is handled right, the higher the score the greater the exposure of the plan, and the higher the reserves it should hold. This score should be a key input for the actuarial team.

Figure 22: Exemplar Matrices for Analyzing Investment Risk

Return
Median Risk/Return
1
2
3
Median Return
2
3
4
Median Risk
Risk Score

Size of Plan
0
1
2
3
4
Combined Risk Score

5.46 These analysis need to be incorporated into the off-site supervision manual. This methodology and suite of analyzes potentially have considerable power as a means of prioritizing which pension funds should be asked searching questions by PREVIC and indeed the methodology itself also helps to frame the questions, by showing which types of instrument contribute most to which types of risk. It needs to be borne in mind, however, that these are just tools to help the supervision process and need to be treated with healthy scepticism.

Accounting team

5.47 This team seeks to scrutinize the quarterly accounting data that pension funds submit to identify matters of potential concern from an investment, actuarial or governance perspective. The team has some 40 measures that it aims to calculate for each pension fund but in practice resource constraints mean that this has not been done. In a sense therefore, the unit is providing a service to other supervision teams, and the unit need to agree their priorities in coordination with those other teams. Given resource constraints, it was agreed that the team might need to focus on fewer measures, those of greatest value to other teams, and to concentrate on those pension funds categorised as higher risk.

Research team

5.48 The role of this team is to support the central functions and, especially, committee, in helping to identify and analyze risks and consider what mitigations are or could be put in place, where such information cannot readily be obtained from supervisory activity.

The on-site supervision approach and manual

5.49 The primary purpose of on-site risk-based supervision is to assess the quality of pension fund governance and the effectiveness of pension fund management of key risks. This assessment process necessitates greater application of judgement by inspectors than simply checking for compliance with rules, as inspectors need to make qualitative judgements and consider the specific circumstances of each fund. If supervision is to continue to be consistent, especially across a regionally organized structure, the exercise of judgment needs to be clearly structured and documented. At an early stage it was agreed that an on-site inspection Manual would therefore be a key output from the project. Its purpose is to document the new processes and hence help to ensure consistency of judgement and an effective application of the new approach. With the move away from the DNA replication approach originally proposed (Figure 9), the Manual became the most important means for spreading risk-based approaches and thinking throughout DIFIS.

5.50 The objectives for on-site supervision provide the starting point for the Manual and were agreed to be as follows:

- Promoting the education of conselheiros
- Checking on the implementation of the Guide on Best Practice
- Verifying the adequacy of governance, risk management and internal controls
- Seeking assurance that those who run pension funds understand their duties
- Testing that key internal controls and risk management processes are functioning in practice
- Undertaking risk assessments of pension funds (for the PAF and other functions within PREVIC)
- Enforcing where necessary
- Following up the implementation of recommendations

5.51 Two members of the RBS team prepared the Manual with assistance from other regional staff. It covers:

- principles of RBS
- objectives of on-site supervision
- planning (the PAF)
- analysis of previous information (pre-visit)
- elaboration of the scope
- high level assessment questions
- the conduct of the inspection visit
- internal evaluation and assessment
- communication to the pension fund
- internal review processes
- enforcement actions
- communication (of records of inspection) within PREVIC
- follow-up

5.52 The paragraphs that follow record some of the detailed design conclusions that informed the preparation of the Manual.

Selection of pension funds and scope to inspect

5.53 Only a fraction of the pension funds can be inspected on-site each year, with the remainder being monitored off-site. The selection process builds on the pre-existing process for preparing the plan for on-site inspection, the 'PAF'. The intention is that the selection of pension plans to examine and the scope of work at those plans should be largely driven by the risk prioritization in the analysis of the risk landscape (Figure 6). For instance, the following risk factors could be derived to select pension plans for inspection[36]:

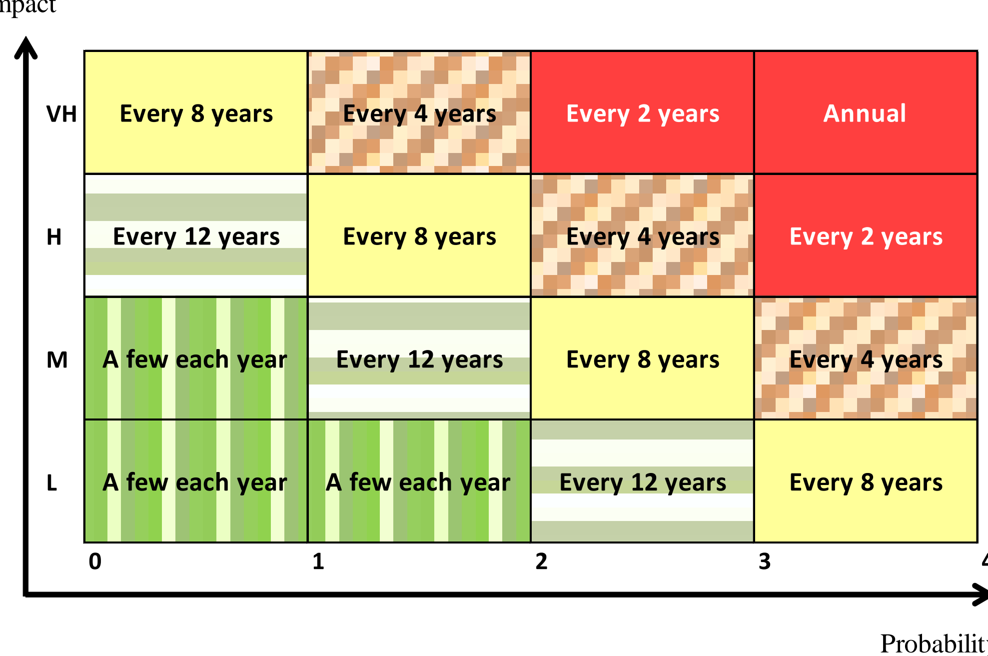
- 30% of plans representing the highest actuarial risk
- 20% highest investment risk (DC)
- 5% highest investment risk DB
- 10% highest operational investment risk (trading not line with policy according to DIACE)
- 15% where some indications of governance-related risks (e.g from self-assessment questionnaire or known risk factors such as multi-sponsors, late returns and plans susceptible to operational risk on benefit calculations)
- 5% funds suggested by DITEC
- 15% long time since last inspection

5.54 This proposal reflects that whereas there should be good quality risk information from DIACE regarding actuarial and investment risk, information on governance and risk management, which is also a priority for on-site inspection, is sketchier even when the results of

[36] CGPA face a challenging task in handling the fact some risk factors, e.g actuarial and investment, relate to plans, and others, e.g governance, relate to funds. In practice it is the plan that is always selected but where a fund-related risk factor is used, the whole fund might be inspected, for which more time may need to be allowed.

the self-assessment questionnaire become available, and hence some plans should be included where the criterion is simply time since the last inspection. In due course, pension plans should be plotted on an overall risk assessment matrix, to determine the frequency of inspection. Figure 23, below, gives an example, although PREVIC would need to calibrate the frequency according to the availability of resources.

Figure 23: Exemplar Selection Matrix



VH= Very High, H= High, M= Medium, L= Low

5.55 Having determined which pension plans should be inspected, the next issue is what should be inspected at each. Governance and risk management is fundamental to RBS and should be inspected at every entity[37]. In practice the assessment of these processes needs to be within the context of one or more particular risks, either actuarial or investment depending on their respective risk assessments. In addition, some attention needs to be given to other risk factors and compliance issues identified by PREVIC as being important. The key to setting the scopes is that there are relatively few which should enable appropriate focus during inspections The selection of scope should be undertaken by CGPA, although some latitude should be given to the regional teams to make some limited modification to the scopes drawing local knowledge, subject to being overruled by CGPA.

Inputs to the inspection process

5.56 Having explained how pension funds are to be selected for on-site inspection and the scope of these inspections, the Manual documents the analysis undertaken prior to the visit. Once a pension fund has been selected for examination, the team needs recent information on the pension fund and its plans. The analysis will start with information already held by PREVIC

[37] It has been agreed, however, that where a pension fund has recently been inspected or the quality of governance is already known to be very poor, then an assessment of governance will not be undertaken.

and be followed by a call for a papers, and analysis of these when they arrive. To prepare for a visit the team need to have a pre-meeting at which they can review the available information, which should cover:

- previous inspections and the conclusions drawn;
- actuarial assumptions and information;
- if possible, information on the matching of asset and liabilities durations (the data to generate this information is not currently collected);
- investments - analysis of portfolio composition, duration of bonds, use of potentially riskier unusual asset classes, reasonableness of equity portfolio;
- projected yields (DC), actual yields and comparison of yields with benchmarks over time;
- evidence for use of ALM, potential conflicts of interest arising from asset churn or use of investment funds;
- the balance sheet, for instance the reserves held;
- plan rules;
- the pension fund's strategies and policies;
- the minutes of the meetings of the Conselhos; and
- the turnover, qualifications and potential conflicts of interest of conselheiros and directors.

5.57 Having, reviewed the information relating to the pension fund being visited, the team need to consider what are the areas of uncertainty, what risks appear to be particularly significant and what questions to ask[38]. The visit then needs to be designed so that key people in the fund can be interviewed.

The inspection visit

5.58 The focus on governance means that the inspection team will always need to meet members of the Conselho Deliberativo and the Conselho Fiscal separately from directors and from key managers. These meetings should be followed by an initial assessment process that identifies where additional questioning and testing is needed. Once this follow-up work is completed a final assessment can be made and the provisional findings discussed with the Superintendent Director of the fund. The assessment process agreed during the mission is set out in a separate section below.

5.59 The aim should be to seek to answer questions relating to high level themes covering governance, risk management, and so far as appropriate actuarial and investment risks, as well as completing any specific tests of compliance for risks particular to the plan concerned. . The high level themes should be consistent with the content of the relevant module of the Guide on Best Practices. A set of 10 themes (called scopes) (Figure 24 below) will be used for assessing governance (including risk management) during the mission, weighted according to their perceived importance. The themes and weightings may need modification in due course to align

[38] For instance, in the case of one pension fund it was noted that there was uncertainty about the potential number of beneficiaries, the duration of assets and the need for the large staff. There were significant risks relating to the distribution of surplus (legal issues), excessive costs eating into the potential surplus and investment (large holdings of treasury bills and the stocks of a few companies).

with the Guide on Best Practices, for instance the risk management theme could be split up or a higher weighting given to the Conselho Fiscal.

Figure 24: Key Governance (and risk management) scopes

No.	Scopes
1.	Fiduciary duty/avoiding conflicts of interest
2.	Competence and training of conselheiros and directors
3.	Organisational structure and decision making processes, including strength of control by the CD and the role of committees
4.	Selection and control of out-sourced services
5.	Oversight by the Conselho Fiscal and audit
6.	Risk Management
7.	Communications with participants/transparency
8.	Internal controls and compliance functions including manuals and code of ethics
9.	Information recording and systems
10.	Communications and relations with sponsors

5.60 Scoping questions have also been developed for actuarial risk and investment (Figure 25 below). For each scope, guidance is to be included in the Manual on what level of performance would be expected to merit each of the scores 0 through to 3.

Figure 25: Key Questions for Actuarial and Investment Risks

Key actuarial questions: to what extent are the following acceptable?	
1.	Availability and reliability of participant data
2.	Provision of actuarial services
3.	Actuarial assumptions (adequacy and appropriateness)
4.	Financing of contributions (and deficits)
5.	Actuarial tools used (appropriateness and understanding)
6.	Establishment of risk buffers

Key investment questions: to what extent are the following acceptable?	
No.	**Activity**
1.	Setting investment objectives for the plan (or its portfolios)
2.	Establishing the annual investment policy
3.	Ensuring investment manager contracts and mandates are consistent with the investment policy
4.	Monitoring day to day performance and risk against the investment mandates
5.	Reviewing overall performance of the plan

5.61 Different team members should be allocated different subjects or scopes. Each team member should be asked to develop lines of questioning to enable the key principle questions to be answered taking account of what is known about the pension fund concerned. More detailed questions already exist for these subjects and are being included in the manual as appendices

organized under the most appropriate high level theme. These should be considered as ‘prompts’ rather than questions that need to be answered in every case. They could usefully be referenced to the types of pension fund/plans concerned (e.g DB, DC and multi-fund). They may be supplemented by questions specific to the pension fund added during the pre-visit planning. The documentation in the Manual of standard questions should be accompanied by the specification of tests of documentation and the functioning of processes and controls that may be needed to substantiate answers given during the inspection.

Assessment and documentation

5.62 Assessments of the quality of governance at the pension funds visited are to be made in a meeting with all team members present. For each subject examined, the performance of the pension fund should be scored using the key themes such as identified above and recorded on a pro forma, along with explanations of conclusions drawn. As the assessment is being made the reasoning needs to be documented, both to justify the scores given and to identify areas for improvement.

5.63 Having scored the pension fund’s governance against each scope, a weighted average can be computed using the weightings similar to Figure 24 above. PREVIC could use the un-rounded score as a performance measure, to assess how much pension funds are improving between visits and, by averaging all scores, as a result of PREVIC’s supervisory activities. The team should, however, also record the score rounded to the nearest integer which should be used by other teams in PREVIC, notably for future PAFs. The team should apply a reasonableness check to the overall score, and may on occasion choose to round the score the ‘wrong’ way where this better reflects their overall impression of the fund’s governance. The scores can be plotted on the standard matrix. Assessments should also be made of the processes for managing actuarial risk or investment risk (depending on the nature of the plan).

Action following the inspection

5.64 Having assessed the pension fund, the team need to consider what action, if any, is needed to secure remedial action, using the enforcement pyramid, (Figure 14 on page 60), as a guide. The decision needs to be documented and reviewed on the pro forma. The Manual should specify criteria for determining which level of enforcement should be chosen where problems are found, the escalation route where satisfactory remedial action is not taken and who should authorise its use. TACs and penalties have to be agreed by the heads of regional offices, and more severe interventions by the Superintendent Director. The Manual should indicate what internal processes are used to ensure that there is sufficient evidence. The scores and the proposed supervisory action should be checked for mutual consistency (for instance, it might be most likely that a ‘red’ risk fund would be subject to a TAC or some form of penalty).

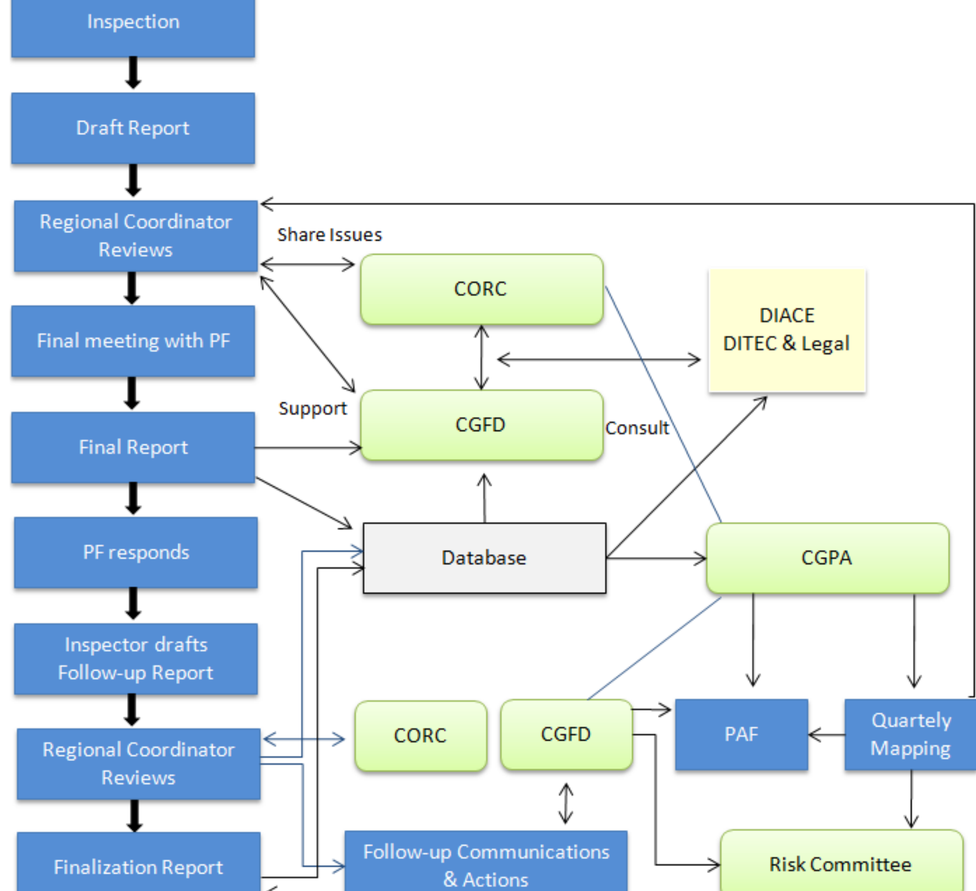
5.65 The completed documentation (using the pro forma) for each inspection should be copied to CGFD for inclusion in the central database accessible using SIAD. It should in particular document:

- the risk assessment scores

- suggestions/recommendations for remedial action at the pension fund
- the recommended level of enforcement
- explanations for all these decisions
- flags for future attention[39]
- Any system-wide or policy issues arising

5.66 It is important that the Manual is clear on what the process should be on reporting and following up on inspections, and some clarification to this effect was suggested during the final technical assistance visit, in response to issues raised in one of the inspections in 2011 (see second bullet of paragraph 5.71 below). Figure 26 illustrates a process for maximizing the likelihood of positive outcomes from inspection. Dark rectangles represent documents and processes, rounded rectangles represent teams or committees within DIFIS, the white box the database, and the square, interactions with other PREVIC Directorates.

Figure 26: Process Flow-chart for Reporting and Follow-up of on-site Inspections



5.67 The following points are important to note from this diagram:

[39] For instance, at one pension fund it was noted that the pension fund is closing its DB and VC plans and replacing them with a new plan and that the fund is implementing a new risk management system.

- While the Regional Coordinators undertake the formal review of inspection and follow-up reports, issues are raised through the Committee of Regional Co-ordinators (COC) which is convened by CGFD and hence some consistency of judgement can be maintained by this route.
- There is nonetheless a role for CGFD to review reports for consistency purposes. While this may take place once they are finalized, the review should be able to feed into the follow-up process, by indicating which issues may need to be treated more or less seriously than proposed.
- The SIAD tool enables all parts of PREVIC to have visibility of inspection and follow-up reports held on the DIFIS database, and in addition CGFD can coordinate queries to other directorates where relevant issues arise.
- CGFD, as well as Regional Coordinators, should keep track of follow-up actions and be prepared to flag up issues to their Director either directly or through the Risk Committee (depending on their urgency) so that the Directorate have visibility of any serious problems that may emerge, for instance complaints made to the Superintendent by influential pension fund or sponsor directors.

Implementing the RBS inspection approach

5.68 Inspecting pension funds in a way that enables risk-based judgements to be made on governance and risk management requires a change in attitudes that is best learned by working with colleagues who have already made the transition, hence the spreading the DNA approach originally proposed. This proved impracticable, and instead champions of RBS in the regional offices led on its implementation de facto during 2011 (following a first inspection in April 2011 that did draw on team members from across the country). The drafting of the manual will be refined and completed alongside the first few inspections. On the basis of the successful experience in 2011 it was decided that all inspections in 2012 would be risk-based, although the experience showed that some minor revisions to the manual were needed, which were to be completed in April 2012.

5.69 It has therefore been vital that all DIFIS staff have a good grounding in RBS and the content of the on-site manual and it was agreed by the DIFIS Director that such training is to be provided from 2012 by a training course of one-week duration each semester (following practice at the Central Bank). The first course for all inspectors took place in March 2012. A course was also held in November 2011 for the new inspectors. In this context, oversight of compliance with the manual and consistency of judgments by CGPA and CGFD (Figure 26 above) is essential.

5.70 The last two technical assistance visits included meetings with regional inspection staff which considered lessons to be learned from the inspections. The staff have generally been supportive of the new approach, which at least one experienced member of staff thought was not so different from what should have been done before. It was clear that the new approach had worked well with significant governance issues being disclosed at all the pension funds concerned, even though they were generally considered to be better than average. There might be value in regional staff continuing to meet twice a year to share experience and help resolve issues arising.

5.71 Three (at least) of the inspections have demonstrated the benefits of inspecting pension funds, in a way that enables risk-based judgements to be made on governance and risk management, as follows, with the second one raising some wider issues relating to enforcement:.

- One pension fund was visited to show new inspectors what best practice should look like, as PREVIC had never found anything wrong with it. They found, however, that only the Executive President was answering their questions regardless of whether they interviewed the Conselhos, the Investment Committee or the Executive Directorate and the pension fund appeared to be relying totally on his integrity and competence, which was especially worrying as he was near retirement. This serious governance issue had not been disclosed in earlier rules-based inspections.
- At another pension fund, multiple governance failings were found, including not monitoring the investment activities of the asset management function supplied by a subsidiary of the sponsor. Furthermore, there was an alarming lack of transparency in the actuarial assumptions used for distribution of surplus at a time when they were planning the migration of all participants from DB to DC. These findings were agreed upon in the final meeting, held with the Executive Directorate, but then rejected in the pension fund's written response (which may well have been influenced by the sponsor, given their criticism of the idea that the pension fund should oversee their fund managers).

5.72 Lessons from these and other inspections included:

- The scope of issues identified for coverage during inspections has sometimes proved to be too wide, and there needs to be a well-documented process for removing lower priority items from the inspection scope without unduly increasing the risk to delivering PREVIC's strategies
- There is a common theme of the Conselhos not knowing much about actuarial assumptions in DB and VC plans, which will need extensive attention.
- While the inspections were planned to cover specific, new pension plans, in practice the approach inevitably led to inspectors looking at other, longer established plans of the pension fund, as these provided more evidence, as well as the governance of the fund itself. This appears to re-open the issue of whether inspection should be planned by fund or by plan.
- The interim meeting concept was working fairly well and identifying where the focus needed to shift during the inspection.
- The approach is sufficiently flexible that at one pension fund where operational risks were identified it proved possible to give these particular attention.
- The inspectors recognised that while the interview process is a vital part of the approach, they cannot take what they are told at face value and need to seek out confirmatory evidence. The inspectors also recognised the important difference between substance and form, and the need to ascertain the former.
- The concept of giving a different risk assessment to different risks was generally understood, although applying it can be confusing, and this subject needs more attention.
- The preparation of reports proved to be time consuming, as the staff concerned learned how to write in the new style focused on risk and failings not the details of checks undertaken. The Manual, and related training, should make this easier. A discussion of what should be in the reports tied in well with what has been drafted into the Manual.

- The consistency review process also causes delay as co-ordinators at regional and central level familiarise themselves. This too should be a transitory problem. In the early days the monthly meetings that CGFD hold with regional co-ordinators will be vital for securing consistency and identifying and addressing problems with the methodology as they emerge. CGPA should attend these meetings so that changes to the manual can be made as required and to ensure decisions taken are consistent with the intentions for RBS.
- Most importantly, the focus on governance and the management of the highest risks that follows from RBS will undoubtedly result in trickier enforcement issues such as occurred in the second case described in paragraph 5.71 above, because PREVIC's findings, being more substantial, are less likely to be accepted. Many of the negative findings will not constitute an explicit breach of the law, only of legal principles and the best practice in the Guide. The revised Decree 4942, if passed, may make the principles more enforceable, where supported by the Guide on Best Practices, or at least make the threat of using sanctions more credible (which may suffice in some cases).

5.73 There has been some considerable discussion of the enforceability issues raised, for instance, by the second case in paragraph 5.71 above. It is recognised that some ingenuity will continue to be needed. For instance, if some explicit breaches of law are found, as occurred in this case, where Resolution 26 appeared to be breached, threat of sanctioning can be used as leverage. If PREVIC is not confident that the threat of sanctioning will work, it has to rely on moral persuasion and making life uncomfortable for the fund. In this case, with the impending move from DB to DC there would be a very good reason to include the plan in PAF 2013, and this is intended. Furthermore the case should be referred to DITEC who should be requested to seek to use what powers they have to block this change until there is greater transparency. This would also seem to be a good case to refer to the Risk Committee, because of the implications for DITEC, the implications for the procedures for discussing and securing agreement to conclusions and recommendations and the possibility of a high profile adverse reaction from the sponsor (a major bank).

5.74 Moral persuasion would have been stronger in this case had the relevant modules of the Guide been published so as add authority to the recommendations (and even more so if PREVIC could persuade ABRAPP to agree publicly to the content of Guide). Furthermore, it would have been better had the final meeting included some conselheiros (both Chairmen at least) who would have heard the Director agreeing to the conclusions and might have challenged the subsequent change of view. This would be especially so if PREVIC provided a note of what was agreed at the meeting attached to the report. In such a case it would not be unreasonable to require the formal reply to come from the Conselho Deliberativo (or Fiscal). In this context, the difficulties in arranging for conselheiros to be present for the inspection were discussed, and it was suggested that the solution would be to provide notification of the visit, and the final meeting thereof, much further in advance than has been the habit in PREVIC.

Licensing (DITEC)

5.75 The Licensing Directorate (DITEC) plays a very important role in licensing pension entities and plans (in 2010 were licensed 4 funds and 52 plans). The risks, which were formally

considered during the final technical assistance visit, relate both to creating legal uncertainty and reductions in the benefits participants are likely to receive, and it was agreed that they should be mapped formally. From discussion, the main risks addressed by DITEC emerged as:

- creation of new pension funds:
  - the risk that such developments may be insufficiently incentivised and hence participation is not maximized
  - the risk that the new fund may be too small be viable resulting in governance and control problems or premature termination – DITEC encourage sponsors to establish a plan in an existing fund instead, and this will be even more relevant when public sector plans come within its ambit.
- The constitution and rules of multi-sponsor funds results in poor governance and participant outcomes
- The establishment of investment profiles results in legal ambiguity or is sub-optimal for good participant outcomes
- The migration of assets or participants to a different plan, with the risk that participants may lose benefits especially if the new sponsor cannot support the plan
- The transformation of DB plans into DC plans with a serious risk that eventual benefits will be lower.
- Corporate operations such as sponsor withdrawal or mergers/acquisitions that could result in plans being terminated or eventual benefits being reduced.

5.76 During 2011 DITEC looked for ways to streamline this process, and were assisted by some discussion of the OECD/IOPS Guideline on Licensing and Registration. Streamlining would be more appropriate for new plans attached to multi-funds. This streamlining project resulted in the preparation of a new manual for DITEC which is more closely aligned to RBS. At the same time, and in view of the issues arising with the governance of multi-sponsored funds, it was agreed that the Department should lead a thematic review[40] on these issues, under the oversight of the Risk Committee. Its conclusions are considered in Section 6 below.

5.77 The larger part of DITEC's workload relates to license amendments, where changes in the sponsor, fund or plans put the DB benefits of participants at risk. It has been agreed that the more rigorous approach to actuarial valuation being promoted in the actuarial strategy and proposed revisions to Resolution 18 could potentially strengthen the protection afforded to participants in these situations. DITEC has therefore been working closely with the actuarial team to implement a common approach.

5.78 In advance of the October 2011 technical assistance visit, DITEC sent its consultant John Ashcroft a list of questions regarding international experience to help them develop strategic policies on key issues. They and their answers were discussed during the visit.

[40] A thematic review commonly involves an in-depth review of practices at a relatively small number of pension funds, followed if necessary by issuing guidance outlining common problems found, and possibly follow-up inspections to check whether pension funds have taken these lessons to heart. For instance, the UK Pensions Regulator has applied a thematic approach to record keeping and the Australian supervisor (APRA) has undertaken a thematic review of out-sourcing.

5.79 Early in this meeting an unusual fact about Brazilian pensions threw some light on why Brazilian practices differ from those elsewhere. In pension systems in other countries there is a contractual relationship between the employer and the participant, which in occupational pension schemes is (usually) supplemented by a contract between employer and pension fund, or in personal and most mandatory systems by a contract between the participant and the pension fund. Hence the pension fund acts an agent of the employer or the participant (on whose behalf whom the State acts in mandatory systems). In Brazil there has since the 1990s not been a contractual relationship between employer and participant. Instead the pension fund contracts with both. The implications of this appear to be that:

- It is necessary to license individual plans as these represent the only contract that the participants have, and this process is more extensive than in other jurisdictions. In occupational systems the plan is effectively a contract between employer and sponsor governed by labour law rather than contract law, albeit administered by the pension fund. In personal account systems, while there is a contract between participant and pension fund, the form of contract is specified either by employer or the State and hence the authorisation of individual pension plans is fairly mundane and the focus is on licensing the pension fund which shares the contractual relationship of the plan.
- The licensing of plans therefore represents a much greater safeguard in Brazil than elsewhere and is likely to be more resource intensive. It is important that resources are prioritized through risk assessment of different types of licences and licence amendments.
- Because participants cannot directly seek enforcement of any contract with the sponsor, the onus for enforcement action rests with the pension fund, and if that is ineffective, PREVIC. This is particularly relevant to DB and VC plans where PREVIC must assess whether changes to the sponsor or the plan impact negatively on participant rights.
- The UK provides the only precedent for a supervisor taking an interest in such matters, in part because it seeks to protect the insolvency compensation scheme from moral hazard (which is not part of the sponsor/participant contract). In other jurisdictions it is assumed that the pension fund will be well enough funded for changes at the sponsor not to matter, while the rights of participants in the event of plan amendment are, in theory at least, protected through labour law.
- The similarity with the UK is strengthened by the requirement of DB plans to pay a pension for life, and existence of VC plans where a similar promise is made to those participants choosing that option. Many other systems with DB pensions cash-out at retirement and hence do not have such a long commitment nor carry significant longevity risk.
- Because the pension plan is contracted between participants and pension funds it is theoretically (at least) possible for pension plans to continue in the absence of an employer sponsor, as effectively the fund is the sponsor. This brings with it some risks that PREVIC would need to manage.
- The absence of a contract between employer and participant may also explain the legal risks that are peculiar to Brazil. The only way that an employee can seek redress for a perceived unfairness in the pension contract is through taking action against the pension fund – elsewhere he/she could act directly against the employer. Hence, an industry has grown up to pursue such claims.
- The absence of a contract between participants and employers may also lead to confusion in the judiciary, who assume such a contract exists, as indeed it did until the 1990s. This may

well explain the hearing of some such cases in the labour courts, which strictly speaking have no authority in this regard.

- PREVIC therefore has an interest in ensuring that contracts are unambiguous, which can be exercised both through licensing and scrutiny of existing contracts, and in educating the judiciary and participants.

5.80 Two implications from this situation were discussed in more detail: the involvement in PREVIC in cases where the sponsor or plan is being restructured and the possibility of stand-alone arrangements which expose the sponsor to no risk, or indeed can continue in the absence of an employer. This discussion was framed by concerns within PREVIC that employers should be encouraged to provide some form of pension for life for social policy reasons.

Re-structuring of DB sponsors or plans

5.81 John Ashcroft explained the extensive work undertaken in the UK to protect participants (and the compensation fund) where sponsors are re-structures in a way that may reduce their future ability to make good plan deficits. This has two elements: ensuring that some of the financial benefit arising from such re-structuring is used to reduce any deficit; and ensuring that the calculation of the funding requirement, and hence deficit, takes account of the weakened sponsor covenant. Because TPR has different powers to PREVIC this precedent is not immediately relevant but the concepts are the same. In PREVIC's case, its leverage derives from its role in approving licence amendments, and PREVIC needs a policy for addressing the risks where amendments arise from re-structuring. It also needs specialist skills.

5.82 International precedents for cases where DB plans are converted to DC are less helpful as this is either made prohibitively expensive or is badly regulated, depending on the jurisdiction. PREVIC could seek to follow the former route by ensuring that there is a sufficiently robust valuation of DB benefits when these are converted to DC, such that the pension plan (were it on-going) would be assessed as green in the risk matrix. This led onto discussion about how such move might discourage employer provision of worthwhile benefits, the solution to which came from the next discussion.

Hybrid pension plans without a future call on the sponsor

5.83 This discussion arose from several related issues:

- the possibility that participants in several pension plans may wish to keep them going as DC plans after the withdrawal of the sponsor so as to retain a life-time pension;
- the wish on PREVIC's part to encourage employers to retain or initiate VC plans or at lest some form of plan providing a life-time pension, without the risk of having to fund future deficits;
- the possibility that employers may be offered a better alternative to converting DB plans to DC; and
- the absence of an efficient market in the Brazilian insurance sector for life annuities.

5.84 A potential solution would be to encourage the development of hybrid plans taking some or all of the features of German pensionkassen or US cash-balance plans[41]. In these the promise and hence risk to the sponsor is less than a pure DB plan but the risk exposure of participants is less than in pure DC. The options can be built up as follows:

- In the simplest version, accumulation is DC, based on contributions and investment returns, but at retirement the pension pot is converted into a life-annuity which is administered by the pension fund (but could at a later date be re-insured). Risk is minimized by funding the pension to insurance standards, with a prudent discount rate and risk buffers intended to deliver 99.5% assurance that the funding will suffice (such as by using the Solvency II methodology). This leaves participants exposed to market risk close to retirement, which could be resolved by the use of life-cycled investment profiles (see next section), or a more sophisticated option…
- In such an option, the pension fund provides a capital maintenance guarantee during the accumulation phase, so that the nominal (or real) value of the investments cannot fall in any year. (This is the basic arrangement for pensionkassen). The guarantee is funded by a share of investment returns calculated according to an insurance-style standard. In practice, this leads to relatively conservative investment portfolios so that the reduced risk comes at the expense of a lower pension.
- Risks can be further reduced by guaranteeing the rate used to convert accumulated capital into the life-time pension, funded by a further share of investment returns.
- Where a solvency funding model is being used (at least) there is also some reserving to cover future operational costs and risks.
- In all cases these are mutual funds so that any profits not needed to build capital buffers must be re-distributed to participants either though crediting accumulated balances or adjusting (or subsidising) the conversion rate.

5.85 The design of the first option is the same as a VC plan, but the funding requirement is likely to be greater. The other options are likely to result in a low rate of converting contributions to pension but provide enhanced security for the participant and the sponsor, which is especially attractive in those Brazilian plans (mainly under Article 108) where the participants are joint sponsors.

5.86 This model could be implemented in Brazil as follows:

- DIACE and DITEC should ensure that for pension plans to be in the green zone on their risk matrix they are funded to insurance standards by specifying minimum assumptions to be used in calculating the adequacy of reserves (which should encompass the future costs and risks of administering the pensions). This may involve collaboration with SUSEP (and indeed adapting their standards).
- PREVIC should enable the removal of any guarantee function from those employer sponsors that fund VC plans once they have reached the green zone (leaving any residual risk with the participants). They should publicise this relief to encourage employers to retain or establish VC plans.

[41] While the design of cash-balance plans is relevant, the weak regulatory framework for funding them is not.

- Consideration should be given to requiring VC plans to provide either a life-cycled accumulation portfolio or a capital maintenance guarantee. In the latter case, employers could choose between having no liability for the guarantee but ensuring that its contributions keep the plan in the green zone, or have a liability for the guarantee in which case lower funding standard could be tolerated.
- PREVIC should enable employers to convert DB plans into hybrid plans which provide the highest level of guarantee consistent with the pension fund being in the green zone with the funding available (possibly including some to-up negotiated between the employer and participants). This should be made easier (and cheaper) than converting to pure DC.
- Where an employer wishes to withdraw from sponsorship, it and the participants should be offered the option of the pension fund continuing and providing the highest level of guarantee consistent with the funding available to place the plan in the green zone. In some cases funding may be insufficient to permit a VC plan in these circumstances to reach the green zone, in which case pensions promised and/or in payment should be reduced sufficiently to take the plan into the green zone by agreement between the employer and participants. It would be expected that the participants should usually not give up benefits worth more than the employer provides through additional funding prior to withdrawal.
- A similar process might be considered in cases where the sponsor is re-structuring in a way that reduces its potential ability to meet future deficits.
- To minimize future problems, PREVIC could give consideration to seeking to prevent pension plans distributing surplus where they are not in the green zone, or in a way that would take them out of the green zone.

5.87 PREVIC agree to consider these options.

The Guides of Best Practices and self-assessment questionnaire

5.88 The Guide on pension fund best practice is fundamental to the risk-based approach, as it should:

- Help **educate** conselheiros as to their responsibilities and how these can be discharged;
- Help on-site inspections **enable** the changes that pension funds need to make to have effective governance and risk management and internal control of key risks, by providing the headings and some of the content for the aspects of pension fund management that should be inspected on-site. The On-site Manual and Guide therefore need to be kept consistent; and
- Help PREVIC **enforce** principle-based regulation, such as the concepts of fiduciary duty, the choice of appropriate actuarial assumptions and the prudent person principle, by explaining what pension funds need to do to comply in a way that could hopefully be persuasive as evidence in court.

5.89. The first module, published in August 2010, outlines key features in the move to RBS, the importance of education and a summary of the key points to be expanded upon in four more detailed modules on:

- Governance;
- investment;

- actuarial risk; and
- risk management.

5.90 The first module of the Guide on Best Practice has been of vital importance, as it signaled to the pensions industry and PREVIC staff the direction of travel for RBS in PREVIC and communicated important messages relating to the way pension funds should be run in a risk-based world. The World Bank team checked that the key principles of RBS key concepts relating to governance, actuarial risk and risk management were reflected in it. The module was launched at a series of regional seminars in August 2010 organized by ABRAPP, the representative body for pension funds. At these seminars the Superintendent and World Bank gave presentations elaborating on the move to RBS and how it reflects international good practice in RBS.

5.91 The intention was that the content of the modules on the four specific risk areas should draw on the experience from visits by the RBS team to pension funds. From these visits were established some key principles relating to each of the modules in the best practice guide, in Appendix 7, which were refined through further discussion (for instance, the governance headings were significantly amended). In view of the quality of governance and risk management seen at some pension funds during the high level design phase, RBS team members wrote up the findings, as a resource for defining good practice. The key principles in the modules provide a unifying element within the RBS approach as they should underpin the approach to supervision and the public pronouncements of PREVIC. They will inevitably be subject to revision with experience in their application, so long as changes arising from one application (e.g supervision) read across to the other applications, for consistency of message.

5.92 Turning to the structure of the modules, it was agreed that, ideally

- each module should start with a standard introduction to this series of modules – as has been included in the investment module;
- this should be followed by an introduction, with key concepts and flow-chart so far as applicable
- then should be the key messages which may explain the concepts or flow chart
- the subject matter sections that follow should make extensive use o sub-headings, to make the module easily accessible especially on the web
- it should be clear which material interprets or expands upon legislative requirements, on a comply or explain basis, and which is purely advisory, for instance case studies.

5.93 The preparation of the modules was continually delayed during the course of the project (the initial deadline was end 2010) due to resource constraints and because the skills and knowledge needed to write them was consistently under-estimated. The World Bank eventually, October 2011, hired a consultant to help draft the governance module, which meant that a near final draft was available by March 2012. The investment module was, however, published early in 2012.

Self-assessment questionnaire

5.94 The World Bank suggested the questionnaire as an option for simultaneously promoting higher standards of governance in pension funds and providing PREVIC with a diagnostic on the state of pension fund governance, which will be vital if governance is to be used as a criterion in preparing the PAF, from 2011 onwards. Examples of questions were supplied by the World Bank prior to the October 2011 visit and the RBS team worked to construct a composite questionnaire from the examples. The questions follow best practice by asking for questions to be in a range of 1-4 and targeting members of the CD, CF and ED with different questions. The questionnaire is being discussed with the members of the Risk Committee and then will be available to the pension funds at Previc's website.

5.95 During the October 2011 visit, the World Bank and RBS teams discussed with representatives of PREVIC's IT team the arrangements for putting the self-assessment questionnaire on-line. This appeared to be feasible and many technical issues were resolved. Further revisions were made to the content between then and March 2012, in particular to seek to align it with the questionnaire appended to the governance module of the Guide. The plan is to publish the questionnaire on-line by June 2012 so as to have replies back in time for the 2013 PAF.

Licensing Guide

5.96 The Guide on Licensing is aimed at sponsors and pension funds, and provides comprehensive coverage of the risks and problems that may arise from applying for amending or terminating the licence for a pension fund or plan. It appears to head off many risks in this area encountered in the UK. The risks relate both to creating legal uncertainty and reductions in the benefits participants are likely to receive, and it was agreed that they should be mapped in the latest revise of the licensing manual.

5.97 The aim of this Guide is that conselheiros or sponsors will change their behaviours so as to reduce the risk to participants without PREVIC having to seek to reject what is proposed. For instance, rather than withdrawing sponsorship from a DB plan they could run it on without further accrual and set up a separate DC plan, leaving participants with their accrued DB benefits.

5.98 The content of the first draft of the Licensing Guide was considered at some length during the final technical assistance visit. Issues meriting particular consideration were:

- Transparency of process is essential and it was proposed that the Guide include a generic process flowchart for handling a plan amendments proposed by sponsors.
- Where new plans are being proposed there should be cross-reference to the governance guide as well as specification of the documentation that needs to be checked for a licence to be granted.
- The importance of retaining a registered plan is being emphasised, along with the availability of alternative options instead of closing plans and in particular transferring accrued rights from DB to DC.

- In this context, the difficulties in blocking plan amendments that potentially leave participants worse off was discussed. The UK experience is that conselheiros (trustees) should be persuaded, with threats if necessary, to oppose such proposals or at least to ensure that participants obtain a share of the benefits sponsors derive from such changes. DITEC already tries what it can to oppose such deals but sometimes the law gives them and the conselheiros no option but to agree. It was agreed that the law needed to change.
- The Guide will need to reflect the policy being developed with SPPC (the regulator) for setting conditions under which plans can continue without the original sponsor. The actuarial approach was discussed during the last visit. The emerging view is that some kind of sponsor is needed to oversee governance, so the preferred option, if a sponsor must withdraw, for instance due to liquidation, is the transfer of the plan to another pension funds with ring-fenced funding of the liabilities that can still be funded.
- While not all surplus distributions need to be approved by PREVIC, where they are, DITEC sets a high standard for what will be approved, which aligns with the actuarial strategy, and should be cross-referred to the actuarial guide. It also takes account of DIFIS views.
- The Guide will cover the legal considerations in implementing investment policies but could give a more thorough coverage were PREVIC to agree its strategic policy on this issue in time. This indicates that policy making on investment profiles should have a high priority.
- PREVIC does, however, already have the power to act as a mediator in law and hence is strongly placed to resolve issues by mutual agreement.
- The issues relating the voluntary migration of participants from DB to DC, and the risk that these may later be over-turned if misleading advice was given or other legal requirements breached, covers the issues that have emerged in the UK in this regard.

5.99 The intention was that the Guide would be discussed with DIFIS and DIACE, under the aegis of the Risk Committee, with a view to its finalisation and publication in June/July.

Performance measurement

5.100 The purpose of performance measurement is to enable the directors and stakeholders of PREVIC to see whether its actions are resulting in changes of pension fund behaviour, and hence whether expenditure on PREVIC is justified. Furthermore, the measures may help identify where more needs to be done to mitigate risk.

5.101 While monitoring measures of outputs delivered are an important element in the management of PREVIC, the most important measures for testing supervisory effectiveness relate to outcomes, that is changes in pension fund behaviour. Given the long time frames involved in pensions, the eventual outcomes in terms of participant benefits are very hard to measure in a useful way, so proxy outcomes are needed. These are based on the narrative included in supervisory strategies, and indeed it is good practice for these narratives to be framed in terms that can be measured. For instance, the narrative in the actuarial strategy is that ensuring that pension plans use assumptions and funding targets with reserves sufficient to withstand likely adverse circumstances such as falling interest rates or increasing longevity should significantly improve the likelihood of participants receiving the promised benefits. Hence the measure of the performance of this strategy would be movement from deficit and red towards green in the traffic lights described in appendix 6.

5.102 The adoption of the full risk categorisation approach being adopted following World Bank recommendations should provide the performance measures that PREVIC needs. To date, the following can be identified:

- Improvement in the actuarial scoring of pension plans as defined by the traffic light matrix – this measure could be weighted by the numbers of participants in each plan;
- Improvement in the risk adjusted return of pension plans (see Figure 22 on page 86) – with possibly another matrix showing the participant-weighted position. Separate measures would be needed for DB and VC/DC plans, and possibly a separate measure again for multi-sponsor funds.
- Improvements in pension fund governance as recorded on the matrix plotting governance scores against plan size.

5.103 A further measure might be the total number of participants in the system and annual contributions made which could help assess how successful PREVIC is being at encouraging (nor not discouraging new plans and participants). As other strategies develop, for instance regarding investment profiles or VC plans, the success criteria, and how success can be measured, should also be developed.

Chapter 6. Proposals for Changes to Regulation

6.1 While the terms of reference for this project included an objective relating to investment regulation, the initial diagnosis concluded that the regulation of investment was broadly fit for purpose, but that attention might be needed to PREVIC's governing legislation. Subsequent consideration of the practicality of implementing and enforcing risk-based strategies identified six areas where legislation should or might be improved to facilitate risk-based supervision:

- The regulation relating to actuarial valuations (Resolution 18) could be revised to facilitate and encourage the move to best practice;
- Some changes are needed to PREVIC's governing regulation (Decree 4942) to enable risk-based supervision to be enforced effectively;
- The regulation relating to investment (primarily CMN3792) needs to cover investment profiles and life-cycling;
- The regulation of the governance of pension funds needs to be amended to enable multi-sponsored funds to operate in compliance with the letter and the spirit of the law;
- The regulation of licensing needs to give PREVIC, or possibly conselheiros, more power to block plan amendments that may damage the interests of participants; and
- The regulation of conflicts of interest affecting the conselheiros and directors of closed pension funds.

6.2 The first two of these were priorities for being taken forward in 2011. All of them are considered below.

Amendments to Resolution 18

6.3 Resolution 18 sets out how the actuarial liabilities of pension plans should be calculated.

6.4 In considering the enforceability of PREVIC's actuarial strategy, the RBS team discussed the possible need to change legislation. It was agreed that PREVIC should be able to influence pension funds to use more rigorous standards within the current legislation, but that some pension funds would strongly resist any change without a change in legislation while the generality of pension funds might be slow to adopt best practice without some steer in legislation. While it would be impractical to amend Resolution 26[42] given the sensitivity of the issues involved, it was agreed, therefore, changes to Resolution 18 were highly desirable, so as to embed some basic concepts, such as market-reflective valuation of assets and liabilities, risk buffers and mortality improvement within the legislation and hence facilitate the implementation of best practice. This would be especially important in handling licensing cases, where PREVIC needs to act quickly.

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[42] Resolution 26 regulates the distribution of surpluses and sets out a higher standard for setting assumptions to be used in valuing whether there is a surplus to distribute.

6.5 The changes that to be taken forward, which were discussed with the Finance Ministry and National Actuarial Commission, would require pension funds to:

- set discount rates in a way that takes account of changes in the market rate of return on pension fund assets and the interest rates equivalent to plan liability durations, preferably linking them to the interest rate on government bonds of short, medium and long duration;
- establish a reserve to be established and funded within a reasonable period, to cover their estimation of the likely impact of risks materialising, especially mismatch risk;
- use the latest relevant mortality tables, with the application of best practice in providing for mortality improvement;
- consider the benefits not the plan itself, as there are some DC or VC plans that may have substantial DB risks, by adapting Item 6 (which defines minimum actuarial methods for evaluating DB plan); and
- establish within the provision relating to the amortization of unfunded liabilities that there should be separate funding ratios for active employees and retirees, otherwise negative assets or close to zero may occur, putting the plan at a high solvency risk

6.6 In addition it was recognised from 2010 that the 6% maximum discount rate allowed in legislation is self-evidently too high to provide a margin for security at a time when interest rates on Government bonds were only a little above that level, and expected to fall, and hence needs to be reviewed. Indeed interest rates have since fallen well below 6%. While PREVIC's calculations of one large pension fund showed that a funding calculation using a market reflective discount rate and realistic risk buffers would give a funding level equivalent to a much lower figure than 6%, the quality of governance in many other pension funds cannot yet be relied upon to produce similarly realistic answers. A pension fund that started, say, with market discount rates in the 6-6.3% region and included only minimal risk buffers could end up being worse funded even than now. This would be a highly undesirable outcome, and hence there needs to be some safety net in legislation that moves the pension funds with the least realistic assumptions in the right direction.

6.7 It was therefore agreed that a provision is needed in Resolution 18 that the calculation of actuarial liabilities using modern methods produces a figure equivalent to that which would be derived from using a, say 5.5%, discount rate and AT2000.

6.8 In practice, it is likely that many pension funds would end up with valuations more prudent than those using 5% and AT2000 specified in Resolution 26 as the starting point for calculating whether surplus can be released, and hence the change to Resolution 18 should have the added benefit of making it harder for pension funds to distribute 'illusory' surplus.

6.9 Discussions on these changes were still continuing with the regulatory authorities at the conclusion of the project, and the delay is unfortunate in view of the continuing falls in interest rates and the greater difficulty that pension plans will experience in recovering their funding to a safe level.

PREVIC's governing regulation (Decree 4942)

6.10 Members of PREVIC's legal team have been part of the RBS team from an early stage and identified some potential issues in Decree 4942 governing the activities of PREVIC that may constrain the full introduction of risk-based supervision (as was suggested in the original World Bank diagnosis). It was agreed that they should review it from this perspective, and develop proposals for its amendment working with a team drawn from across PREVIC.

6.11 The aim of the proposed changes to the Decree is to enable PREVIC to apply the enforcement pyramid in Figure 14, above, to failures to comply with legislation as interpreted by the Guide on Best Practices. This will be centred on the power of PREVIC to issue a determination that there has been such a failure with a requirement for corrective action or an explanation of how the pension fund is complying with legislation (applying the 'comply or explain' principle') within a specified time. There is a continuing debate as to whether the Decree should mention recommendations that fall short of a legal determination. Although the Decree does not prescribe the most drastic powers available to PREVIC, the removal or suspension of the board, it is important that this should be recognised to be at the apex of the pyramid.

6.12 There is some difference of view as to the scope for the Decree to mention the Guide on Best Practices. Doing so would give it a formal status that might necessitate external approval of its content. The UK experience indicates that this is feasible so long as relations are good between regulators and supervisors. This cannot be relied upon, and an alternative approach would be for the Decree to refer in general terms to the practices and processes that are necessary to implement legislation, and the Guide to state that it provides guidance on what these are. In any event, it needs to be crystal clear in the Guide which of its best practices implement the provisions of legislation and which are purely advisory.

6.13 The drafting of the revised Decree was undertaken during 2011 and is now being considered within Government where it may be subject to some change.

Revisions to investment regulation

6.14 While the discussion of whether changes were needed to investment regulation to tackle identified risks concluded that generally the existing legislation is fit for purpose, consideration of the recent development in Brazil of participant chosen investment profiles revealed a significant gap. It would appear that issue was identified during the drafting of the current regulation (CMN3792) but considered insufficiently urgent to address, given the complexity of the issues involved.

6.15 CMN3792 makes no mention of the possibility of pension plans including different profiles for different participants, as it relates to the management of the whole plan. There is anecdotal evidence that many DC pension plans now or will soon offer participants a

choice of profile. It is not currently clear what legislation requires in relation to the approval of and quantitative limits within such profiles. It would appear that many plans do not consider that they need a change to their rules, and hence licence, to implement profiles, despite the legal risk entailed. The lack of clarity on this issue contrasts with the situation for open pension funds where SUSEP requires that each profile be licensed as a separate plan. Legislation appears to apply quantitative limits to plans, not profiles within them, but courts could well make interpret them as applying to each profile as well, creating further legal risk.

6.16 Experience elsewhere in the world suggests that the use of profiles can be exploited to reduce risk, through life-styling but may also weaken fiduciary responsibilities and hence inhibit optimal investment design. It would be desirable for Brazil to learn from this experience in bringing profiles within the regulatory framework. Consideration was given, pending a change in the regulation, to PREVIC issuing a legal interpretation covering:

- the provision to participants of readily understood information on the likely risks and returns of each profile (modelled perhaps on the requirements of CVM[43]);
- a requirement for the participant to sign a form confirming their understanding of the information supplied in the event that they choose a profile other than that considered most suitable for them by the pension fund;
- a requirement to provide an appropriate default profile tailored to the needs of the average participant placed in it – which could be an age-related choice[44];
- a requirement to provide life-styling, at least for the default fund [which could be extended to apply to all DC plans];
- whether the quantitative investment limits apply to individual profiles or the whole plan; and
- what needs to be done to minimize the risk that the courts will fail to respect the ring-fencing of assets in the profiles.

6.17 The World Bank provided a discussion paper on these issues (Appendix 8). Further discussion, starting from this paper, involved DITEC alongside the RBS team and led to the following conclusions being drawn:

- PREVIC needs to act quickly on this issue. Many pension funds have already introduced portfolios and more are following. The available evidence suggests that they are defaulting participants into profiles that minimize volatility and hence risk to the sponsor and return to the participant. This is potentially the worst of all worlds. There is in any case an imperative to move pension fund to life-cycling as a means of enabling them to optimize the risk/return trade-off.
- It is too late to impose the multi-fund model (as adopted in Chile and elsewhere) because of market developments. Furthermore, because default participants automatically change at plan at various points in their career there would need to be a

[43] The supervisor of financial markets in Brazil.
[44] This would avoid the current situation where the lowest return fund tends to be treated as the default.

meta-plan responsible for moving participants between plans. This is not really feasible in Brazilian legislation.

- The Licensing Department would be over-stretched by the potentially five-fold increase in plans to licence. Having each portfolio as a separate plan is only really practicable where, as in Chile, there is a small number of pension funds. This also rules out the possibility of target date funds being established as a series of plans.
- PREVIC therefore has to accept profiles within pension plans. This would make it fairly straightforward to require some form of life-cycling as part of the plan design.
- This in turn means that PREVIC will have to accept and manage the legal risk from having different profiles un-ring-fenced within the plan. One consolation is that although the possibility of this type of risk has been discussed in other jurisdictions, it has yet to materialise. So long as most participants are in the default option the risk should be kept fairly low as the participants in such an option should have little money to gain by trying to raid the benefits of other participants. Participants not in the default option may find themselves more dramatically dis-advantaged relative to their peers but should have signed a piece of paper confirming their understanding of the arrangement. Furthermore, the complexity of the arrangement should make such a raid difficult to conceive.
- Should this not be a good moment to make change through legislation, PREVIC should nonetheless publish guidance (or better still a consultation paper) on best practice in designing investment profiles, drawing on earlier World Bank advice, and licence and inspect against that guidance. The guidance should include PREVIC's view on whether any profile can break the quantitative limits on investment
- PREVIC should also announce that all pension plans which have not been explicitly licensed to operate profiles should do so. (If any legislative change is possible making such licensing an unambiguous legal requirement should be top priority). Making life-cycling compulsory unless participants opt out of it should be the next priority.

6.18 Some further proposals made during the final technical visit, included:

- The options for investment profiles must be defined in the plan rules and approved by PREVIC as well;
- It has to offer at least 4 profiles: conservative moderate, aggressive and life cycle;
- Life Cycle fund must take into account the migration from aggressive to more conservative, according to participant age;
- The consequences and impacts of the choices must be alerted to the participants through explanatory materials. The participant must sign his option;
- Life cycle is the default fund;
- The pension fund will need to implement procedures to check the appropriateness of the fund to the participant profile, covering at least the following aspects: investment education, future service until retirement, benefit value expectation and risk tolerance;
- In the case of inconsistency between participant profile and his/her choice, the pension fund must inform it to the participant;
- Investment profile change must be offered with the minimum interval of 6 months and maximum of 24 months;
- Investment limits should not be applied to the individual account balance;

- The pension fund may temporarily suspend new options in order to follow prudent actions as required by CMN 3792/2009;
- The investments must preferentially be done through investment funds registered at CVM. In this case: investment funds shares must be accounted in a such way that makes possible to identify the individual account balance; the shares must be daily valued;
- If it is not possible to invest in such investment funds, each pension fund must assure a process to identify the shares (quotas) and have internal controls to assure the assets sharing;
- The pension fund will need to adapt their benefits plan provisions in a period of 24 months.

6.19 These proposals elicited the following further comments:

- There is potential value in the legislation allowing as much flexibility in pension plan/portfolio design as is compatible with its objectives, for instance, to allow the US model of target date funds which would enable bonds to be held in a participant's portfolio that would mature when he/she retires.
- The concept of portfolios being, or being composed of, CVM registered investment funds has the attraction of applying an extra level of control. But pension funds should be encouraged to develop their own funds as international experience shows that proprietary funds tend to deliver lower net returns (in large part due to additional fees).
- In any event, there would appear to be merit in PREVIC applying the same assessment criteria as CVM would to the design and management of pension investments.

6.20 The continuing uncertainty about the best way forward meant that the matter needed to be referred to the new Risk Committee.

Multi-sponsored funds

6.21 Following the identification by DIFIS and DITEC of significant issues regarding the governance of multi-sponsored pension funds, DITEC were tasked with considering how regulation could be changed to address the problem. They presented some conclusions along with a spreadsheet. The fundamental issue is that the pension fund effectively acts as the licensed administrator for a range of plans many of which continue to be directed by the employer sponsors, but with the fiduciary responsibility transferred to the Conselho Deliberativo of the administrator, resulting in a 'governance gap'. The pension fund board is unwilling (or possibly even incapable) of taking fiduciary responsibility for those plans and hence is in breach of legislation.

6.22 World Bank consultants noted that this situation has parallels in other jurisdictions where pensions administrators undertake all or nearly all the executive functions for individual pension funds (or plans). In such cases, however, where the pension fund is an employer-sponsored fund the primary focus of supervision and regulation is on the pension fund which is expected to regulate the administrator. That said, in the Republic of Ireland administrators are now separately licensed and supervised, as well. In personal pension

systems, including mandatory DC, the supervisory focus is on the licensed administrator but there is also legislative regulation of the products (i.e plans) they can administer. In some cases, such arrangements can look remarkably like a Brazilian multi-sponsored fund (except that DB plans would not be found in such arrangements as they are in Brazil) and there is some concern about a governance gap in countries such as the UK as well.

6.23 The solution to the Brazilian governance gap would appear to be a hybrid model where the main Conselho Deliberativo is responsible for all administrative functions and those plans that are not directed by the employer sponsors. Separate governance committees are required, and supervised, for those sponsors that choose to direct the investment or actuarial valuation of their plans (which should have some relationship with the main Conselho Deliberativo). This would add a burden to those sponsors and negate some of the benefit they perceive they have derived by switching to a multi-sponsored fund. PREVIC would need to explain that this is an inevitable consequence of retaining the power of direction, and hence fiduciary duty, and that the status quo is effectively illegal and intolerable. Sponsors would always have the option of switching to the arrangements in place for those plans without sponsor direction, in which case a governance committee would not be needed.

6.24 DITEC agreed to consider this option which could initially be pursued by persuasion, followed by legislative clarification. It may be that the governance module of the Guide should cover this issue. Interestingly, it would mean that PREVIC should supervise plans separately where there is a continuing sponsor fiduciary role but can supervise the other DC plans together (as they will have identical investment strategies). The team, working project now needs to formulate specific recommendations for action for endorsement by the Risk Committee and PREVIC Directors.

6.25 Other points emerging were:

- The funds should be encouraged to market directly to employers to increase overall up-take and remove the vested interest that intermediaries have in persuading sponsors to have specially tailored solutions rather than the using the fund's default product.
- The structure of these funds means that the risks are significantly different from other types of pension fund, and the Risk Committee needs to commission a separate risk-mapping from CGPA and/or DITEC.
- In particular there is the risk of excessive charges being levied, especially investment fees and commissions that fall directly on participant accounts, and which could be inflated by churning or other practices designed to increase investment manager income.
- Even with the proposed solution, a governance gap remains where the pension fund uses related companies for out-sourced services or investment advice, which needs to be tackled through on-site supervision with the onus on pension funds to prove that decisions or advice are not tainted by conflicts of interest.

The regulation of conflicts of interest

6.26 PREVIC's legal team also identified some lack of clarity in the regulation relating to conflicts of interest which could make it difficult for PREVIC to take effective action where such conflicts are identified. The team started by seeking to define conflicts of interest and then reviewed the applicability of regulation to such conflicts. Higher priority tasks intervened during the course of the project.

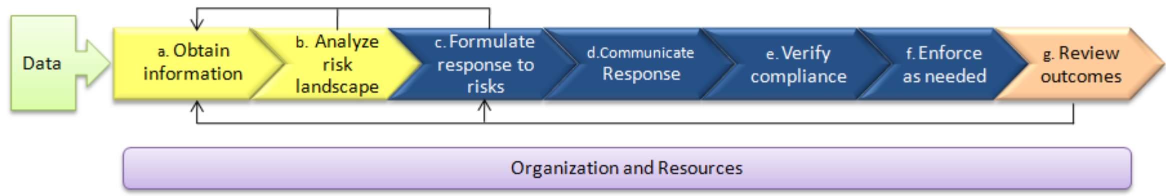
Licensing regulation

6.27 While discussion of how DITEC is able to mitigate risks to pension plan participants arising from proposed plan amendments identified that they may have insufficient power to block changes that would leave participants worse off, or at least fail to share with the participants the benefits to the sponsor of the amendment, it is not yet clear how this could be done. PREVIC needs to give this issue further attention.

Chapter 7. Summary of the Implementation

7.1 At the concluding meeting of the final technical assistance visit, the achievements of the project and implantation actions remaining were presented against the steps in the Value Chain, at Figure 12, and repeated for convenience at Figure 27 below.

Figure 27: The Value Chain for Risk-based Supervision



Obtain information

7.2 Much progress has been made:

- The information needs for DIACE have been identified and the right information is now obtained for actuarial risk, while the information needs for investment risk will be met from 2013.
- The self-assessment questionnaire is nearly ready to be issued to pension funds, and should accelerate the assessment by DIFIS of governance at individual pension funds.
- The IT project needed to provide cross-PREVIC access to data and analyzes, and more powerful analytic tools has re-started.
- The SIAD tool, an impressive achievement driven from Minas Gerais, is already available across PREVIC to access DIFIS information and enhancements are planned, which makes inspection-based information generally available to those who need it.
- The research team is staffed.

7.3 Further implementing actions are needed:

- The self-assessment questionnaire needs to be put on-line and the data from it analyzed ahead of PAF 2012;
- The IT project needs to be advanced with Dataprev[45], alongside enhancements to SIAD.

Analyze risk landscape

7.4 Much progress has been made:

- The risk assessment structure and methodology is complete, as:
  - The overall landscape has been largely re-analyzed and plotted on a matrix, which is for CGPA to own.

[45] PREVIC's IT supplier

   - The design of the investment matrices is being refined and they are being populated, although this cannot be done properly until data is available in 2013
   - The actuarial matrix has been populated and a revision to bring the approach closer to the Danish model is being proposed (appendix 6).
   - The DIFIS matrices are defined in the on-site manual, while the self-assessment questionnaire should accelerate their population.
   - There is an established process for DITEC to communicate risks they have identified to the rest of PREVIC.
   - CGPA's processes for over-seeing risk assessment have been clarified further during this visit (including how risk matrices fit together).
- It is now possible for the PAF to become increasingly based on objective risk assessments
- SIAD is making risk assessments widely available within PREVIC

7.5 Further implementing actions are needed:

- DITEC need formally to complete the analysis of their risks and plot them on a risk matrix
- The population of the actuarial matrices needs to be revised in line with proposed revisions to the traffic light approach
- The calculation of investment risk scores and population of the investment matrices needs to take place once more data is available

Formulate response to risk (strategies)

7.6 Much progress has been made:

- The creation of the re-formulated Risk Committee and Strategic Research Committee represents an important and highly desirable step forward in ensuring that the impetus behind RBS is maintained, that information is shared and strategies and policies for implementing RBS and tackling key risks are agreed across PREVIC.
- There is already a strategy for driving forward improvements in actuarial assumptions which is being implemented.
- The work of DIFIS and DIACE is explicitly focused heavily on analyzing and seeking to remediate the highest priority risks as identified in the diagnosis phase of this project, namely actuarial, investment and governance, while the new DITEC manual is risk-orientated.

7.7 The new Committees need to work through a back-log of strategies and policies needing agreement, with the following being particularly high priority:

- Investment profiles
- Governance at multi-sponsor funds
- risk management assessment criteria (in the context of propriety risk management models)
- the proposed Danish model for actuarial assessment and its effect on the strategy

- pension plans where the sponsor is withdrawing, which might be considered in parallel with the policy for how the retirement provision in VC plans can be immunised from the rest of the plan.
- The proposed new approach to scoring and assessing investment risk

Communicate response

7.8 Much progress has been made:

- Two Guide modules have been published
- Work has started on another four, including the Licensing Guide – this and the governance module are well advanced
- The approach to RBS in general, and to actuarial risk in particular has been communicated in workshops, meetings with ABRAPP etc.

7.9 Further implementing actions are needed:

- The Guide modules need to be completed and published, as until that time inspections and licensing case-work are not being undertaken according to the principle of 'no surprises', while inspectors may not be clear about all the criteria for their inspections.
- PREVIC needs to communicate its strategic thinking to its stakeholders through narratives on its risk analyzes, including supporting evidence, statistics and research, and the strategies that flow from the analyzes. This could be done ad hoc for each strategy (for instance in promulgating the new risk matrices) or in the annual report.
- PREVIC needs to continue working to resolve the long-standing issues of governance training and its certification.
- PREVIC should consider whether an enhanced help-desk is needed to help pension funds understand what is expected of them.

Verify compliance (with PREVIC's expectations)

7.10 Much progress has been made:

- In DIFIS:
  - On-site manual written and being updated alongside Governance Guide
  - Initial risk-based inspections undertaken – these have powerfully vindicated the move to RBS
  - The role of CGFD has been clarified
  - Training has been delivered to inspectors
  - The full risk-based program envisaged by PAF 2012 has started
- DIACE:
  - The content of the off-site manual has been specified – action
  - Analyzes of actuarial and investment risks are on-hand
- DITEC:
  - A new manual has been written, which may be updated alongside Guide
  - Its processes are now risk-based

– DITEC can now use the newly established mediation role

7.11 Further implementing actions are needed:

- The update to the on-site manual needs to be progressed swiftly, but depends on having a good draft of the governance module of the Guide to ensure consistency with.
- The intention to arrange a week's training for DIFIS inspectors twice a year needs to be fulfilled, coordinated by CGPA, and perhaps supplemented by the types of seminars with regional inspectors that that have been held during this project.
- The off-site manual needs to be written.

Enforce as needed

7.12 It should be recognized that enforcement will be much harder as supervision moves to address the biggest (and hence most sensitive) risks. Actions taken to facilitate this include:

- The enforcement pyramid has been agreed (Figure 14), and includes the new TAC power as a potentially valuable additional level within the pyramid.
- It should become clearer what PREVIC is seeking to enforce once all the modules of the Guide on Best Practice have been published.
- Revising Decree 4942 should strengthen PREVIC's ability to enforce regulatory principles.
- Actuarial enforcement should be strengthened by the planned update to Resolution 18.

7.13 The progress of these legislative changes should be hastened. Consideration needs also to be given to:

- The potential for other strengthening of the law, such as to regulate investment profiles better and to enable DITEC to block damaging licence changes.
- The need to pick fights carefully and keep Directors alerted (a Risk Committee role).
- The specified process of presenting findings at the end of an on-site inspection should be developed to include conselheiros and signed agreement to the record of the meeting, and, for conselheiros to be present, inspections need to be notified further in advance.

Review outcomes

7.14 Outcome measures being can be developed for key strategies, largely using risk assessments

- Actuarial (traffic light matrix) or PAF actuarial matrix (participant-weighted aggregation of scores)
- Risk-adjusted investment return analysis
- DIFIS governance scores (participant weighted)
- Number and annual contributions for participants.

Appendix 1
Listing of documents prepared during the Project

Aide memoires			
File Name	Date	Language	Content
RBSBrazil 1st Aide memoire final.doc	Jan-Feb 2010	English	Final version of the Aide memoire for the 1st technical assistance visit
RBSBrazil 2nd Aide memoire final.doc	May 2010	English	Final version of the aide memoire for the second technical assistance visit
RBSBrazil 3rd Aide memoire final.doc	August 2010	English	Final version of the aide memoire for the third technical assistance visit
RBSBrazil 4th Aide memoire final.doc	October 2010	English	Final version of the aide memoire for the fourth technical assistance visit
RBSBrazil 5th Aide memoire final.doc	Nov 2010	English	Final version of the aide memoire for the fifth technical assistance visit
RBSBrazil 6th Aide memoire final.doc	Feb 2011	English	Final version of the aide memoire for the sixth technical assistance visit
RBSBrazil 7th Aide memoire final.doc	May 2011	English	Final version of the aide memoire for the seventh technical assistance visit
RBSBrazil 8th Aide memoire final.doc	October 2011	English	Final version of the aide memoire for the eighth technical assistance visit
RBSBrazil 9th Aide memoire final.doc	March 2012	English	Final version of the aide memoire for the ninth technical assistance visit
RBSBrazil interim report final.doc	May 2011	English	a comprehensive description of the first 15 months of the project

External presentations			
Document Title	Date	Language	Content
RBSBrazil presentation pension fund system Apr 2010.ppt	April, 2010	English	Presentation about Brazilian pension system made in Brighton UK
RBSBrazil RBS presentation ABRAPP Aug 2010_port.ppt	August, 2010	Port	Abordagem Internacional da Supervisão Baseada em Risco - Missão do Banco Mundial - RBS Presentation to ABRAPP Regional Seminar in Portuguese
RBSBrazil RBS presentation ABRAPP Aug 2010.pptx	August, 2010	English	RBS International Approach to risk-based supervision (RBS) - World Bank - Presentation to ABRAPP Regional Seminar
RBSBrazil presentation ABRAPP Aug 2010_port.ppt	August, 2010	Port	Presentation made to Abrapp during the Regional meetings - Portuguese version
RBSBrazil presentation ABRAPP Aug 2010.ppt	August, 2010	English	Presentation made to Abrapp during the Regional meetings

RBSBrazil presentation ABRAPP investment risk.ppt	Nov 2010	Port	ABRAPP 2010 ANÁLISE DE RISCOS DOS INVESTIMENTOS -Presentation made by PREVIC to ABRAPP Congress on Investment Risk Analysis
RBSBrazil presentation ABRAPP actuarial risk.ppt	Nov 2010	Port	Presentation made by PREVIC to the ABRAPP Congress about Actuarial Risks
RBSBrazil presentation RBS PREVIC directorate Nov 2010.ppt	Nov 2010	Port	Supervisão Baseada em Risco - presentation of RBS to PREVIC Directorate
RBSBrazil Rudolph investment risks.ppt	Nov 2010	English	Pension Investment Regulation: Supervisory and Management Framework – delivered by Heinz Rudolph at the ABRAPP Congress
RBSBrazil presentation RBS ABRAPP May 2011.ppt	May, 2011	Port	Supervisão Baseada em Risco - SBR Desafios na identificação, no controle e no monitoramento de riscos: presentation made to ABRAPP about the implementation of RBS in PREVIC
RBSBrazil presentation RBS detailed May 2011.ppt	May, 2011	Port	Supervisão Baseada em Riscos - SBR Desafios na identificação, no controle e no monitoramento de riscos - Presentation on RBS in Gramado
RBSBrazil presentation pension fund system Jun 2011.ppt	June 2011	Port	Sistema de Previdência Complementar Fechado – presentation by member of RBS team on Pension Funds in Brazil: structure, legal aspects, legislation, supervision and new approach to supervision
RBSBrazil presentation RBS Jun 2011_port.ppt	June 2011	Port	Supervisão Baseada em Riscos - SBR Desafios na identificação, no controle e no monitoramento de riscos - presentation by member of RBS team on RBS
RBSBrazil RBS presentation ABRAPP ANAPAR Oct 2011_port.ppt	October 2011	Port	Supervisão Baseada em Risco - Apresentação para ABRAPP e ANAPAR - RBS presentation to ANAPAR and ABRAPP in Portuguese
RBSBrazil RBS presentation ABRAPP ANAPAR Oct 2011.ppt	October 2011	English	Presentation to ANAPAR and ABRAPP on the implementation of RBS and its implications for their members
RBSBrazil five principles in Resolution 18.doc	To be added	English	Consultant presentation on the Principles in Resolution 3792 and Investment Key Principles

Documents associated with the 1st Technical Assistance Visit (January-February 2010)			
Document Title	Date	Language	Content
RBSBrazil presentation PREVIC Feb 2010.ppt	February 2010	Port	Presentation to PREVIC about RBS and objectives of the World Bank project
RBSBrazil actuarial papers.doc	February 2010	English	Draft of a call for paper related to discount rates to be used by pension funds in Brazil, to be presented during ABRAPP Congress
RBSBrazil presentation PREVIC RBS Jan 2010.ppt	January, 2010	English	Consultant presentation on the risk-based supervision of closed pension funds
RBSBrazil newspaper response on RBS.doc	February 2010	Port	Answers to questions from a newspaper about RBS implementation in PREVIC
RBSBrazil diagnosis questionnaire PFs.doc	February 2010	English	Questionnaire sent to Pension Funds for diagnosis purposes
RBSBrazil diagnosis questionnaire ABRAPP.doc	February 2010	English	Questionnaire sent to ABRAPP for diagnosis purposes
RBSBrazil diagnosis questionnaire ANCEP.doc	February 2010	English	Questionnaire sent to ANCEP for diagnosis purposes
RBSBrazil diagnosis questionnaire actuaries.doc	February 2010	English	Questionnaire sent to actuaries for diagnosis purposes
RBSBrazil diagnosis questionnaire lawyers.doc	February 2010	English	Questionnaire sent to lawyers for diagnosis purposes
RBSBrazil diagnosis questionnaire stakeholders.doc	February 2010	English	Questionnaire sent to stakeholders for diagnosis purposes
RBSBrazil diagnosis questionnaire SUSEP.doc	February 2010	English	Questionnaire sent to SUSEP for diagnosis purposes
RBSBrazil diagnosis questionnaire ABRAPP_port.doc	February 2010	Port	Questionnaire sent to ABRAPP for diagnosis purposes - Portuguese version
RBSBrazil diagnosis questionnaire lawyers_port.doc	February 2010	Port	Questionnaire sent to lawyers for diagnosis purposes - Portuguese version
RBSBrazil diagnosis questionnaire SUSEP_port.doc	February 2010	Port	Questionnaire sent to SUSEP for diagnosis purposes - Portuguese version

Documents associated with the 2nd Technical Assistance Visit (May 2010)			
Document Title	Date	Language	Content
RBSBrazil presentation 2nd tav.ppt	May, 2010	English	Consultant ideas on the application of RBS principles, in Brazil, including 2nd mission agenda
RBSBrazil 2nd tav plan.doc	May, 2010	English	Plan and draft Agenda for the 2nd technical assistance visit

Documents associated with the 3rd Technical Assistance Visit (August 2010)			
Document Title	Date	Language	Content
RBSBrazil actuarial training course.ppt	August 2010	Port	Financiamento de Programas de Previdência Complementar -Training by Edson Jardim on actuarial aspects of pension fund supervision
RBSBrazil presentation on RBS Aug 2010.ppt	August, 2010	Port	Princípios da Supervisão Baseada em Risco - SBR - Principles of RBS
RBSBrazil 3rd tav plan.doc	August, 2010	English	Draft agenda for 3rd technical assistance visit
RBSBrazil Pro forma for visits to pension funds.doc	August, 2010	Port	Pro forma used for documenting visits to pension funds
RBSBrazil presentation1 3rd tav.ppt	August, 2010	English	Consultant presentation on RBS principles and their application in Brazil, including the 3rd technical assistance visit agenda
RBSBrazil presentation2 3rd tav.ppt	August, 2010	English	Suggested model for quantitative measurement of funding levels
RBSBrazil Good Practices Guide comments July 2010.doc	July 2010	English	Consultant comments on a late draft of the Guide on Best Practices
RBSBrazil Guide on Best Practices_eng.doc	August, 2010	English	English translation of the first module of the Guide on Best Practices

Documents associated with the 4th Technical Assistance Visit (October 2010)			
Document Title	Date	Language	Content
RBSBrazil actuarial risk mapping .doc	October, 2010	English	Actuarial risk mapping based on 2009 data, made by the actuarial team in PREVIC
RBSBrazil 4th tav actions.doc	October, 2010	Port	Actions agreed during the 4th technical assistance visit
RBSBrazil 4th tav data.doc	October, 2010	Port	Suggestions for the data to be used for RBS prepared by RBS team
RBSBrazil 4th tav plan.doc	October, 2010	Port	Draft program for the 4th technical assistance visit
RBSBrazil 4th tav manual1.doc	October 2010	Port	General suggestions made by the RBS team for inspections under RBS principals in relation to Governance
RBSBrazil 4th tav manual2.doc	October 2010	Port	Some suggestions on the content of the Inspection Manual
RBSBrazil actuarial risk mapping_port .doc	October 2010	Port	Actuarial Risk Matrix prepared by the actuarial team at PREVIC based on 2009 information
RBSBrazil legal analysis paper.doc	October 2010	Port	PREVIC - SUPERVISÃO BASEADA EM RISCO E ADEQUAÇÕES NORMATIVAS - Study of RBS prepared by lawyer on the RBS team that analyzed how current Brazilian pension funds legislation needed to change to deliver RBS.

RBSBrazil inspection pro forma.doc	October 2010	Port	Pro forma for recording results of visits to pension funds, with key questions (does not include questions regarding investment)
RBSBrazil governance inspection.doc	October 2010	Port	Suggestions on procedures for the inspection of governance
RBSBrazil investment inspection.doc	October 2010	Port	Suggestions on procedures for the inspection of investments - draft version
RBSBrazil inspection program.doc	October 2010	Port	Program prepared for a practice inspection visit to Previ-Ericsson
RBSBrazil information from PFs.doc	October 2010	Port	SISTEMA DE MONITORAMENTO: CONTABIL – INVESTIMENTOS – ATUARIAL: Summary of information received from pension funds by PREVIC
RBSBrazil 4th tav taskplan.xls	October 2010	Port	Tasks for the 4th technical assistance visit as distributed to RBS team

Documents associated with the 5th Technical Assistance Visit (November 2010)			
Document Title	Date	Language	Content
RBSBrazil Vittas discount rate paper.doc	Nov 2010	English	Discount Rates and the Valuation of Pension Liabilities Paper by Dimitri Vittas of the World Bank on suggestions of how to establish discount rates for Brazilian pension funds
RBSBrazil presentation directorate nov 2010.ppt	Nov 2010	Portuguese	Presentation made to PREVIC Directors about the stage of the Project
RBSBrazil 5th tav plan.doc	Oct 2010	English	Draft agenda for 5th technical assistance visit
RBSBrazil actuarial questions.doc	Nov 2010	Port	Draft high level questions relating to actuarial risks to be used during an on site inspection
RBSBrazil enforcement paper.doc	Nov 2010	Port	Paper prepared by RBS team on the current enforcement capabilities of PREVIC and suggested changes
RBSBrazil superintendent paper ABRAPP Congress.pdf	Nov 2010	Port	TRANSFORMAÇÃO e CRESCIMENTO: Paper written by the PREVIC Superintendent for the Abrapp Congress
RBSBrazil PREVIC actuarial risk ABRAPP Congress.pdf	Nov 2010	Port	VELHOS RISCOS, NOVOS DESAFIOS: Paper written by PREVIC about actuarial risk mapping for the ABRAPP Congress
RBSBrazil Ashcroft RBS ABRAPP Congress.pdf	Nov 2010	Port	Supervisão Baseada em Riscos - Práticas Internacionais e Tendências para o Modelo Brasileiro: Paper written for the ABRAPP Congress by Consultant John Ashcroft on international experience of RBS and its implications for Brazil

Documents associated with the 6th Technical Assistance Visit (February 2011)			
Document Title	Date	Language	Content
RBSBrazil 6th tav program.doc	February, 2011	English	Final draft program for the technical assistance visit
RBSBrazil BPG governance Dec 2010.doc	February 2011	Port	3rd draft version of best practice guide on governance
RBSBrazil presentation internal 6th tav.ppt	February, 2011	English	Presentation providing an overview and covering some detailed issues for the 6th technical assistance visit
RBSBrazil BPG investment Feb 2011.doc	February, 2011	Port	First draft version of the module on Investment Best Practices
RBSBrazil presentation directorate Feb 2011.ppt	February, 2011	Port	Presentation made to PREVIC Directors about the stage of the Project
RBSBrazil presentation summary of project Mar 2011.ppt	March, 2011	Port	Supervisão Baseada em Riscos – SBR PREVIC/Banco Mundial - Internal presentation summarizing the outputs of the first six technical assistance visits, the products of the project and the roadmap timetable
RBSBrazil presentation WB Mar 2011.ppt	March 2011	English	Summary of the case for the project and what it was intended to achieve prepared for internal World Bank purposes
RBSBrazil risk committee first meeting.doc	March 2011	Port	ATA DE REUNIÃO DO COMITÊ DE ANÁLISE E RISCO1: first meeting of the Risk Committee

Documents associated with the 7th technical assistance visit (May 2011)			
Document Title	Date	Language	Content
Guide actuarial module draft April 2011.doc	April 2011	Port	First draft of the actuarial module of the Guide on Best Practices
RBSBrazil Portes paper on RBS.doc	May, 2011	Port	O Papel das EFPC no âmbito da SBR. Support material made by Antonio Portes covering risk management and internal controls within a closed pension fund
RBSBrazil 7th tav program .doc	May 2011	English	Final draft program for the technical assistance visit
RBSBrazil presentation superintendent Res18.ppt	May 2011	English	Presentation of proposed changes to Resolution 18 made to the new Superintendent
RBSBrazil presentation internal May2011	May 2011	English	Consultant presentation for summarization of progress to date and to enable discussion of scheduled issues given at the start of the visit

Documents associated with the 8th technical assistance visit (October 2011)			
Document Title	Date	Language	Content
RBSBrazil ToR consulting on governance Aug 2011.docx	August 2011	English	Draft terms of reference issued for the consultant to help draft the governance module of the Guide on Best Practices
RBSBrazil presentation risk analysis committee.ppt	Dec, 2011	Port	Proposta de Portaria _ Comitê de análise de Riscos CORIS - Proposal on the structure the Risk Analysis Committee
RBSBrazil presentation superintendent Oct 2011.ppt	October 2011	English	Presentation made to the superintendent on the 8th technical assistance visit
RBSBrazil presentation superintendent Oct 2011.ppt	October 2011	English	Presentation to the Superintendent at the conclusion of the 8th technical assistance visit
RBSBrazil presentation regional staff Oct 2011.ppt	October 2011	English	Presentation to regional managers and staff during the 8th technical assistance visit
RBSBrazil presentation internal risk analysis Oct 2011.ppt	October 2011	English	Consultation presentation on risk analysis and related issues
RBSBrazil revised self-assessment questions.xls	October 2011	English	Consultant proposal for self-assessment questions for conselheiros

Documents associated with the 9th technical assistance visit (March 2012)			
Document Title	Date	Language	Content
RBSBrazil investment best practices guide final.pdf	January 2012	Port	Published module of the Guide on Best Practices covering investment
RBSBrazil 9th tav program.doc	March 2012	English	Final draft program for the technical assistance visit
RBSBrazil Guide governance March 2012.docx	March 2012	Port	Latest draft of the Governance module of the Guide on Best Practices available during the technical assistance visit
RBSBrazil report on investment analysis.pdf	March 2012	Port	Report of consultant engaged by World Bank to assist with metrics for analyzing investment risk
RBSBrazil presentation internal central analysis Mar 2012.ppt	March 2012	English	Consultant presentation on the points for consideration in the design of the central analysis functions
RBSBrazil actuarial diagrams Mar 2012.ppt	March 2012	English	Diagrams developed during discussion of the Danish model for actuarial analysis
RBSBrazil performamnce measures Mar 2012.ppt	March 2012	English	Consultant slides used as a basis for discussing performance measures and supervisory strategies

RBSBrazil presentation internal RBS Mar 2012.ppt	March 2012	English	Presentation on RBS given to staff joining the RBS team
RBSBrazil presentation superintendent Mar 2012.ppt	March 2012	English	Presentation given to Superintendent and Directors of PREVIC at the conclusion of the 9th technical assistance visit
RBSBrazil presentation new specialists Mar 2012.ppt	March 2012	Port	Presentation on RBS given to new specialists joining PREVIC

Study tours			
Document Title	Date	Language	Content
RBSBrazil TPR study tour program.doc	April 2010	English	Program for study tour of England
RBSBrazil Australia study tour index.doc	Nov 2010	English	Index to APRA documents brought back by the team members who attended the study tour at APRA
RBSBrazil Australia study tour report.doc	December 2010		Report on the experience of risk-based supervision at APRA prepared by the RBS team members who attended this training

Appendix 2
The Essentials of Risk-based Supervision

1. According to the IOPS[46], RBS specifically attempts to vary the scope and intensity of supervision according to the level of risk to which individual pension funds are estimated to pose (in regard to the individual members and beneficiaries of the pension fund and also to the pension fund itself). A risk based approach allows scarce supervisory resources to be targeted at the pension funds which are seen to be at most risk and allows supervisory authorities to take a more pro-active approach, attempting to avoid potential problems before they occur. A broad definition of risk-based supervision would include the whole risk management architecture, including risk-based regulations and risk-based supervisory procedures. RBS contrasts with a compliance-based approach where the supervisory focus is on achieving compliance with legislation as an end in itself rather than a means to achieving objectives associated with the protection of participant benefits.

2. There are in practice many interpretations of RBS reflecting the pensions systems and circumstances of the countries concerned. Nonetheless, the introduction of RBS has been characterized by the following common elements which appear to be central to the new approach:

- The supervisor places most of its focus on a relatively small number of key system-wide risks – for instance supervisors of DB funds or DC funds with guarantees (as in Denmark, the Netherlands and the UK) tend to concentrate on those risks that could prevent pension funds from honouring their promises;
- Quantitative risk-identifier tools are applied to help evaluate risks more clearly and change pension fund behaviour – for instance the Dutch supervisor expects pension funds to establish risk buffers designed to secure that they will be fully funded in 97.5% of future risk scenarios, while the Danish supervisor undertakes stress testing against a similar objective and the UK supervisor has published some specific criteria against which it examines funding plans;
- The supervisor actively seeks to promote improved pension fund risk management with a view to be able to place reliance on the funds supervising themselves – for instance, the Australian supervisor has published 'superannuation circulars' that give detailed guidance on on how the Australian supervisor (APRA) interprets and administers relevant legislation (especially when it conducts inspections)[47];
- The supervisor selects funds (and subjects) for inspection on the basis of an individualised evidence-based risk assessment for each fund – for instance risk matrices are used in the Netherlands and Australia that evaluate both the inherent risks within a fund and the supervisory assessment of how capable the fund is to manage these risks ; and

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[46] *Working Paper No.4: Experience and Challenges in Introducing Risk-based Supervision for Pension Funds* Fiona Stewart - the International Organisation of Pension Supervisors, August 2007

[47] For instance, superannuation circular No. II.D.1 "Managing Investments and Investment Choice" (March 2006) summarises the principle-based legislation on investment and indicates how the supervisor expects to see pension funds translating the legislation into action.

- The focus of supervisory intervention is on **prevention and remediation** rather than sanctioning – for instance the UK supervisor's efforts are focused on persuading fund fiduciaries to act in the best interests of participants with enforcement action generally restricted to cases where the fiduciaries have conflicts of interest that prevent them acting in that way .

3. There are also some common pre-requisites for effective RBS which can be discerned in those systems where RBS has been successfully adopted:

- *Credibility, authority and independence of supervisor* – essential if the supervisor is to be effective in persuading pension funds to make the changes that the supervisor considers to be essential for effective risk management, especially as these tend to reflect subjective professional judgements;
- *A common understanding and leadership of RBS and goals within the supervisor* – essential if all staff of the supervisor are to move to culture where risk rather than compliance is central to all activities;
- *The right people in the right place* – bearing in mind that the skills and attitudes required of a risk-based supervisor may differ considerably from a compliance-based supervisor, as may the way the supervisory authority is organized.
- *The right data and proper systems within the supervisor* – reflecting the importance of decisions being evidence-based, proportionate and consistent;
- *Winning the hearts and minds of the supervised community* – bearing in mind that the underlying goal of any form of regulation is to secure the right behaviour by the supervised community and hence that changing pension fund behaviour is an essential goal;
- *Sufficient and appropriate legal powers* – to enable the supervisor to act in a risk-based manner, issue appropriate guidance and take (or threaten) enforcement action that secures prevention and remediation.
- *Outcome-focused performance measures*- as 'what gets measured gets done' and the ultimate goal of the supervisor is to achieve outcomes rather than deliver outputs.

4. The roadmap adopted by each supervisor for implementing RBS varies considerably according to circumstances. There are some pertinent lessons from the experience of the UK that may be particularly relevant to PREVIC, see below.

United Kingdom

5. The UK has over 60,000 pension funds (1600 with over 1,000 participants), 14 million participants (active, deferred and pensioner) in the private sector and assets of around R$2,500 billion. The Pensions Regulator was established from April 2005 as a new risk-based supervisor to replace a previous body that had been seriously criticized for its reactive compliance-based approach. The new supervisor was given outcome-focused objectives greater powers and a government remit to be risk-based. It has taken four years of a culture change program, to implement fully the approach to DB risks. DC risks are work in progress.

6. The basic structure of supervision is illustrated in Figure A2.1 to this appendix, below. An intelligent call-center deals with all low risk issues by providing advice and instruction. A coordination team called 'Triage' after medical prioritization practice, considers information from a wide range of sources, including the call-center and supervisory returns, and prioritizes cases – the most serious of which pass to specialist teams. Two of these teams focus on the two biggest (and related) risks identified by a (published) strategic risk mapping process: DB sponsor credit risk and DB funding adequacy risk. The third handles all other high priority cases, with a particular focus on governance and administration. The Triage team also looks for trends and communicates these to the policy and guidance team for industry-wide responses.

Figure A2. 1: UK Pensions Regulator - Organization of Supervision

Intelligent front end (Call-centre)

Data

Triage (Filter team)

Policy & Guidance

Specialist Team

Specialist Team

Specialist Team

Enhanced Communications

7. The sponsor credit risk team was the first team formed and piloted the approach, learning as it went along. It was drawn with 'early adaptors' within the previous supervisor's staff and specialists such as financial analysts and investment bankers engaged for the purpose. Members of this team in due course played an important role in establishing the other specialist teams, spreading the risk-based culture. The approach to funding adequacy was notable for a hearts and minds campaign which involved consultation on the criteria the supervisor would use to decide on inspecting pension funds and a code of practice and guidance on good practice that was reinforced by workshops with the industry. The emphasis in supervision has been to question and challenge pension fund fiduciaries so that they take action to reduce risk voluntarily rather than applying sanctions which are reserved for the willfully non-compliant.

Appendix 3

Assessment of PREVIC against the IOPS Principles

THE INTERNATIONAL ORGANISATION OF PENSION SUPERVISORS (IOPS)

METHODOLOGY FOR REVIEW OF SUPERVISORY SYSTEMS USING IOPS PRINCIPLES

The assessment of each Principle can conclude that compliance is achieved to varying degrees, following the OECD methodology used in relation to occupational pension regulation, namely:

- *Fully implemented* – the IOPS Principle is implemented in all material respects;
- *Broadly implemented* – where one or more of the questions cannot be answered in the affirmative in all material respects, but, as a minimum, all the questions are answered in the affirmative to some extent although specific details may be missing;
- *Partly implemented* – one or more of a minority of the questions are answered in the negative, but the other questions are consistent with being fully or broadly implemented;
- *Not implemented* **-** where there major shortcomings against the Principle;
- *Not applicable* – where the Principle does not apply due to structural, legal or institutional features.

Principle 1: Objectives - ***National laws should assign clear and explicit objectives to pension supervisory authorities.*** The principal strategic objectives of the pension supervisory authority should be clearly and publicly specified. They should include a focus on the protection of pension members and beneficiaries' interests. Objectives can also be directed towards the stability and security of pension funds and plans, the sustainability of the pension sector as a whole, the promotion of good governance and the encouragement of pension provision. The responsibilities of the pension supervisor should be clearly and objectively stated, giving a clear mandate and assigning specific duties.
Key considerations for the review: The review needs to determine whether the objectives to which the Supervisor is subject and working are clear to the supervisor and other stakeholders, and are appropriate for an effective supervisor of private pensions.

Assessment Questions:				
	Fully	**Broadly**	**Partly**	**Not**
1.1. Is there governing legislation providing for a pension supervisor?				
1.2. Does the legislation provide objectives?				
1.3. If not, have objectives been specified by the Executive or Legislature in a way that is public, binding and can only be changed through transparent due process?				
1.4. Are these objectives high level, related to desired outcomes and covering some (at least) of the subjects referred to in the text of the Principle?				
1.5. Does legislation, or other public documents, explicitly and clearly set out responsibilities and duties for the Supervisor?				
1.6. Has the Supervisor explicitly stated the objectives, responsibilities and duties it believes to be working to, including in its strategy documents, and are these statements consistent with the answers to the above questions?				
1.7. What impact would any planned changes to the objectives have on the answers to the above questions?				

Overall assessment (with reasons):

Brazilian legislation meet the principle in all aspects, it specifies the requirements set out in the context of the principle.

Suggested recommendations:

Principle 2: Independence - Pension supervisory authorities should have operational independence

The pension supervisory authority should have operational independence from both political authorities and commercial interference in the exercise of its functions and powers.

To ensure independence, stability and autonomy are particularly required at the senior director level of the pension supervisory authority. The nomination, appointment and removal of the head of the pension supervisory authority should be done via explicit procedures and transparent mechanisms. The head of the authority may be appointed for a fixed term.

The pension supervisory authority should also be funded in such a way as to ensure independence and there should be a transparent budgetary process.

Supervisory acts should be overruled only by judicial decision, including tribunals with relevant powers, or by parliamentary process.

Key considerations for the review:

Operational independence is taken to mean that the supervisor has autonomous management of its activities at the day to day operational and decision making level. At a higher, more policy-oriented level, supervisors, who are after all unelected, need to act consistently with broad government objectives, may properly be subject to national governmental and political influences, and should take account of the views of other stakeholders. There may be an intermediate stage where Ministerial approval is required for enforcement actions that involve removal or deregistration of an industry participant.

The review needs to determine whether the Supervisor is sufficiently isolated from improper influence from government, politicians and supervised entities. In doing so, it should look for any significant ways in which such parties can influence day to day decisions, for instance through meaningful threats of negative consequences for the supervisor were a decision to go a particular way, or through the abuse of accountability mechanisms.

Assessment Questions:

	Fully	Broadly	Partly	Not	N/A
2.1 Is the Supervisor legislatively (or by some other robust means) established as a body with operational independence from the Executive?					
2.2 Are there sufficient and effective restrictions on the ability of the government and other parties to make directions to the Authority, especially if they conflict with its mandate?					
2.3 Do the procedures for nominating, appointing the head and other senior members of the Authority provide for transparency and independence, for instance, through specified fit and proper' tests or minimum qualifications or experience requirements?					
2.4 Are the procedures for terminating such appointments such that threat of removal cannot be used to influence decisions, for instance through fixed terms and removal only by an impartial body on specific serious grounds?					
2.5 In particular, are the directors/senior management responsible for running the Authority safe from being required to resign, or be replaced, when there is a change of government?					
2.6 Have the procedures in 2.3-2.5 been applied, and seen to be applied, in practice?					
2.7 Is there sufficient transparency in the process for setting the Authority's budget to enable it to challenge any settlement aimed at compromising its operational independence?					
2.8 Where the Authority is funded by a levy on supervised entities, is this free from any interference by the entities?					
2.9 Can supervisory acts be overruled only through due judicial, quasi-judicial or legislative process, and have there been any exceptions?					
2.10 Are there indemnities from the prosecution of the Authority's directors or staff or to cover any costs or penalties so incurred, and are these effective in preventing or mitigating the impact of civil actions against the Authority?					
2.11 Are the circumstances, if any, in which supervisory decisions on licensing or registration can be influenced by government clearly specified and transparent?					
2.12 Can the Supervisor withhold from all external parties details relating to day to day decisions that are pending, so as to reduce the possibility of external influence?					

2.13 Has the Supervisor been free in practice from undue external influence in relation to operational matters?					
2.14 What impact would any planned changes affecting the Supervisor have on the independence of the supervisor?					

Overall assessment (with reasons):

This principle is partially implemented. The law creating PREVIC, the new supervisory body, was published on 23 December, 2009. The full implementation will depend on the structuring of the new body.

Suggested recommendations:

Principle 3: Adequate Resources - ***Pension supervisory authorities require adequate financial, human and other resources***

The Pension supervisory authority should be granted adequate staff and access to resources.

The Authority should have its own budget sufficient to enable it to conduct proportionate, effective and independent supervision. Funding, in part or in full, of the Authority by supervised pension funds and plans could be considered, provided independence is maintained.

The Authority should hire, train and maintain sufficient staff with high professional standards, including appropriate standards of confidentiality and disclosure (e.g. of interests in regulated entities).

The directors and head of the Authority should be suitably qualified, with sufficient education, experience, capacity and reputation.

If its own capacities are insufficient, or for other reasons deemed necessary, the Authority should be able to outsource to third parties (e.g. auditors, actuaries) supervisory tasks – though it remains responsible for the supervisory process and decisions. Where pension supervisory functions are outsourced to third parties, the Authority should be able to assess their competence, monitor their performance and ensure their independence from the pension fund or any other related parties. If required, the Authority must have the ability to take actions against these third parties, directly or through the appropriate professional body. The Authority's decision making and application of sanctions should not be outsourced.

Key considerations for the review:

The review needs to determine whether there are transparent and effective processes aimed at ensuring that the Supervisor is sufficiently resourced to discharge its mandate effectively. The allocated resources may be less than the level desired by the Authority, but if this is so the Authority should still be satisfied, and satisfy the reviewer, that it can discharge its mandate effectively. Implicit in this is some process for determining what resources (number and skills) are needed. A particular issue to watch is whether the Authority is able to engage (in-house or through contract) experts of sufficient caliber to make properly informed decisions and sustain its credibility.

Assessment Questions:

	Fully	Broadly	Partly	Not
3.1 Do the (budgetary) arrangements for funding the Supervisor reflect in a transparent manner how it needs to discharge its responsibilities?				
3.2 Is the budgetary timeframe sufficiently long (e.g 3 years or longer) to provide some stability for planning and recruitment?				
3.3 Has the Supervisor had sufficient funding to discharge its responsibilities in practice, for instance have its budget proposals been accepted without material alteration, or is the extent of coverage of supervised entities at or above what the supervisor considers to be the defensible minimum?				

3.4 Is the Supervisor free from constraints on the number (or identity) of staff it can hire, and the amount it can pay, which prevent it from achieving its plans?				
3.5 Is the Supervisor able to obtain sufficient resources in expert disciplines?				
3.6 Does the Supervisor have processes intended to ensure that staff have necessary skills, competencies and independence?				
3.7 In particular, are senior staff appropriately qualified and of sufficient stature?				
3.8 Can the Supervisor outsource supervisory functions where it deems it to be necessary or appropriate?				
3.9 If so, does it have appropriate processes to oversee these functions?				
3.10 What impact would any planned changes to the way the supervisor is resourced have on the answers to the above questions?				

Overall assessment (with reasons):

This principle is partially implemented. The law creating PREVIC, the new supervisory body, was published on 23 December, 2009. The full implementation will depend on the structuring of the new body.

Suggested recommendations:

Principle 4: Adequate Powers – *Pension supervisory authorities should be endowed with the necessary investigatory and enforcement powers to fulfil their functions and achieve their objectives*

Pension supervisory authorities should be legally charged to undertake supervision and should be granted adequate powers and the capacity to exercise these powers.

The pension supervisory authority should have the power to conduct necessary supervisory functions, according to the nature of the pension system being supervised. Effective supervision of pension funds or plans should focus on legal compliance, financial control, minimum capital requirements, investment activity, good governance and integrity, actuarial examination, the supervision of pension plan or fund managers, and the provision of adequate disclosure and information to members. Powers should allow for relevant off-site and on-site inspection.

Pension supervisory authorities should have comprehensive investigatory and enforcement powers. On the suspicion of problems, they should have the power to conduct a full investigation, to oblige funds to submit documents and information, and to impose corrective measures and remedial actions if their orders are not obeyed –up to and including the power to impose administrative sanctions such as fines, the power to direct management, the power to revoke licences and the power to refer matters for criminal prosecution. In some cases, powers may include the ability to issue binding regulation.

Key considerations for the review:

The review needs to determine whether the Supervisor has sufficient powers to discharge its mandate effectively. In doing so, it should consider whether the powers cover all elements of the Supervisor's mandate include a sufficient range to enable responses to be targeted to the seriousness of the problem and can be used effectively in practice. Where the supervisor licences pension entities this can potentially provide strong powers to promote the good running of pension plans, and the review should look for substantive compliance with the OECD/IOPS Licensing Guidelines as they relate to supervision.

Assessment Questions:

	Fully	Broadly	Partly	Not
4.1 Are the Supervisor's powers clearly established by its governing legislation?				
4.2 Is the Supervisor empowered to obtain the information it needs?				
4.3 Does the Supervisor have sufficient powers to investigate potential problems and conduct supervision on and off site, without being constrained by reliance on others?				
4.4 Are the responsibilities of supervised entities sufficiently defined in legislation and can the Supervisor act to resolve breaches of these responsibilities?				
4.5 Is there a clear licensing or registration process that enables the supervisor (if the licensing authority) to obtain sufficient information and to reject/revoke/amend the licence/registration of a seriously non-compliant entity (or sufficiently involves the supervisor where it is not the licensing authority)?				
4.6 Can the Supervisor enforce legislation relating to funding and capital adequacy, so far as appropriate(including any reserves that need to be held by DC funds)?				
4.7 Can the Supervisor enforce legislation relating to the governance of supervised entities, including fitness and propriety?				
4.8 Do the Supervisor's powers include measures to correct and remedy problems as well as an appropriate range of sanctions (e.g fines)?				
4.9 Is the Supervisor empowered to take control of or appoint new management to a supervised entity in serious difficulties?				
4.10 Has the Supervisor successfully used a range of its powers?				
4.11 Where the Supervisor has not used significant powers is this because the necessity has not yet arisen and does it have the capacity to use them where necessary?				
4.12 Where powers have proved to be too unwieldy or costly to use in most cases, has the Supervisor successfully implemented alternative approaches?				
4.13 Have the powers that the Supervisor has sought to use worked in practice?				
4.14 What impact would any planned changes to the Supervisor"s powers have on the answers to the above questions?				

Overall assessment (with reasons):

This principle is broadly, i.e., almost entirely implemented. The law creating PREVIC, the new supervisory body, was published on 23 December, 2009. The full implementation will depend on the structuring of the new authority.

Suggested recommendations:

Principle 5: Risk Orientation -*Pension supervision should seek to mitigate the greatest potential risks to the pension system*

The objectives of private pension supervision should be risk-based. Pension supervisory authorities should have a strategy for allocating their finite resources which targets mitigating actions on pension funds or plans which represent the highest risks to achieving the supervisor's objectives. This assumes that they understand the probability and impact of potential risks.

Pension supervisory authorities should be pro-active, seeking to avoid significant problems before they occur and intervening, in a proportionate way, at as early a stage as possible and searching for those supervisory instruments which add most value to the desired supervisory result.

Key considerations for the review:

As the relevant IOPS working paper states: "Risk-based supervision specifically attempts to vary the scope and intensity of supervision according to the level of risk to which individual pension funds are estimated to pose (in regard to the individual members and beneficiaries of the pension fund and also to the pension fund itself). This is seen as a more 'sophisticated' approach than the former 'compliance' based attitude to supervision, where all pension funds are treated the same. A risk based approach allows scarce supervisory resources to be targeted at the pension funds which are seen to be at most risk and allows supervisors to take a more proactive approach, attempting to avoid potential problems before they occur. A broad definition of risk-based supervision would include the whole risk management architecture, including risk-based regulations and risk-based supervisory procedures. A narrower definition would consider only the supervisory part of the overall risk management architecture."

The review needs to determine whether the supervisor has moved towards some form of risk orientation appropriate to its circumstances and objectives. In doing so, it is important to recognise that the way risk orientation is implemented can vary substantially, as indicated above, reflecting local circumstances. Risk orientation can potentially encompass supervisory objectives, its strategic resource allocation, the way it seeks to focus on the identified risks, reliance on entity risk management, the use of risk assessment or scoring models or applying quantitative risk-based models to assess compliance. It would be unusual, however, to find all these approaches in any one supervisor.

Assessment Questions:

	Fully	Broadly	Partly	Not
5.1 Are the Supervisor's objectives (mandated and operational) risk-based, for instance being focused on risk mitigation or outcomes, rather than, or as well as, compliance?				
5.2 Does the Supervisor have a robustly based strategy for allocating resources to the highest risks so as to achieve its objectives?				
5.3 In devising such a strategy does the Supervisor in particular consider macro-economic issues and impacts where appropriate?				
5.4 Does the Supervisor, on the basis of evidence understand the probability and impact of potential risks?				
5.5 Is the Supervisor proactive, identifying and acting upon risks before problems occur?				
5.6 Does the Supervisor risk assess (all or the most significant) individual supervised entities, for instance through a risk scoring model or measures of exposure to risk?				
5.7 Does the Supervisor, decide on interventions (including guidance) on the basis of assessed risk?				
5.8 Does the Supervisor seek to encourage risk management practice by supervised entities, and where appropriate place some reliance on it?				
5.9 What impact would any planned changes to the Supervisory mandate or approach have on the answers to the above questions?				

Overall assessment (with reasons):

This principle is in the initial stage of implementation. An important step was the publication of Recommendation No. 02 of 27 April 2009, which provides the adoption of Risk Based Supervision (RBS) within the framework of the National Superintendence for Pension in relation to the supervision of the closed private pension entities and its benefit plans.

It is been implemented in partnership with the World Bank a project on this subject. This project aims that this implementation occurs in line with international and national best practices, considering the adjustments and innovations needed for the particularities of the private pension system in Brazil.

Suggested recommendations:

Principle 6: Proportionality and Consistency - *Pension supervisory authorities should ensure that investigatory and enforcement requirements are proportional to the risks being mitigated and that their actions are consistent*

The remedial actions and if necessary sanctions imposed by the pension supervisory authority should be proportional to the problem which is being addressed. In taking or promoting mitigating actions, pension supervisory authorities should choose between the powers available to them according to the assessed seriousness of the risk or compliance failure being addressed.

The extent of supervisory demands placed on pension funds or plans and associated parties being supervised should be in accordance with the value expected to be derived.

In fulfilling its supervisory powers, the pension supervisory authority should give pension funds and plans flexibility, where appropriate, in the way they achieve compliance with regulatory requirements.

Supervisory decisions and intervention should be consistent, taking appropriately into account circumstances of each individual case. Supervisors should have procedures (for example, documentation, training and review) for ensuring that similar decisions are taken in similar circumstances and that these decisions are taken on objective and unbiased grounds.

Key considerations for the review:

The review needs to determine whether the Supervisor discharges its mandate with appropriate proportionality and has effective processes to secure consistency.

Assessment Questions:

	Fully	Broadly	Partly	Not	N/A
6.1 Do the Supervisor's powers enable it to vary its supervisory actions according to the magnitude of risks being addressed?					
6.2 Does the Supervisor have procedures for helping the choice of a proportionate response, such as an enforcement pyramid or intervention ladder?					
6.3 Has the Supervisor chosen interventions that, on the basis of available evidence, are proportionate to the problems and risks it has encountered?					
6.4 Does the Supervisor check that demands (e.g for information) placed on supervised entities are proportionate?					
6.5 Does the Supervisor allow supervised entities appropriate flexibility in deciding how to comply with legislation?					
6.6 Does the Supervisor from time to time review whether its interventions are achieving the desired effect in a proportionate manner?					
6.7 Does the Supervisor have processes designed to ensure consistency between interventions in similar circumstances?					

6.8 Does the Supervisor have processes to ensure that actions against supervised entities are taken on the basis of unbiased evidence?					
6.9 What impact would any planned changes to the Supervisory approach or procedures have on the answers to the above questions?					

Overall assessment (with reasons):

This principle is in the initial stage of implementation. Its full implementation depends on the implementation of the principle No. 5 (Guidance on risk), improving the design and implementation of PREVIC processes, the maturity of implementation and evaluation of RBS by the PREVIC and an evaluation of Risk Management carried out by the entities.

Suggested recommendations:

Principle 7: Consultation and Cooperation - *Pension supervisory authorities should consult with the bodies they are overseeing and cooperate with other supervisory authorities*

The pension supervisory authority should consult, as appropriate, with the pensions sector when determining its approach to supervision.

The pension supervisory authority is empowered to exchange information with other relevant supervisory authorities, subject to legal and confidentiality requirements. This includes cooperation with other authorities or departments involved in pension supervision both nationally and internationally (particularly where cross-border pensions are involved), as well as with authorities supervising other relevant financial institutions or markets and law enforcement agencies. Cooperation should be for both efficiency purposes (avoiding overlaps and promoting economies of scale and scope) as well as promoting pro-active preventative measures (e.g. tackling financial crime).

Key considerations for the review:

Exposing supervisory policy decisions to public scrutiny, through consultation before they are taken, should result in better decision making and buy-in by supervised entities, while co-operation with other agencies is important where responsibilities for supervised entities are shared. The review needs to determine whether the Supervisor therefore discharges its mandate in an appropriately consultative and co-operative manner

Assessment Questions:

	Fully	Broadly	Partly	Not	N/A
7.1 Does the Supervisor consult with the pensions sector when determining strategic supervisory approaches?					
7.2 Are these consultation processes designed so as to facilitate considered responses that can influence its approaches, for example allowing sufficient time for responses?					
7.3 Does the Supervisor have other processes or forums to facilitate 2-way communication with supervised entities and other interested parties?					
7.4 Is the Supervisor empowered to exchange information with other relevant national authorities, subject to appropriate requirements?					
7.5 Is the Supervisor empowered to exchange information with pension supervisors in other countries as appropriate?					
7.6 Does the Supervisor have effective processes for information sharing and conflict resolution with relevant authorities, subject to confidentiality constraints, for example through memorandums of understanding?					
7.7 What impact would any planned changes to the Supervisor's procedures have on the answers to the above questions?					

Overall assessment (with reasons):

This principle is implemented in terms of consultation and cooperation between the supervisory authorities in Brazil as legal provisions. In relation to consultation and cooperation between the PREVIC and some supervisory authorities of other countries, the principle is not implemented. Thus, it appears that the principle as a whole is broadly implemented, but it is missing a memorandum of understanding with international supervisors for the full implementation.

Suggested recommendations:

Principle 8: Confidentiality - *Pension supervisory authorities should treat confidential information appropriately*

The pension supervisor should only release confidential information if permitted by law.

The pension supervisor in regard to non-public information should when requested by the providing authority keep information confidential and maintain appropriate safeguards for the protection of confidential information within its possession.

Where unsure of the status of the information, the supervisory authority should treat it as confidential if not publicly available or should check the status with the provider.

If agreed by the providing authority, the receiving supervisory authority may pass on information to other supervisory bodies or law enforcement agencies with legitimate supervisory interests and equivalent confidentiality standards.

Where staff transfer between the supervisory authority and the private sector, mechanisms should exist to ensure against the disclosure of confidential information.

Third parties to whom the pension supervisory authority has outsourced supervisory tasks should be subject to the same confidentiality requirements as the staff of the pension supervisory authority itself.

Key considerations for the review:

The review needs to determine whether the Supervisor can maintain the confidences with which it is entrusted

Assessment Questions:

	Fully	Broadly	Partly	Not	N/A
8.1 Does the Supervisor have a confidentiality policy which sets out the Authority's procedures to prevent inappropriate disclosure of non-public information (as defined by law)?					
8.2 Do these procedures appropriately cover disclosure to other government agencies or supervisory bodies?					
8.3 Are there mechanisms to prevent disclosure of confidential information by staff, including after they have left the Supervisor?					
8.4 Are confidentiality requirements applied similarly to third parties to which supervisory functions are outsourced?					
8.5 What impact would any planned changes to the Supervisor's mandate or procedures have on the answers to the above questions?					

Overall assessment (with reasons):

This principle is broadly implemented. Currently there is an obligation of confidentiality that the civil servants are subject with fulcrum in Law No. 8112 of 11 December 1990. There is also a Decree No. 4553 of 27 December 2002, which provides for the protection of data, information, documents and secrecy material that are interest to the security of the society and state, under the Public Administration, among other actions.

Suggested recommendations:

Principle 9: Transparency – ***Pension supervisory authorities should conduct their operations in a transparent manner***

Pension supervisory authorities should adopt clear, transparent and consistent supervisory processes. The rules and procedures of the pension supervisory authority, and updates thereof, should be published. The pensions supervisory authority should generally operate in a transparent environment and should provide and publish a regular report – at least annually and in a timely manner – on the conduct of its policy, explaining its objectives and describing its performance in pursuing those objectives. The pension supervisory authority should be subject to regular audit and reporting requirements which allow for the assessment of how well the authority is fulfilling its responsibilities and ensuring the mandate and functions of the pension supervisory authority cannot be changed on an ad hoc basis.

When directing the management of pension funds or plans pension supervisory authorities should explain to those affected why they are acting.

Pension supervisory authorities should provide and publish clear and accurate information for the pension industry and the general public on a regular basis – such as the financial situation of the pension fund industry and observations on major developments in the pension sector. Disclosure will generally be on an aggregate basis, but could also be on individual pension funds, in which case the rules of confidentiality may be particularly relevant.

Key considerations for the review:

The review needs to determine whether the Supervisor's objectives, frameworks, decisions and their rationale, data and other information are provided to stakeholders in a comprehensive, assessable manner. Such transparency helps to enable accountability to key stakeholders and to command the understanding and respect of the supervised community. It should also help to reduce market uncertainty and counter poor operating practices and policies. Reporting on supervisory interventions after they have been made, with reasons, should help supervised entities understand better what is expected of them.

Assessment Questions:

	Fully	Broadly	Partly	Not
9.1 Does the Supervisor publish its rules and procedures?				
9.2 Is the Supervisor subject to appropriate audit and reporting requirements that do not compromise the independence of its mandate?				
9.3 Does the Supervisor publish an annual report explaining how it meets its objectives?				
9.4 Does the Supervisor publish information supporting its proposed strategic decisions and plans, including any assessment of cost/benefit?				
9.5 Does the Supervisor's website provide information to help supervised entities understand what is expected of them?				
9.6 Has the Supervisor explained to individual supervised entities subject to its actions why it has taken the action?				
9.7 Has the Supervisor published its supervisory decisions, with appropriate explanations (subject to confidentiality constraints) in a way that should help supervised entities understand better what is expected of them?				
9.8 Is there evidence of the Supervisor regularly publishing clear and accurate aggregate information on the pension sector, including its assessment of risks in the sector?				
9.9 What impact would any planned changes to the Supervisor's communications approach or media have on the answers to the above questions?				

Overall assessment (with reasons):
This principle is broadly implemented. PREVIC is working to improve its culture and its procedings in order to achieve appropriate level of transparency among the supervised system as a whole and with each closed entities. Thus, the new Superintendence has an ombudsman office. Example of PREVIC's actions in line with this principle was the wide dissemination of the objectives of the Annual Supervisory Program (PAF), for the supervised system.
Suggested recommendations:

Principle 10: Governance - *The supervisory authority should adhere to its own governance code and should be accountable*

The pension supervisory authority should establish and adhere to a governance code, outlining suitable internal controls, checks and balances, and effective processes for risk and performance management. A code of conduct should be established and enforced in relation to all staff members.

There should be clearly documented procedures for decision-making, with processes for referring decisions up to the appropriate level of seniority, reviewing and documenting decisions.

For interventions with serious impact there should be some separation between those within the authority proposing interventions and those taking the final decision, so the scope for emergency action is balanced by a review process.

Pension supervisory authorities should be clearly accountable for their general conduct and activity. Pension supervisory authorities should have accountability arrangements, which may vary according to specific country circumstances and which may include accountability to a range of bodies, from parliament to the members and beneficiaries of pension funds or plans.

Procedures should be in place for the governing body of a pension plan or fund to appeal to the pension supervisory authority or relevant tribunal for decisions taken by the pension supervisory authority that affect them and which they consider inconsistent with legal provisions.

Key considerations for the review:

The review needs to determine whether the Supervisor's governance arrangements set a good example to the supervised community and ensure that supervisory processes are fair, subject to due process and do not involve conflicts of interest. In particular, the governance arrangements (taken with arrangements for transparency) should secure accountability of staff to the board/senior management, and hence to government and the legislature. This necessitates effective processes for internal scrutiny and review including appropriate performance measurement.

Assessment Questions:

	Fully	Broadly	Partly	Not	N/A
10.1 Does the Supervisor have appropriate codified procedures for internal governance, and is compliance with these monitored and enforced?					
10.2 Is there a code of conduct for all staff members, applying to all staff that includes rules on receipt of gifts, hospitality etc and declaring conflicts of interest?					
10.3 Are there clearly documented procedures and business rules for taking, reviewing decisions and recording and disseminating decisions and precedents?					
10.4 Is there independent review, within the Supervisor (for example at board level), of decisions with serious implications for supervised entities?					

10.5 Is responsibility for authorizing the use of sanctions against supervised entities separated from executive functions and subject to due process?					
10.6 Is there an appeals process against such decisions where they apply to individual supervised entities?					
10.7 Are there appropriate arrangements for holding the Supervisor to account to the legislature or other stakeholders, such as reporting to parliamentary or stakeholder committees, annual meetings or independent reviews?					
10.8 Does the Supervisor regularly measure its performance against objectives, and provide the board/senior management and external stakeholders with the results?					
10.9 Does the Supervisor have documented internal controls and risk management processes (appropriate to its size)?					
10.10 What impact would any planned changes to the Supervisor's procedures have on the answers to the above questions?					

Overall assessment (with reasons):

This principle is broadly implemented. Although there isn't a internal code of best corporate governance practices defined in the PREVIC, there is the Code of Professional Ethics of Civil Servants of the Federal Executive Branch approved by Decree No. 1171, June 22, 1994, that, among others, disciplines the fundamental duties of civil servants, there is still, a number of specific provisions of the private pension system that also deal in aspects of governance relating to regulatory and supervisory bodies. The law that created Previc provides in the framework of the Superintendence, the implementation of comptroller office and the attendance to this principle tends to become more consistent.

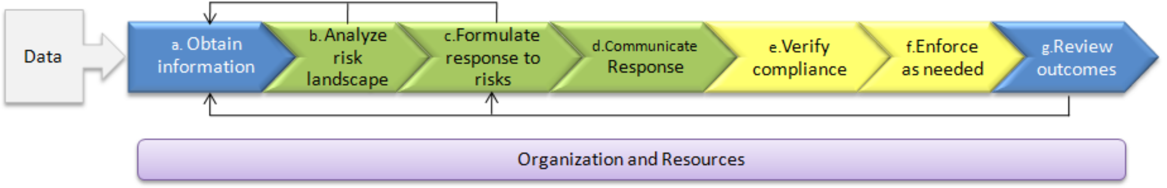
Suggested recommendations:

Appendix 4

The role of the central analysis function and Risk Committee

1. A good starting place for considering risk assessment and the roles of the central analysis function and Risk Committee is provided by the value chain for RBS, Figure A4.1 below, where stages b., c., and d. cover much of the function. The function is responsible for an overview of risk across the pension system, working closely with the off-site teams, along with the development and ownership of the risk assessment model applied throughout PREVIC, and the development and monitoring of supervisory strategies.

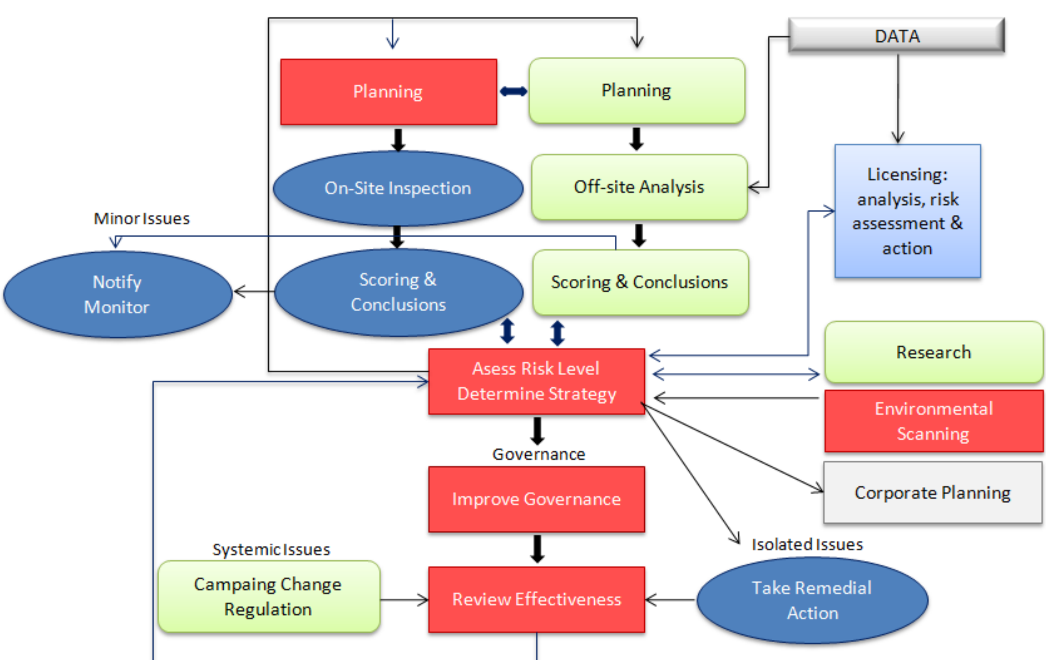
Figure A4. 1: The Value-Chain for Risk-Based Supervision



The risk assessment structure

2. Risk assessment is an important function for a risk-based supervisor and can happen at various stages in the process and in various teams. In particular, risk can be assessed at the level of the system, relevant groupings of pension funds/plans within the system, or at the entity level. Figure A4.2 below illustrates how the central analysis function fits between the other functions in PREVIC involved with risk assessment. For simplicity licensing is shown as a single box. The central analysis functions are involved in the rectangles with white words. Ovals relate to other actions within DIFIS, and the rounded rectangles to DIACE. (It should be noted that the split between on-site and off-site supervision introduces complexity to this diagram not all of which is illustrated).

Figure A4. 2: Risk Assessment and Supervisory Strategies within PREVIC



3. In summary, taking the diagram from top to bottom:

- The central analysis function plans the work of on-site supervisors, or at least provides input to their planning process, and should also provide input to planning within DIACE.
- Information is gathered through onsite inspection, along with the data analysis undertaken within DIACE and analyzes of DITEC (licensing). This information is used to score risk at entity level within these teams and informs the drawing of conclusions, which the central analysis function can also influence through its advisory role, and in the case of on-site inspection reports, its consistency checking.
- The scoring process also informs the seriousness of the action taken against pension funds where problems are found. The teams take action on more minor issues themselves and refer more serious issues, or issues that may indicate a wider issue or trend of possible systemic importance, to the central analysis function, and if appropriate the Risk Committee.
- The central analysis function (and often the Risk Committee) also receives inputs from research undertaken in DIACE and environmental scanning. This latter function relates to the extraction of valuable information on trends and developments from published sources, formal and informal contacts within the pensions industry and information supplied by other supervisors. While the central analysis function is best placed to coordinate the gathering and use of this information, many of the relevant contacts supplying the information will be made by members of other teams, who should seek to share it at the Risk Committee or directly with the central analysis function.
- The central analysis function, with the Risk Committee, analyzes the risks across the system, following the risk assessment process outlined below, and the Committee

develops strategies for responding to serious risks in the system. These strategies should be input to PREVIC's corporate strategy process.

- The type of strategy adopted to mitigate identified risk depends on the types of risk involved. One or more related risks occurring frequently at many entities necessitate a systemic strategy which could involve every part of PREVIC. Where there are many significant unmitigated risks at one entity (or a few similar entities) a strategy for improving governance is needed on which DIFIS leads. A serious risk at a single entity requires more targeted action, but if the potential impact of the risk is sufficiently high, the central analysis function and Risk Committee should monitor progress in reducing the risk.
- Finally, the central analysis function periodically reviews the effectiveness of these strategies with the assistance of the teams concerned and reports accordingly to the Risk Committee.

The risk assessment process

4. Having clarified roles, the steps involved in undertaking risk assessment at system level need to be considered, drawing on models applied in other pension supervisors. Many of these steps apply also at individual entity level. The model is based on the following concepts which can be applied to each identified risk:

- *Risk definition*: Each risk should be formulated in terms of an event with an estimated probability of causing a specified impact. If assessment of risk across the system indicates that there are multiple impacts of differing seriousness, it is likely that the risk has not been specified with sufficient precision and may need to be split into two discrete risks, or separately assessed for different groupings of entities.
- *Inherent risk* is the probability and impact of a specific risk without taking account of any future supervisory action by PREVIC. There is inevitably some degree of subjectivity in the assessment of probability because it is based on the counter-factual of what would happen without PREVIC. It might be assumed that pension funds would maintain some controls over the risks that most concerned them and would obey some regulation, and that disciplines applied by participants and their representatives would continue. Some evidence can be taken from the level of risk in badly run pension funds. Inherent risk is also referred to as the default level or value of a risk.
- *Entity groupings* are sub-sets of the whole population of pension funds and plans that have inherently similar characteristics that set them significantly apart from other groupings. For instance, DC plans are in a different grouping from DB; multi-sponsor funds are a different grouping from pension funds with a single (or closely related) employer sponsor. Article 108 funds may be different from Article 109 for some types of plan.
- *Risk mitigants* are controls and other processes at the pension funds that reduce the probability of risk, including the overall quality of governance. Once these can be relied upon there should be a reduction in the probability (and sometimes impact) of risk at the pension fund.
- *The residual risk* is the probability of a specific risk materialising taking account of PREVIC action and including reliance on risk mitigants and should usually be no

higher than inherent risk. However, because some assumptions are made about basic levels of control in the assessment of inherent risk, it is possible that in an individual entity (but not at system level) the residual risk will occasionally be worse than the inherent. For a few risks, mitigation may also reduce impact, for instance if a pension fund is persuaded to move to an inherently less risk investment portfolio.

- *Risk assessment criteria* are the measures used to assess probability and impact. For impact, the most common criterion is the size of the fund/plan, but other criteria such as size of deficit can be used. For probability, criteria relate to process, controls or governance more generally and there may be multiple criteria. These are in most but not all cases assessed on-site.

5. The steps in assessment are:

- *Check the description of the risk.* Changing circumstances or an improved understanding of those circumstances may require the risk to be re-defined or defined more precisely.
- *Check the assessment of the level of impact*. At the system level this is unlikely to change often but PREVIC's understanding of potential impacts may become more refined. This need only be reviewed at entity level for risks where the size of fund/plan is not the assessment criterion.
- *Check the assessment of the inherent probability level (default value)***.** This too is unlikely to change that often, except with changing circumstances in the system as a whole. The central analysis function is responsible for the default values for each risk (where relevant for each entity grouping).
- *Consider the evidence that risk assessment criteria give about the residual probability level* (or where relevant the impact level).
- *Review the risk assessment criteria being used* (from time to time) to determine whether the criteria have been correctly calibrated, are measuring the right things or whether other criteria can be used.
- *Review validity of residual risk assessment*, using the evidence from risk assessment criteria including assessment of the effectiveness of MAPAS mitigation.
- *Where the residual probability assessment is not Low, the causes of the* situation should be periodically considered or reviewed with a view to deciding whether PREVIC's strategy for addressing the risk is sufficient or developing a new strategy. Action may be particularly necessary where the assessment has worsened.

6. From experience in applying this process elsewhere the following learning may be helpful:

- Precise definition of risks is essential – they should be split where the potential impact could vary according to circumstances.
- Inherent risk assessment helps prioritize ongoing supervisory actions by identifying the risks most needing mitigation
- Residual risk shows how much left to do and hence helps prioritize new actions and drive the authority's strategic plan.

- Comparing the scale of effort that the supervisor puts into mitigating a risk, and the expected results, with the gap between inherent and residual risk can show where too much or too little effort being applied
- The process is iterative – over time, scores will change while points of view will differ. This does not matter and indeed it is a sign of a healthy organisation that there is a vigorous dialogue on risk.
- It is essential that there is a single owner for the risk assessment process

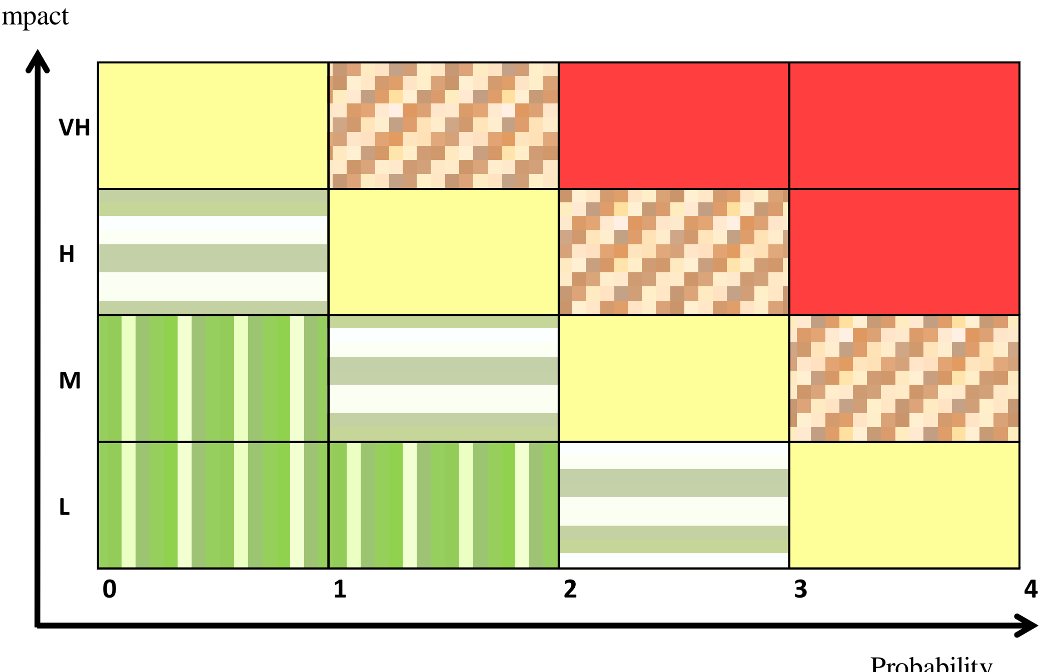
7. For each entity the assessment process, with reasoning, could be documented on a pro forma such as at Figure A4.3. The risk assessments for all funds or plans in each entity group should be recorded on a spreadsheet or database, to facilitate comparisons and the drawing of overall conclusions.

Figure A4. 3: Recording Risk Assessment of an Individual Pension Plan

Title	Of the risk		
Description	Describes the event giving rise to the risk and potential negative impact (s) should it materialise		
Impact level	VH, H, M or L	**Inherent Probability Level**	H, M/H, M/L or L
Note: The assessment may include a direction of travel; e.g Low moving to Medium			
Impact	Explains the level of the impact assessment	**Inherent Probability**	Explains the level of the inherent probability
Risk Assessment Criteria	Summarises the measures used to assess the level of probability risk (inherent and residual)		
Residual Probability	H, M/H, M/L or L where this differs significantly between supervised entities this should be indicated		
PREVIC Mitigation	Summarises the mitigating actions (if any) being taken and explains why they are considered effective		
Team Responsible	Team that owns the risk and has the largest role in mitigating it		
Gap	Explains why residual probability assessed above Low, indicating what is nedded to reduce the assessment to Low.		

8. The central analysis team or DIACE can plot the risk assessments for a specific risk across a grouping of pension funds or plans onto the standard PREVIC 4x4 matrix (Figure A4.4 below), to give a view on dispersion, outliers or trends, or to compare different groupings (or indeed regions). At the entity level, the on-site inspection team can plot the assessments for all the risks to help understand where attention should be focused on that entity.

Figure A4. 4: The Standard PREVIC Risk Assessment Matrix



VH= Very High, H= High, M= Medium, L= Low

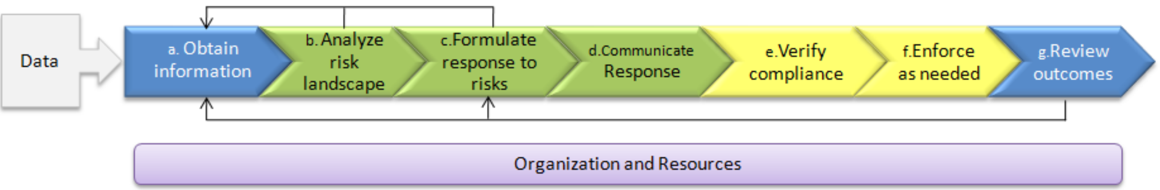
9. The central analysis team should ensure that there is consistent guidance to teams across PREVIC on the calibration of risk assessments and, with validation by the Risk Committee, the types of supervisory response to each 'shape'.

Appendix 5

Content of the Off-Site Supervision Manual

1. The design of off-site supervision is based closely on the value chain for risk-based supervision, Figure A5.1, which applies more generally to the whole process of risk-based supervision. Each section in the Manual can expand on the way in which the links in the chain apply off-site.

Figure A5. 1: The Value Chain for Risk-based Supervision



a. Obtain information

2. The purpose of this stage in the chain is to convert data received from pension funds into usable information. The starting point for the Manual will be to identify the data items for which each team is responsible. For all data items the following processes need to be specified:

- checking timeliness and completeness of data received;
- following up exception reports generated by automated IT checks of the data;
- ensuring that the data has been transferred to the relevant database (to be specified).

3. The process for following up should be specified, and so far as appropriate, taking remedial and punitive action where data is supplied late or incomplete. For data that is essential for risk analysis purposes (as defined below) a further human validation check is needed to ensure that the data is reasonable and credible, and these checks should be specified.

4. Where there are doubts about the accuracy of data, this concern should be communicated to CGFD for possible inclusion of an on-site check of data supplied to PREVIC against underlying records in forthcoming inspections. Where the accuracy of data is particularly relevant for analysis purposes, some test checking should be requested of CGFD. The team should ensure that they receive feedback on the results of these inspections to inform the conclusions being drawn from analysis.

5. Where data is not been used in a risk analysis, the team should consider whether it still needs to be obtained, or could be obtained less often, taking account of the possible benefits from having it available within PREVIC and the costs, to PREVIC and pension

funds, of providing it. Proposals for reductions in data collection should be referred to CGPA and the Risk Committee before DICOL authority is sought.

6. Where the design or execution of risk analyzes identifies new information that is needed from pension funds to strengthen or enable analyzes, the team should liaise with CGPA, to check that it cannot be obtained from other sources and IT on the practicality of its collection.

7. It should be noted that some information that should help risk analysis may come from sources other than pension funds, especially publicly available information on trends in financial markets of instruments. Further guidance on obtaining information is provided in the IOPS Working Paper (14) on this subject.

b. Analyze risks

8. This is the most important stage in off-site supervision, as the major part of PREVIC's analysis of risks should take place in DIACE. The Manual should list the analyzes to be undertaken on a regular basis by each team, and specify the process for DIACE to decide and design new analyzes, either ad hoc or regular, which will require liaison with CGPA and the Risk Committee (assuming that they have not actually requested the analysis).

9. The Manual should then specify the generic process for risk analysis, covering:

- Agreeing a precise definition of the risk with the Risk Committee, as advised by CGPA and DIACE, so as to have understand the precise meaning of impact and probability in the context of the analysis;
- Identifying the information to input to the analysis;
- Specifying how frequently and when the analysis is to be undertaken;
- Determining whether the analysis applies to pension plans (e.g for strategic investment and actuarial risks) or pension funds (e.g for risks relating to costs and investment operations).
- Deciding how the population of pension plans/ funds is to be divided into separate sub-populations for analysis purposes
- Agreeing, and where appropriate, revising the criteria to be used to place each pension plan in different impact and probability risk categories;
- Documenting how any calculations are to be undertaken;
- Ensuring that the quality of analyzes is reviewed; and
- Specifying the form of the analysis output or report.

10. This process might be included as a flow-chart.

11. The details of each regular analysis, under these headings, could be included in the Manual, by team, possibly as one or three appendices. The analyzes could include:

- the strength of actuarial assumptions against the level of funding as currently measured by the pension plan;

- the analysis of the long term risk of investment portfolios being specified by Marcello Rabat and colleague;
- If the above analysis does not cover this, using it to compare how investment risks and returns relate across the population, using a variety of durations;
- Trends in investment behaviour across pension plans;
- the extent to which the asset valuation of pension plans is at risk of distortion due to the complexity, opacity or subjectivity of the valuation methodology used;
- the amount of 'churn' in the assets of pension plans (or funds), to identify excessively short-termist investment or an attempt to inflate fees, commissions or bonuses;
- the compliance of actual plan portfolios with the requirements of or limits in the plan investment policies, to determine how serious is the risk of deviation between the two;
- the costs of pension funds relative to their size (probably using multiple size metrics);
- the charges that effectively impact on participants relative to relevant size metrics (for relevant types of pension fund); and
- Trends in the evolution of pension fund costs.

12. In any event each analysis should relate to a risk in the system as defined by CGPA. For some of these analyzes the criteria for assessing impact will be specific to the risk, for instance actuarial and strategic investment risks. Where there are no specific criteria, the size of the pension fund should be used as a proxy, using criteria specified by CGPA.

13. Other analyzes may be needed beyond those suggested above, and analysts should regularly review the available information to determine whether other analyzes might be worthwhile, at least on an ad hoc basis, but always bearing in mind that they should be associate with known or suspected risks.

14. The number and frequency of analyzes that can in practice be undertaken will depend on the availability of staff. The prioritization of analyzes should be discussed with CGPA and changes agreed by the Risk Committee and should be consistent with CGPA's analysis of the system risk landscape.

15. The output from analyzes should be kept on the system in a way that enables ready access by CGPA and other authorized users. Periodic reports (of a frequency to be specified) should be provided for DIACE and the Risk Committee. These may cover just one analysis or combine the results from several (as specified in the Manual). They should explain:

- The average level of risk and the dispersion between plans/funds;
- Trends over time in the risk metrics;
- Possible reasons for the observed level of risk and trends;
- Matters of particular concern; and
- Any recommendations for the future work of DIACE, DITEC or on-site inspections arising from these concerns.

c. Formulate responses to risks (strategies)

16. Most of the most serious risks for PREVIC are subject to off-site analysis, and hence the off-site teams, with their specialist knowledge, are well placed to formulate the strategies needed for PREVIC to respond to and mitigate the risks. The main exception, governance, is the responsibility of the on-site team, who through their focus in this area also mitigate many of the lesser risks in the system. That said, it should be noted that the material in this section of the Manual is relevant to other parts of PREVIC.

17. The focus of a strategy is to change or sustain behaviour in the supervised community. There are three types of strategic response to risk relevant to the off-site teams:

- for chronic risks (e.g actuarial valuation), which are caused by a contribution of principal/agency issues and poor transparency (inherent in many aspects of pension administration due to the long time horizon) campaigning strategies are needed which deploy a range of supervisory tools;
- for what are hopefully more transitory risks, targeted action is needed to deliver a one-off change in behaviour, usually at a sub-set of pension funds;
- for lesser risks, it may not add sufficient value to take action beyond notifying affected pension funds of the issue, notifying DIFIS, and monitoring the risk to check that it does not worsen.

18. The need for a strategy to tackle one or more related risks should be agreed by the Risk Committee which may also consider what could be in the strategy. It is part of the role of the off-site teams to make recommendation on the strategy, and if the Risk Committee allocates a team as the risk, and hence strategy, owner, to document the strategy, implement much of it, oversee any implementation by other parts of PREVIC and review success.

19. The way the strategy can be documented, below, provides some good pointers as to how strategies should be prepared. The documentation of strategies could cover:

- The **risks** the strategy is seeking to mitigate.
- The information and analysis on which the strategy is based, including information from other parts of PREVIC, and whether more information is needed (and if so where from).
- The objectives of the strategy. What would success look like? Is the focus on keeping risks at their current level or reducing them further?
- The narrative of the strategy, which sets out what PREVIC believes the causes of the risk to be and how behaviour needs to change to mitigate the risk.
- The actions to be taken, indicating the expected timescale (or that the action is ongoing).
- Who within PREVIC is leading on the implementation of the strategy
- How the strategy will be communicated within PREVIC (so far as relevant) and externally to supervised entities and other stakeholders

- Other relevant stakeholders, such as Government departments or other supervisory authorities, and how they are involved.
- Specific performance indicato**rs**, often making use of pre-existing risk measures.

20. The tools for implementing strategies can include:

- issuing guidance
- working with ABRAPP or other stakeholders to disseminate best practice
- raising awareness through the media, conferences, seminars etc
- proposing changes to legislation
- issuing a consultation paper
- Publicizing the analyzes of risk so as to raise awareness in the pension fund sector or put pressure on pension funds with the highest risk exposure
- Identifying (off-site) those pension funds that are not complying with what PREVIC expects of them.
- Communicating directly with the highest risk pension funds to encourage or exhort them to change their behaviour
- Ensuring that the risk is given serious attention during on-site inspections
- Referring pension funds or plans posing the highest risk to the on-site inspectors for action, especially if direct contacts have not been fruitful

d. Communicate response

21. Once PREVIC has agreed a strategy to respond to risk, it needs to be communicated to the market, so as to clarify PREVIC's expectations of pension funds and win hearts and minds. The tools that can be used are summarized in paragraph 20 above. The Manual could usefully indicate how the off-site team will work with other parts of PREVIC and external stakeholders to communicate. Otherwise, the actions involved are self-evident and do not need expansion. One exception might be consultation papers which can be used to raise awareness, engage the pension fund sector in dialogue and secure agreement to the changes that PREVIC seeks.

e. Verify compliance

22. This stage covers activities that PREVIC undertakes to check that pension funds are complying with its expectations regarding the management of risk and good governance, which may include compliance with legislation or the Guide on Best Practice where these refer to actions needed to minimize risk. On-site inspection is the primary tool but the off-site teams are also involved. The objective is to determine whether pension funds are taking sufficient action to mitigate identified risks, and indeed whether the categorization of risk based on data fairly reflects the underlying situation.

23. The starting point for the off-site teams will usually be the risk analyzes already undertaken, see above. These analyzes should enable the relevant off-site team to see which pension funds appear to pose the highest risk. For a few risks where compliance with legislation directly mitigates a risk or is otherwise so important as to need checking, for

instance compliance with quantitative investment limits which are designed to mitigate credit risk through preventing excessive concentration, an additional specific check of the data should be undertaken. This should be test check focusing on pension plans with the highest risk of a material breach, for instance because internal controls over investment at the plan have been judged to be weak, or the plan contains instruments that are susceptible to causing breaches.

24. For those pension funds or plans where an on-site inspection is imminent, it may suffice to draw the inspectors' attention to the risks, by way of CPFD. Otherwise, the off-site team may wish to contact the pension funds directly and ask them for explanations as to why the risk level is so high and the action being taken to reduce or manage the risk. This could be by telephone, email or letter. It is good practice for a speaker phone or conference call facility to be used for substantive telephone conversations so that at least PREVIC staff can participate, to provide witnesses and enable one person to ask questions and another to note the answers.

25. In any event, an important objective of verifying compliance is to gain a better understanding of the underlying causes, the actions that pension funds could take to mitigate the risks and why governance and control processes may have been ineffective. For instance, a breach of a quantitative limit should prompt questions as to whether the limit is included within the pension plan's internal limits, why the plan's processes to enforce limits did not work and how quickly the pension fund detected the breach as well as questioning why the custodian did not notice it.

26. The Manual should specify how this questioning process should be documented so as to provide a reliable and accessible record of the conversation or exchange of correspondence. It might also set out the steps that might be involved in seeking answers and explanations and persuading the pension fund to make changes. The Manual should also specify how the results of the direct contacts made should be summarized and communicated within PREVIC, especially to CGPA, CGFD and the Risk Committee.

f. Enforce as needed

27. Where pension fund management refuse to take remedial action in response to questioning and persuasion from the off-site team, and the seriousness of the risk justifies it, the case should referred to CGFD (or CGPA) for action by on-site inspectors through an ad hoc inspection. The Manual should set out the process for deciding that such a reference is needed, including the extent to which the issue should have been communicated by the off-site team, and the associated process of risk assessment. The more serious risk the more likely such a reference is to be made and the more quickly the off-site team should complete its processes.

28. There should be a process for the off-site team to follow up interventions requested of DIFIS.

g. Review outcomes

29. The final stage of the value chain is intimately linked to the first two stages. Risk analyzes and other data are used to determine the extent to which risk has been mitigated as intended in the relevant strategy. This process should be undertaken in liaison with CGPA with the results being communicated to the Risk Committee. It will usually suffice to review outcomes annually, but more frequent analysis may be requested by CGPA or the Risk Committee.

30. The team reviews the output from risk analyzes to consider the extent to which risks have been reduced over the past few periods and hence draw some conclusion on the effectiveness of PREVIC action. It might in particular be useful to compare changes in those pension funds or plans which PREVIC has communicated with directly and the others to see whether PREVIC communication has made a significant difference. The analysis could be segmented between various types of pension funds and plans to see where the most serious residual risks might lie.

Appendix 6

Revised traffic light model for actuarial risk

Introduction

1. The traffic light system used in Denmark for checking on and supervising the adequacy of the funding of defined benefit liabilities has some considerable attraction for Brazil and has been recommended by the World Bank. In essence, the system assumes that immediate corrective action will be taken where a pension plan has a current deficit against the funding standard. The traffic lights are used to assess the risk that a pension fund will have a deficit in future if adverse circumstances arise. A red rating means that relatively mild adverse events would cause a deficit; a yellow rating means that less likely but more serious adverse events would cause a deficit. A green rating means that even in those circumstances, no deficit would arise.

2. The supervisor in Denmark asks pension funds to make periodic assessments against the traffic light methodology, which it checks. The strength of action then required depends on the rating. A red rating necessitates corrective action to replenish the risk reserve as the fund holds fewer assets to cover its liabilities than is prudent. A yellow rating may necessitate a phased replenishment of reserves. The attraction of this model is that it places the onus on the pension funds for checking how robust the fund is against risk and enables some flexibility in calculation to reflect the differing circumstances of pension funds. This fits well with the diversity of the pension sector in Brazil and the fiduciary responsibility of conselheiros and directors. It also has the merit of being easy to understand and presentational effective.

3. While the design of the Danish traffic light system is well suited to Brazil, the detail of how it is applied is less so. Danish pension plans are not pure DB, they are in fact DC with minimum performance guarantees, and the traffic lights are applied to the reserves under-pinning the guarantees. This means that a very strong standard can be applied to the reserves without unduly constraining the pension fund investments and hence eventual return to participants. In fact Denmark is seeking to apply the Solvency II model that applies to EU insurers (and the supervisor supervises insurers as well as pension funds). This is a very complex model that requires substantial reserving. The rules for calculating performance against the traffic lights are very detailed. Indeed, the green traffic light is intended to equate approximately to 99.5% confidence that a deficit will be avoided during the next year.

4. A further difference between Brazil and Denmark is that the latter uses a funding standard based on valuing liabilities according to the market interest rate for government bonds of the equivalent duration. Brazil's funding standard is not so sophisticated and the model would need to be changed accordingly.

5. Applying the detail of the Danish model would be inappropriate and highly contentious. Instead PREVIC needs a simplified model attuned to its own circumstances, which retains

the principles of pension fund ownership, PREVIC scrutiny and simplicity of presentation. This in particular implies that PREVIC will need a stripped down model that runs on limited information, as now, while pension funds should be allowed to use a more sophisticated approach if they wish.

6. Before explaining the proposal it is worth observing that in practice to be four zones need to be defined, a current deficit, and red, yellow and green risks of a future deficit. That said, there are only three boundaries between these zones, which makes the task a bit easier.

Traffic lights for pension funds

7. The proposal therefore is that PREVIC should ask pension funds to assess whether their plans are in deficit or at risk of deficit using the categorization:

- *Current deficit* – whether the plan is in deficit could be assessed by excluding liabilities that are fully duration matched by government bonds, and then discounting the remaining liabilities at the relevant government bond yield for duration concerned[48]. The mortality assumption would be either AT00 or the plan's current estimate of mortality experience where it has sufficient data for such a calculation. Alternatively, the fund could as required by Resolution 18 be required to use reasonable assumptions, with guidance given that, so long as market interest rates are below 5.5%, the fund must have very good reasons indeed to use assumptions weaker than are being prescribed in the new Resolution 18 (5.5% and AT00).
- *Red* – the starting point should be that the fund should hold a 10% reserve (buffer) to cover potential errors in the calculation of assumptions, and that in addition a small shock should be applied to the discount rate used for unmatched liabilities. It would fit neatly with current approaches if moving to the Resolution 26 discount rate of 5% for unmatched liabilities were used as the small shock, so long as interest rates are around 5.3% as now[49]. There should also be a required adjustment for mortality improvement.
- *Yellow* – this should cover pension plans that are stronger than red and weaker than green, see below.
- *Green* **–** the starting point for this category should be that PREVIC would be comfortable with the plan distributing surplus (or running on without a sponsor), which means that the plan could withstand a large shock without going into deficit. The minimum condition therefore should be the use of the market discount rate for matched liabilities and 5% discount rate (if lower) for unmatched liabilities, plus a risk buffer of at least 25%. The risk buffer should, however, be calculated to be sufficient to withstand a 20% fall in the interest rate for unmatched liabilities and a significant amount of mortality improvement, say 2 months a year. There is a question as to

[48] PREVIC to date has been proposing using three duration rates as being easier to operate than using the whole yield-curve, in which references such as this one to bond yields for specific durations should be assumed to refer to the three durations.
[49] To enable the methodology to cope with significant changes in interest rates, the guidance might have to specify that the rate used should be no higher than 95% of the current market rate or 95% of the Resolution18 rate whichever is lower.

whether a further stress be added equating to a fall in asset prices and other possible errors in calculations. This could be achieved by saying that there should be a surplus of at least 10% plus the interest rate and mortality buffers (which in many plans will aggregate to well over 25%.

8. It should be noted that the above suggestions assumes that assets are marked to market. Where pension plans mark to curve (which is to be discouraged) they would need to make appropriate adjustments to achieve an equivalent result.

9. The question then arises as to what pension funds should do with this assessment (as well as submitting it to PREVIC). PREVIC should bear in mind the risk that contribution rates are made too volatile or that the requirements become pro-cyclical, for instance that contributions increase or asset sales are forced in an economic down-turn. The general line should be that the better funded a pension plan is, the less likely that changes in contribution rates will be required. It could be specified, for example, that:

- *Current deficit (white)* – arrangements are made to clear this deficit as now – pension funds should be so well funded that such urgent adjustments are rarely needed.
- *Red (solid dark grey & white letters)* – a recovery plan is put in place to show how funding will be improved to yellow, at least, over a finite number of years, with PREVIC asking hard questions if this period is over, say, five years, or the changes proposed are excessively loaded to the back end of the period..
- *Yellow (solid light dark grey)*– the pension fund seeks over time to improve the funding level, avoiding surplus distribution and if the position does not improve over the next year or so raising contributions in a phased manner.
- *Green (vertical stripes)* – the pension fund is free to distribute surplus, could convert the benefits from DB to DC (with the reserves as compensation for the loss of security) or a pension plan of this nature could be considered for continuation without the original sponsor.

10. Figure A6.1 shows how this could be illustrated graphically.

Figure A6. 1: Traffic Light for Pension Plans

Funding position of plan	Action PREVIC should require
Deficit Using Realistic Assumptions	**Take Immediate Corrective Action**
Surplus under 10% with mild Shock- approximately equivalent to move to Res26 & mortality improvement	**Recovery Plan**
In between red and amber	**No surplus distribution and aim to build reserves**
Surplus under 10% plus buffers to cope with a large shock - 20% fall in market interest rate for unmatched liabilities + large mortality improvement	**No Action needed and can consider surplus distribution**

11. PREVIC would need to consider how this concept should be communicated. It would be good if possible, to include it within the actuarial module of the Guide. It would be better still if in due course Resolutions 18 and 26 referred at least to the basic concepts, that is:

- The use of realistic assumptions for calculating whether there is a deficit. (As this is already in Resolution 18, it is more for the Guide to say how PREVIC interprets these).
- The concept of building risk buffers to cover potential future shocks in the system, especially to unmatched liabilities, as well as inaccuracy in calculation.
- The expectation that pension plans take action to build reserves to ensure a small surplus even if there were a mild interest rate and mortality shock
- The further expectation that pension plans should in the longer term have reserves to cover a large shock plus a 10% safety margin, and avoid distributing or migrating assets where this is not the case.

Traffic lights for PREVIC

12. When it comes to assessing which traffic light aspect applies to individual pension plans, PREVIC needs a simpler model that requires less data and analysis. A modification of the existing matrix would appear to achieve this, and is illustrated in Figure A6.2 below.

Figure A6. 2: PREVIC's Revised Actuarial Matrix

	Significantly more robust than RES 26	RES 26 or a little bit better	Weaker than RES 26	Weaker than MIR & AT00 or New RES18
Deficit		c	c	**Certain current deficit**
Surplus < 10%				
Surplus 10-25%	a		d	d
Surplus >25%		b		

13. The attraction of this matrix that all pension plans provide data on their surplus/deficit and actuarial assumptions, although some additional disclosure might be needed to identify those plans using the extra strength assumptions in the left lowest probability column[50].

[50] These would almost certainly have to use either a market interest rate plus risk buffers or a significantly lower discount rate for unmatched liabilities for unmatched liabilities.

14. While the three colour/shape traffic light system is being retained, three extra colours/shapes are include for borderline cases, where DIACE would have to look at the extent of investment risk in the plan and the degree to which liabilities are unmatched, from the investment matrices, and the maturity of the plan. To indicate the thought processes involved, explanations are given for the colour/shape coding of some of the borderline cells, as follows:

- In the case of Cell **'a'**, a surplus of 10-25% may be enough to make the cell green (horizontal stripes) so long as the risk in the plan are not so great as to need large risk buffers. Hence a mature well-matched plan may be green– all other plans would be yellow (solid light dark grey). DITEC would need to undertake a more detailed check before relying on a green aspect for this type of plan.
- In the case of cell **'b'**, the absence of a rigorous treatment of risk buffers may not matter where there is a large enough surplus, the size of which would depend on investment risk and plan maturity, as with cell 'a'. DIACE would need to take a view as to whether this is the case.
- In the case of cells **'c'**, whether there is a certain current deficit will be affected by the size of the deficit, the extent of matched liabilities and the plan maturity, and there will be cases where there is not a certain current deficit, in which case the plan can be colour coded red (solid dark grey). In other cases, there will be a real deficit to be actioned.
- In the case of cells **'d'**, the relative weakness of the assumptions used may mean that a yellow aspect is not appropriate, as plans which are not well matched or are relatively immature should really be red unless the surplus is close to 25%. DIACE will need to take a view. In the case of the left hand 'd' most plans would be expected to be yellow but a few red – for the right hand one most would be red with a few yellow.

15. It may be that one or two of the other cells should also have an intermediate colour/shape coding. Figure A6.3 shows how PREVIC would respond to the different colour/shape coding, bearing in mind that this would primarily be a prioritization tool.

Figure A6.3: Recommended Responses in PREVIC Directories

	DIACE	DIFIS	DITEC
	Check whether deficit or red and notify DIFIS and DITEC	Take action to eliminate any deficit	Prevent changes to plans or commence termination
	Action	Include in PAF if impact is high	Stop changes, so far as possible
	Check whether red or yellow		
	Refer to DIFIS	A risk factor for the PAF	Negotiate on changes to plans
	Check whether yellow or green		Re-check green categorization
	No action needed	No action needed	

16. It is recommended that the actuarial team in DIACE re-categorise the landscape of plans to see where they fall. The number of plans with a red aspect may increase because the definition of 'red' has been made broader. It may be a bit easier for a mature well matched plan to achieve a green aspect. Having done this some fine tuning of definitions or colour/shape codings may be appropriate. For PAF and other prioritization purposes the four principal aspects (deficit, red (dark grey), yellow (light grey), and green vertical stripes) could be plotted on the x axis against plan size on the y axis.

17. The question remains as to how much these categorizations are shared with pension plans. There are three options, in increasing order of pragmatism:

- Do not share at all, on the basis that plans should be undertaking a more rigorous analysis themselves and this would just confuse them or encourage management to be lazy. PREVIC would then use its matrix to apply a reality check to pension plan colour/shape codings and for prioritization. This would assume that pension funds are legally obliged to undertake their own traffic light exercise.
- Make them available but emphasise the importance of pension funds undertaking their own more rigorous analysis especially if they wish to avoid being miscategorized. In practice small plans could be allowed to use PREVIC's rating if a more thorough analysis is beyond them. This approach would still be possible in the absence of a legal obligation for pension funds to undertake a traffic light analysis.
- Use this analysis instead of the pension fund traffic light recommended in Figure A6.1, at least until the law is changed to require funds to undertake such an analysis. This would provide continuity at the expense of complexity for the pension funds and some miscategorization.

Appendix 7

Key principles for the Guide on Best Practices

Governance

Fiduciary duty/avoiding conflicts of interest

- Conselheiros should act always in the interest of the pension fund and its participants, rather than the constituencies that they represent - decisions should not be contaminated by conflicts of interest
- the conselhos should represent all the stakeholders of the pension fund, as intended by legislation
- Decision *making processes, including strength of control by the CD and the role of committees*
- the governing organs of the pension fund (conselho deliberativo, conselho fiscal and diretoria executiva) should between them be fully in control of the activities of the fund
- the agenda of the conselho deliberativo should focus on the main issues and risks relevant to the pension fund
- a pension fund should establish committees where appropriate but without detracting from the ultimate responsibility of the conselho deliberativo
- there should be a clear delineation of the scope of the responsibilities of each of the governing organs of the pension fund (including committees)
- there should be effective communication between the governing organs of the pension fund, including their committees
- Competence *and training of conselheiros and directors*
- the conselheiros and directors of a pension fund should have the capability to discharge their responsibilities proportionately to the complexity of the pension fund, and in particular conselheiros should be able to understand and challenge the reports they receive and directors should be capable to direct the executive actions of the fund.
- the governing organs of a pension fund should each take responsibility for ensuring that their members receive sufficient and appropriate training
- where a pension fund out-sourced functions it should do so through well planned and documented processes, focusing on quality and cost, and should monitor diligently the contractor's performance, controls and potential conflicts of interest
- the conselho fiscal should be able to supervise (oversee) and ensure compliance (with pension fund policies and legislation) and control
- there should be effective arrangements for risk management
- Staffing/manuals/code of ethics
- there should be a code of ethics**,** and conselheiros, directors, staff and contractors of a pension fund should adhere to the highest ethical standards
- there should be effective arrangements to ensure that the staff of the pension fund are appropriately qualified, experienced and well managed
- The internal controls and procedures of the pension fund should be properly documented (including pension fund management and governance)

- a pension fund should **communicate effectively with its participants**
- there should be internal rules and procedures that ensure that there are **effective** controls **and a compliance function** to check and report on their implementation. codes
- there should be appropriate arrangements for controlling and reconciling the **information held** by the pension fund and ensuring the reliability and security of the IT used for this purpose.
- The sponsor(s) should be supportive of the pension fund

*Risk managem*ent

- the risk management function should report directly to the president and have direct access to the conselho deliberativo
- the risk management function should make periodic reports to the conselho fiscal and conselho deliberativo
- the internal guidelines of the pension fund should cover the arrangements for and content of risk management reporting
- the risk management function should cover every area of significant risk to the pension fund and its participants
- the Conselho Fiscal's reports on internal control should encompass risk management
- the pension fund should recognise that there are risks in out-sourced functions
- the conselheiros and directors should be comfortable that risk assessment processes are robust and appropriate
- risk management should encompass the exposure of DC participants to market risk

Actuarial

- the conselho deliberativo should establish a funding policy for the pension fund that is adhered to unless formally amended
- conselheiros and directors should ensure that actuarial assumptions are appropriate to the plan
- the conselho deliberativo should be part of the process for choosing the assumptions
- the conselho fiscal should oversee that the actuarial process is properly established and implemented
- actuarial decision making should be totally transparent
- a pension fund should be vigorous in tackling funding issues, with shortfalls in funding being filled as soon as is reasonably affordable for the sponsor(s)
- in setting actuarial assumptions pension funds should take account of future trends, for instance relating to longevity or interest rates
- the conselheiros, directors and participants of a pension fund should understand the specific risks to the plan and that the stochastic process may lead to deficits
- a pension fund should establish buffers against all key risks and fund them where there is possibility that the sponsor would not meet the consequent deficit
- the pension fund should ensure that they have high quality data (relevant to the actuarial process) in reliable databases

- the conselho deliberativo and directorate should be aware of, and provide for, the potential impact of operational risks on actuarial liabilities
- the conselho deliberativo and directorate should check and understand why past actuarial projections have proved inaccurate
- the directorate should ensure that the actuary fully understands the design of the plan in theory and its interpretation in practice
- the directorate should check the reliability of reports from sponsors on staff turnover, retirements and salary increases
- the directorate should use and understand appropriate analytical tools to assess risk (e.g ALM)
- a pension fund should avoid the risk of cross-contamination from different types of entitlement in the same plan
- there should be a proper treatment of participant rights in mergers or splits of pension funds, plans or sponsors
- there should be a proper treatment of participant rights in handling VC plan surpluses (to avoid the distribution to active participants of the risk protection for retirees)
- in establishing the funding policy and reserves the pension fund should ensure that the exposure of participants in the event of sponsor liquidation is taken into account (before the sponsor encounters difficulties)
- the superavit reserve should be on top of the reserves relating to risk buffers

Investment

- The Conselho Deliberativo must approve an annual investment policy which should as a minimum have:
    - allocation and limits by segment;
    - limits by modality of investment;
    - policy on the utilization of derivatives;
    - actuarial discount rate and the inflation index;
    - investment return target for each segment;
    - methodology used for asset pricing;
    - methodology and criteria for the evaluation of credit, market, liquidity, operational, legal and systemic risks;
- The investment policy should be matched to the liabilities;
- Pension funds must ensure that all investment decisions comply with the policy;
- Pension funds must communicate all risks to participants, so as to allow for well informed choices;
- Pension funds should have a system of limits and controls of investment against the policy;
- Conflicts of interest should be prevented**.**
- Pension funds should follow the prudent person principle, regarding security, profitability, solvency, liquidity and transparency, the performance of their activities in good faith and with due diligence, high ethical standards and the adoption of practices which guarantee the investment process must be i) transparent and ii) must ensure short term liquidity;

- Investment decisions must manage the relevant risks;
- Investment fulfillment of their fiduciary obligations
- The decisions must be orientated to the best interests of participants.

Appendix 8

Report on amending investment regulation

Introduction

1. This report has been prepared in support of the FIRST project, managed by the World Bank, assisting the supervisor of Brazilian closed pension funds become more risk-based in its approach to supervision. The full outputs of the project are:

- an assessment of the strengths and weaknesses of the current supervisory approach and a summary of the best practices in RBS around the world;
- a roadmap for the implementation of RBS under the circumstances prevailing in the industry;
- proposals for regulations on selected critical elements for the implementation of RBS framework; and
- training to supervisors and senior executives of closed pension funds about the main challenges of introducing RBS.

2. This report forms a major part of the third of these outputs.

3. The current regulation of the investments of closed pension funds, CMN 3792 is of relatively recent and has introduced the prudent person principle into Brazilian regulation, as well simplifying and easing some of the quantitative limits. While pension funds would wish to see some further relaxation at the margin, it is recognized that the regulation does not in practice act as a significant constraint. In the context of around 80% of pension fund investments (if the assets of the largest fund are excluded) being in cash and bonds, nearly all Government issued, because of the very good returns that they deliver, it will take substantial changes in investment behavior before most pension funds are significantly constrained by the regulation. It therefore appears to be largely fit for purpose for the time being, so far as it applies to pension plans with a single investment policy.

4. The regulation does not, however, cover situations where a pension plan has multiple investment policies. Anecdotal evidence suggests that this is becoming increasingly common for DC plans to offer participant choice of profiles (that is investment portfolios). Furthermore, the regulation does not recognize that it may be in the participant's best interests to offer more than one profile, and indeed that only by doing so may the pension fund be properly discharging its fiduciary responsibilities.

5. This omission is to be regretted as it:

- leaves participants potentially exposed to unacceptable behavior by the pension fund in the design of and allocation to the profiles;
- fails to be explicit about how pension plans might manage the changing risk appetites of participants through the life-cycle;

- may defeat the participant protection purpose of setting quantitative investment limits by appearing to allow the limits to be breached by some profiles, so long as the overall investments of the plan do not breach the limits; and
- creates uncertainty, and possibly downstream legal risk, for pension funds, because the status of profiles is not defined in law and hence their separation may be ignored by the courts.

6. The rest of this report considers the features of portfolio choice that may need to be regulated and the constraints that the development of the market may place on such regulation, followed by the options for developing new regulation, under the following headings.

- the rationale for providing a choice of profiles
- the drawbacks of participant choice
- life-cycling
- default portfolios
- legal issues
- conclusions and recommendations

The rationale for providing a choice of profiles

7. One of the major changes in pension provision across the world in the last two decades has been portfolio choice within DC pension plans. It is near universal in Australia, the UK and the USA. It is now being introduced to many of the pension systems, such as in Chile and Hungary, which have been created through privatization of State pension system. There are several reasons why providing choice can be seen as desirable:

- It may give participants a greater sense of ownership and interest in their pension arrangements, which may lead to increased contributions, and hence a better pension;
- It enables participants to adjust their portfolio to their personal risk preference, and hence take responsibility for the extent of risk they take, reducing the likelihood that they will be aggrieved it their investments do not perform well. Hence choices may be presented in terms of their degree of risk relative to return compared with the other choices available;
- It can enable participants to adjust the amount of risk they take to reflect the overall level of risk in their pension saving. For instance, a participant with significant protected DB benefits may feel able to take more risk in his/her supplementary DC plan than a participant for whom the DC plan is the only source of retirement income; and
- It can enable a participant's risk/return profile to be adjusted as they move through the life-cycle.

8. These reasons highlight the impossibility of optimizing portfolio design for a single portfolio plan that covers participants of a wide variety of ages, personal circumstances and risk tolerances. It should in principle be possible for a pension fund to deliver better outcomes for its participants if it moves to portfolio choice, and it would therefore be wrong for PREVIC to oppose such a move, so long as there are appropriate safeguards, the subject of the next section of this paper. The life-cycle justification is of particular importance and is considered below.

The drawbacks of participant choice

9. It is unfortunate that there is little evidence of the types of portfolios Brazilian pension plans are offering. Internationally there are two basic models:

- Plans, as in Australia, the UK and the USA, which offer many (commonly at least 10) portfolios with a variety of asset allocations, whose risk/return characteristics are explained, if at all, in fairly general terms relating to the underlying asset classes involved. In some cases, an even wider choice is offered so that participants can chose also between fund managers.
- The multi-fund model[51], where a limited choice of 3-5 portfolios is offered with meaningful names such as 'conservative', 'moderate' and 'aggressive'. Regulation may place limits on the allocation of different asset classes to each portfolio. This enables participants more easily to match their risk preferences to a portfolio.

10. While participant choice can in principle deliver benefits, it has two related serious drawbacks:

- it may result in fiduciaries abrogating their responsibilities for investment fund design and monitoring; and
- participants may be incapable or unwilling to make properly informed choices.

11. Pension fund fiduciaries, in the UK and USA in particular, have been concerned that should the asset allocation they chose perform poorly and be seen to have been a bad choice with hindsight they could be sued by participants who have lost out. Offering choice is seen as reducing this risk to those running the pension plan by transferring their responsibility for asset allocation to the participant. An important issue for PREVIC is therefore the extent to which it is willing to countenance such a transfer of responsibility.

12. The other concern with portfolio choice is that it relies on participants being capable of and willing to make choices that suit their best interests. International pensions literature is discouraging in this regard. There is plenty of evidence that most participants have a very limited understanding of even the most basic concepts[52] and little evidence that financial education has been effective in remedying this situation[53]. Furthermore, the literature suggests that the more choices are offered, the less capable or willing are participants to make a choice. Participants have been described as 'reluctant investors'[54] lacking the skills to make investment decisions and the willingness to learn. There is evidence of their making perverse decisions as a consequence.

[51] For consistency with international definitions, the term "multi-fund" is used to describe the model of pension funds described in the text.
[52] It has for instance been stated that 50% of the UK population do not understand what 50% means.
[53] Where financial education may have some benefit, as has been reported in Chile, is in enabling participants to understand the importance of size and persistence in contributions as a key driver of the eventual size of pension.
[54] David Blake, Cass Business School, London

13. The fiduciaries and managers running pension funds should be much better equipped and motivated and the problems of the reluctant investor may be circumvented if a good default portfolio is offered to those participants unwilling or incapable of making informed choices. Where pension plans offer a default, most participants tend to choose it, over 80% in the UK. Providing a default portfolio means effectively that pension fund management fail in practice to pass fiduciary responsibility to participants, although the fact that participants have a choice other than the default may reduce the likelihood of subsequent litigation.

14. Regulatory regimes vary in the extent to which they permit fiduciaries to divest themselves of responsibility by offering choice. US pensions law effectively gives fiduciaries a 'safe-harbor' from litigation by aggrieved participants so long as they have provided sufficient choice and explained it sufficiently well[55]. It is assumed, in the absence of hard evidence or regulation, that the situation is similar in the UK. On the other hand the Australian supervisor has gone on record as stating that choice does not remove fiduciary responsibility, which should mean that pension funds will only action a choice if it seems reasonable in the participant's circumstances, but may well just mean that the fiduciaries check that all the options meet some basic criteria..

15. The Netherlands has gone further with its small pure DC market, by specifying that fiduciaries are fully responsible for the design of the default portfolio and placing a requirement on such a fund to check that the information about each alternative portfolio is understandable taking account of the level of financial understanding of the participant, and only allowing the participant to choose an alternative to the default portfolio where it has reason to believe that the participant does understand. This raises a high hurdle to clear before alternative portfolios can be chosen, and indeed since its introduction some providers have withdrawn from providing choice. This would probably be an excessive hurdle in Brazilian circumstances where there are limits on the investments of pension plans that should prevent particularly inappropriate choices.

16. PREVIC has an advantage over some of its counterparts elsewhere, in that because investment regulation does not refer to portfolio choice and applies equally to all types of plan, there is currently unambiguous fiduciary responsibility for all investment decisions. Regulation in Brazil can therefore, like the regulation in the Netherlands, set stringent conditions on those cases where such responsibility is diminished. It should be noted, however, that this is principle may not be so well established in practice, as some multi-sponsored funds appear to abrogate responsibility for choosing investment portfolios to sponsoring employers. PREVIC guidance should therefore set out the actions that conselheiros need to take to discharge their existing prudent person responsibilities under CMN3792, which could apply to all portfolios that are not exempted.

17. In this context, good practice would appear to be that fiduciaries retain responsibility for default portfolios and strive to provide good and readily understandable information on the alternatives. The focus on regulation in such a case would therefore be on the design of the default portfolios and the provision of information on other choices. This course of action would appear to strike the right balance between securing the benefits of choice and protecting participants from their own ignorance and abrogation by the fiduciaries.

[55] As is explained later in this paper, the conditions for granting safe-harbor are tighter where particiapnts are auto-enrolled.

18. PREVIC may also wish to consider whether it has a preference between the UK/US model of pension plan design or the multi-fund model, taking into account the risks arising from fiduciary abrogation and participant ignorance. In this context, the multi-fund model appears to have several advantages:

- The portfolios can readily include risk and return objectives as design parameters, whereas it is usual for pension funds in the US/UK model to have explicit objectives. This makes it harder for supervisors or participants to establish how successful the portfolio is[56]. Brazil currently has the advantage that DC pension funds often set and manage the plans against actuarially endorsed objectives, and there would be merit in this practice continuing, which could favor a multi-fund model.
- The regulator can have much more influence over portfolio investment by setting limits around each portfolio or at least defining the broad parameters for each portfolio, especially the default. Indeed the regulator can even specify which portfolio should be the default (at different ages).
- By establishing a relatively small number of investment choices defined in terms of their outcomes, participants are more likely to understand the choice they are making, and indeed the choices make more sense because they can be related to differences from a default intended to optimize outcomes for the average participant. Either the participant has good reason, such as age, for desiring less volatility than average, or good reason, such as other sources of retirement income, for wishing to take more risk than average.

19. There might, however, be considerable opposition in Brazil to the imposition of a multi-fund model now that many pension plans (probably) have a more diversified fund choice. PREVIC might, however, seek to encourage multi-fund while permitting other approaches[57]. In that case, there needs to be some protection for participants who choose options other than the default. In most countries this is regulated through disclosure legislation rather than investment legislation. For instance, legal provisions may require the information to be fair and not misleading. This does not, however, ensure that the information is actually understood. Indeed, fear of being prosecuted for not making all relevant information available may result in long and technical material that is unlikely to be read or understood. Consideration could therefore be given to requiring some evidence that the material has been understood.

20. The regulation of default portfolios is not, however, straightforward as the next two sections indicate.

Life-cycling

21. The academic literature on the design of DC pension plans generally concludes that participants can afford to take a relatively high level of risk during the earlier part of their career so as to earn a higher return, but should be exposed to a decreasing level of risk as they approach

[56] The UK default pension fund for mandatory pension saving from 2012 (NEST) is, however, likely to set objectives for its portfolios, as it considers that this represents best practice.
[57] Subsequent to the preparation of this paper, discussions at PREVIC led to the conclusion that the multi-fund model would be impractical to impose.

(and enter) retirement. This can be justified on the basis that younger members of the workforce have substantial human capital (that is earning potential) but low financial capital. As they age the human capital decreases but, assuming pension and other saving, financial capital increases. Human capital is said to be bond-like in that it delivers a steady future income. Hence for a balanced portfolio, the high initial bond component should be balanced by high equity exposure in their pension plan. This should be re-balanced downwards as human capital reduces and financial capital starts to pre-dominate. An approach to pension plan investment that seeks to balance risk and return in this way is known generically as life-cycling.

22. This theoretical case for life-cycling can also be justified on more pragmatic grounds. Younger workers can afford to invest in assets with relatively high volatility so long as they generate a higher average returns than low volatility assets (and the high volatility assets are mean-reverting[58]). In essence, they can exploit the liquidity premium available to investors who do not need to access their funds for many years. They have sufficient time to recover from negative shocks before the investment has to be cashed in at retirement. High volatility close to retirement, however, is undesirable as, inevitably, some participants will retire when the market is down and receive a lower pension than if a lower volatility investment had been preferred. While the theoretical model of life-styling requires continuous re-balancing throughout a participant's life, a model that just seeks to reduce the impact of volatility close to retirement can be applied in a simpler fashion. Modeling by the OECD and others has shown that life-cycling improves average participant outcomes.

23. The dilemma for a single portfolio pension plan covering participants of all ages, as is still prevalent in Brazil, is that it is impossible simultaneously to provide younger participants with high growth assets and older participants with low volatility assets. The pension plan has to compromise. In practice, the pension plan may adopt one of two responses:

- It may seek to invest so as to optimize risk/return trade-off for the participant of average age – which may in practice be similar to the optimal investment profile for all younger participants. This approach, common in Australia, generates the best returns for the average participant but leaves a significant minority who retire at the wrong time exposed to the risk of negative shocks and hence large losses close to retirement. It may be less of a problem where, as in Australia, the same fund can be run-on into retirement so that de-risking can be applied when the market is propitious. In Brazilian DC plans where participants leave the fund at retirement, high volatility plans would pose a serious risk to participants and the credibility of the system.
- Alternatively, because participants are more likely to become upset about high volatility close to retirement a more conservative profile may be adopted than would be justified by a portfolio that optimizes the risk/return trade-off for the average participant. This is likely to result in a lower pension for the average participant, including maybe even those participants who retire at the 'wrong' time.

24. It would appear that Brazilian pension funds have steered towards the second option. This has not been a serious problem to date, given the high real returns available on low volatility investments. This is likely to change as real interest rates fall, as is currently expected, resulting

[58] A standard, although contentious, assumption.

in a short term investment strategy delivering much lower returns than a portfolio comprising long term bonds bought before rates have fallen by their full extent. The solution is to split the portfolio between age groups so that the duration of investments can be matched to the length of time before retirement.

25. Internationally there are three main ways of applying life-cycling:

- Including life-cycling within the **multi-fund model** which, in its simplest form has a high, medium and a low volatility portfolio with participants starting in the first and later in their careers being transferred to the second and then the third. This has the advantage that each portfolio can be regulated as a separate plan, but exposes participants to volatility risk each time they move between plans, as any recent losses become 'locked in'. In practice in countries where this model has been adopted even the high volatility fund tends to include a relatively low, say 40%, proportion of high volatility assets so that this exposure is not so great.
- The UK **life-styling** model in which participants spend most of their career in a very aggressive portfolio, say 100% equities, and then between 5-10 years before retirement are each year progressively exchange units in that portfolio for units in a low volatility portfolio. If, as is usual, these transfers are applied mechanistically there is still volatility exposure at each transfer although the theory is that the large number of transfers cancels most of these risks out. Bear markets rarely last as long as five years let alone 10. The appearance of having multiple portfolios within one plan may not be readily consistent with Brazilian regulation[59].
- The **US target-date fund**[60] in which participants are allocated to a portfolio that corresponds with their likely retirement date. The portfolio is managed so as to reduce volatility as that date approaches. This facilitates more active management and in particular the mitigation of volatility impacts as participants de-risk. (For instance, de-risking could be postponed in a year with a serious negative market movement). It also facilitates investment in long-dated securities the maturity of which can be matched to the target date. This is probably the optimal model in theory, although exposed to a higher risk of mis-management due to the greater level of discretion allowed. It would be possible to treat each year fund as a separate plan, although this would mean having 40 or so plans to supervise.

26. It should be noted that there is a potential problem where participants retire significantly before or after their due date. This is unavoidable but not sufficient to outweigh the substantial benefits. Regulation probably needs to talk in terms of the retirement date assumed by the pension fund, to avoid the fiduciaries receiving the blame for sponsor or participant errors or decisions that result in retirement on a different date.

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[59] As discussed further below, SUSEP requires each portfolio in an open pension fund to be licensed as a separate plan.

[60] The US Pension Protection Act 2006 mandates target date funds as one of the three designs allowed to 401k plans if they wish to offer auto-enrolment with 'a safe-harbor' from litigation for failure of fiduciary duty. In practice, most plans have adopted this option. This design will be used by the default plan for the default pension fund, NEST being introduced for mandatory pension saving in the UK from 2012.

27. It can be concluded that life-cycling is desirable even if choice is not offered, and indeed it would be highly desirable for PREVIC to encourage all DC plans to adopt it. A key question for PREVIC is, however, whether it wishes to specify which life-cycling model is adopted. While the multi-fund model, being the easiest to explain and to monitor, may be the most attractive at the current stage of development in Brazil, the benefits of target date, especially where there is good availability of long-dated government bonds offering attractive returns, are such that it could be seen as perverse to prohibit it. The attraction of the UK model is that it may be achievable with juts a single plan, hence reducing administrative complexity.

28. Given that each model of life-cycling has its pro's and con's, it might be best for regulation to be purposive, with supporting guidance explaining the options on offer, leaving the market to decide which model(s) to adopt. There is, however, also a question as to whether a default portfolio should be mandated at all and if so what other design features should be regulated, considered in the next section

Default portfolios

29. International practice varies as to whether DC plans must provide a default portfolio and the extent to which such a portfolio is regulated:

- In the UK and Ireland, open pension funds of a State-mandated simplified design[61] must provide a default portfolio, which in the UK must be life-cycled. This provision will extend in the UK to all DC plans that are eligible to receive mandatory auto-enrolled pension saving being phased in from 2012.
- In the USA, a default portfolio of one of three mandated designs (of which target-date funds are the most prevalent) must be provided where an employer auto-enrolls employees into a pension plan.
- In Australia, there is no legal requirement for a default portfolio, but the mandatory nature of the scheme makes such a portfolio unavoidable in practice. It is common practice for pension funds to choose a portfolio for participants on the basis of details they have supplied about their circumstances, so that there may be more than one default portfolio depending on circumstances.
- In Chile, the multi-fund that is used as the default portfolio is defined by the regulator.
- In the Netherlands, (for the small pure DC sector) a default portfolio is required and the (conduct of business) regulator has published an interpretation of the prudent person rule as it applies to pure DC pension funds that effectively requires the default portfolio to be life-styled.

30. It should be noted that all these requirements apply to pension plans that are either mandatory, subject to auto-enrolment or, in the Netherlands, in a jurisdiction where occupational pension provision is almost universal. The logic would appear to be that if the State or employers require employees to join a pension plan, a well-controlled default should be available. For Brazil, with an entirely voluntary system, to mandate the provision of a default

[61] "Stakeholder pensions" in the UK and "PRSAs" in Ireland. In both case these are the default form of pension provision to meet the legal requirement that employers must make a pension plan available to their employees.

portfolio would be internationally unprecedented. This is especially so as there is a valid argument that having a single default portfolio optimized for the average participant may be far from optimal for some participants. In Australia, some pension funds choose a portfolio for participants on the basis of details they have supplied about their circumstances, some of which can be obtained from the employer's personnel records should the participant fail to respond. This approach in part compensates for the absence of life-cycling in that country, but could enable other factors to be taken into account as well.

31. Hence, there may be a case for allowing pension funds in Brazil to use several defaults according to participant circumstances. In any event, PREVIC maybe needs to be more concerned that is effective fiduciary responsibility for investment allocation and performance, and hence, rather than talking about 'mandatory defaults' legislation might specify that fiduciaries are responsible for ensuring participants are allocated to an appropriate and well designed and managed portfolio (with life-cycling) unless they have made a documented choice otherwise.

32. There remains a question as to what if anything regulation can say about the design of the portfolio. The design of default portfolios varies considerably worldwide. In Australia the default tends to be a balanced fund, with 50-75% equities. In the UK the default tends to be an equity fund with life-styling in the 5-10 years before retirement. Traditionally in the USA the default was a 'conservative fund', chosen to minimize the risk that the fiduciaries would be blamed if there was excessive volatility, (but increasingly a target date fund is chosen instead – see paragraph 25 above). As mentioned above, it is understood that the use of 'conservative' default funds may also be common practice in Brazil. In practice such funds may be low volatility but they are not conservative in the context of long term investment. Such portfolios tend to comprise entirely or mostly of short term investments. They are exposed to substantial duration/re-investment risk and fail to take advantage of the liquidity premium that tends to be available in long term investments. Academic studies have shown their outcomes to be relatively poor.

33. There is, however, no precedent, where portfolio choice has followed the US/UK model, for a regulator stipulating other than in general terms what is an appropriate default portfolio, except in relation to life-cycling. Phraseology such as "a well-diversified fund aimed at achieving a balance between risk and return" might have some impact but without specific regulatory interpretation could easily be ignored[62]. It is hard to see how a regulator (or supervisor) could influence default portfolio design without taking a view as to what is acceptable.

34. Where regulation can be more specific is in regard to life-cycling. If it is required that a default participant should be moved to a 'conservative;' fund close to retirement, this implies that the participant is in a higher return fund earlier on. Furthermore, Brazil has the advantage of many over jurisdictions that pension plans must employ an actuary even if they are pure DC. This could be used by requiring pension funds to set and keep to return and risk targets (and a life-cycling approach) that have been certified as being such by the plan actuary as providing an appropriate balance between return and risk. There is a precedent for this in Ireland where of the

[62] For example, the regulatory requirement for diversification of investments has not stopped UK and Irish plans establishing default portfolios with 100% equities - so long as they are diversified across different equity markets.

default portfolio of the regulated PRSA products must be actuarially certified with a consequence that all such portfolios are life-cycled, even though this feature is only implicitly covered by legislation[63].

35. Pulling all these factors and experiences together, might lead to a regulatory model where pension funds:

- Place participants in a life-cycled default portfolio designed and monitored to secure an appropriate balance between risk and return (that is, with targets for risk and return relative to a benchmark such as inflation-linked government bonds);
- Allow participants to opt for a limited choice of other portfolios with a different balance between risk and return (as in the multi-fund model), which the pension funds seeks to target, hence retaining fiduciary responsibility. (These could, for instance, be titled 'aggressive' or 'conservative').
- Have all such portfolios actuarially certified as complying with the purposes of legislation and plan rules;
- If they wish, provide further options for informed choice by participants at their own risk, that is without taking responsibility for the appropriateness of the investment policy.

Legal issues

36. Before considering the detailed proposals for regulatory change, it is important to consider the current lack of clarity in investment legislation as it relates to multiple portfolios within a plan.

37. Firstly, it is not clear whether the introduction of portfolios into an existing pension plan requires PREVIC authorization. According to Article 109 authorization is needed for a change in plan rules, but it appears that some plans may have introduced portfolios without changing plan rules. This would appear to increase legal risk in the future, as the separation between the portfolios may not withstand a challenge in the courts unless it is specified in plan rules. The absence of authorization in some cases has also made it harder for PREVIC to track changes in the market. PREVIC has two options available in tightening up the legislation:

- require each portfolio to be licensed and monitored as a separate plan, as is the case for open pension funds; or
- require that the creation or modification of portfolios within a plan should be covered by changes to pension fund rules that are subject to PREVIC authorization.

38. A potential drawback of requiring each portfolio to be a plan is that it might prevent the application of UK style life-styling (paragraph 25 above) where each participant's asset allocation changes progressively in the run-up to retirement. This might be circumvented by specifying that a single plan can encompass this feature so long as it is applied mechanistically as defined in the plan rules. In that case, it could reasonably be stated that the plan has a single

[63] As the portfolios tend to be 100% invested in equities during the growth phase, it can be seen that the requirement has been ineffective in securing asset class diversification of risk/return management. Hence, legislation needs to be more specific than just requiring a prudent person approach if certification is to make a difference.

investment policy. More generally, requiring all portfolios to be separate plans would be disruptive for pension plans that already have portfolios. It might also result in the creation of many more plans, although Brazilian multi-sponsored funds already provide some precedent for pension funds having many plans. In practice, the change might even reduce the number of plans in multi-sponsored funds as they could move to a model where each of the plans/portfolios in a multi-sponsored fund has multiple sponsors to the extent that sponsors are happy to use the same portfolios as each other[64].

39. On the other hand, making each portfolio a separate plan would harmonize the regulation of closed and open pension funds and facilitate monitoring. Furthermore, if plan rules can provide for separate portfolios within a plan, there remains some risk that participants may claim that they should be reimbursed for relatively poor performance by taking resources from other portfolios, as they are not ring-fenced in law. The improvement in legal certainty, and facilitation of supervisory processes that would follow from harmonization with open pension plans would appear to justify the disruption.

40. There is also uncertainty as to whether the quantitative limits for pension plan asset allocations should apply to each portfolio. A literal reading of the regulation would suggest that they do not. PREVIC's legal team consider that a court might, however, take the view that purpose of the limits would be defeated were they not apply to all portfolios and retrospectively determine that portfolios breaching the limits were illegal. This further increases legal risk. That said, it could be argued that quantitative investment limits are primarily intended for macro-economic policy reasons, for instance to control capital flows out of the country or pre-empt bubbles in the property market, rather than the protection of participants, which is achieved through the prudent person rule. Requiring every portfolio to be a separate plan would eliminate this uncertainty as well.

Conclusions and recommendations

41. Drawing on the analysis above, it can be concluded that if regulation is to address fully the issues raised by investment choice and the desirability of life-cycling, it would need to:

- Require **each portfolio to be licensed as a plan (and pending such a change require all new portfolios or significant amendments to portfolios to be covered by plan rules subject to PREVIC authorization**. The requirement that there should only be one portfolio per plan would presumably necessitate a change to Law 109. The interim change to authorization processes should, however, be achievable through an interpretation of existing legislation.
- Require **the ring-fencing of portfolios within plans (so long as multiple portfolio plans are allowed)**. This would necessitate primary legislation and need only be contemplated if it proves impossible to outlaw multiple portfolios within a plan. In the interim an interpretation

[64] It is already possible for one plan to have multiple sponsors, although they may often be associated companies. There would appear to be no reason why a pure DC plan should not have multiple un-associated sponsors. A large increase in the number of plans would, however, be inevitable if target-date funds are adopted with each retirement year having its own portfolio/plan.

could be issued within CMN3792 clarifying that portfolios within plans that have been authorized by PREVIC should be ring-fenced.

- Clarify how quantitative limits apply to portfolios within a plan. Again this would only be needed if this practice continues to be allowed. It should be achievable through an enhancement or interpretation of CMN 3792.
- Issue **an interpretation of fiduciary responsibilities that makes the use of life-cycling unavoidable as the default position for all pension plans, supplemented by some definition of which approaches to life-cycling are acceptable**. This would apply to CMN3792 and could be followed in due course by a similar amendment to that regulation.
- Require **that, where choice is offered, each pension fund provides a limited choice of portfolios that remain fully the fiduciary responsibility of the pension fund, while relieving the fund of such responsibility for other portfolios so long as it is evident that the participants choosing them understand what they are doing (for instance by signing a document to this effect)**. Some interpretation of CMN3792 would be needed as to what full fiduciary responsibility entails and how it applies to different types of portfolio.
- **Require that the portfolios that retain fiduciary responsibility are actuarially certified as complying with legislation and the plan rules**. This might be achieved by interpreting current legislative provisions relating to actuarial certification, although a change to regulation might be better in the long run.
- **Ensure that there are minimum standards for the provision of information about each portfolio which indicate how each portfolio differs in its broad asset allocation and expected outcomes from a benchmark default portfolio.** Some standards already apply where a portfolio is also a plan and could be extended to portfolios within plans, so long as they are permitted, through an interpretation of CMN3792 referencing Resolution 23 or other relevant regulation. New interpretation/ guidance would be needed covering the description of and relationships between portfolios.

42. It should be noted that while changes to legislation would be highly desirable in due course, all these issues could in the first instance be covered by PREVIC interpretations and supporting guidance. These interpretations could take the following form:

- The rules for each pension fund should specify, for each pension plan, the types of benefits to be provided, the sponsoring employers and the objectives of the plan's investment policy, as defined below, and any changes to such rules should be authorized by PREVIC.
- Where a pension plan offers no guarantees as to the level of benefits, because these are determined purely in relation to contributions and investment returns received in relation to each participant and beneficiary of the plan (i.e it is a defined contribution plan), the objectives of the investment policy should specify the intended balance between return and risk, relative to the returns obtainable from inflation indexed government bonds of relevant duration, and be certified by the plan actuary.
- Where a pension fund offers participants a choice between defined contribution portfolios, each portfolio shall for the purposes of legislative interpretation be defined as a plan.
- Unless the participant specifically chooses a plan without such characteristics, every participant who is contributing solely to a defined contribution plan should be allocated to a

plan that is designed to achieve a balance between risk and return appropriate to the length of time before that participant is expected by the pension fund to reach retirement. In particular, the participant's exposure to capital losses before the assumed retirement date should progressively reduce to a low level during the last years before the assumed retirement date.

- The reduction in exposure to capital losses may be achieved by moving participants between plans with declining levels of exposure to capital losses, or by providing a plan for each age cohort that targets a low level of exposure by the assumed retirement date, or by providing a single plan that reduces each participant's exposure by means of a formula for changing asset allocations in each year in the period before the assumed retirement date.
- In allocating participants to a pension plan, the pension fund may allocate participants to one of several plans with a differing balance between risk and return, according to their personal circumstances, or offer them a limited choice between plans with greater or lesser risk of capital loss than an average plan, where the extent of difference is made clear in the name or description of the plan.
- The conselheiros and directors of the pension fund should be responsible for ensuring that there is an appropriate balance between risk and return, including diversification of risk and minimization of unrewarded risk, in all the defined contribution plans provided by the fund, including those where the limited choice referred to above is offered, but have no responsibility for the appropriateness of the investment policy in cases where participants have made an informed choice of an alternative plan. While they may consult the sponsoring employers on the choices offered, decisions are entirely the responsibility of the conselheiros and directors.
- The limits on investment apply to each plan, as defined above, in its totality.
- The pension plan actuary shall certify each year that the design of each plan conforms with the plan's objectives and that the investment policies of those plans to which participants are allocated or offered on the basis of limited choice achieve the appropriate balance for which the conselheiros and directors are responsible.
- Where a pension fund offers participants a free choice of defined contribution plans, it should explain clearly to participants how each plan differs from the average default plan, in terms of the broad objectives of the investment policy and the design.
- Where a participant wishes to choose a defined contribution plan other than the one to which the pension fund considers he/she should be allocated, the participant should sign a declaration to the effect that he/she has understood the information provided about the plan chosen.
- The pension fund is responsible for notifying plan participants of any significant changes in the characteristics of their plan.

43. The views of PREVIC's lawyers are needed as to how these changes might best be effected[65].

[65] These views were expressed during a technical assistance visit subsequent to the preparation of this paper, see paragraph 6.18 in the main report.