

# **Risk Based Supervision of Pensions: Lessons From Early Adopters**

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## **Organization**

- Historical Context
- Motivations for Adoption
- Four Country Case Studies
- Elements of Risk Based Programs
- Preliminary Assessment of Outcomes
- Initial Observations
- Challenges For The Future

## Evolution of Private Pension Supervision

- Reflects changing role of private systems from deferred compensation to main element of multi-pillar systems
  - Population aging
  - Risk diversification
  - International competitiveness
  - Developmental synergies
- Transition from element of labor contract enforcement to supervision of financial intermediaries
  - Evolution from trust law to commercial financial institutions
- Increasing prevalence of defined contributions
  - Shift of nexus of risk bearing from sponsor to members
  - Transition from agency risks to financial risks

## Policy Motivations

- Integration of financial supervision authorities
- Migration of methods from banking and insurance – Basel II and Solvency II
- Harmonization within EU and influence of international standard setting bodies
- Response to “Perfect Storm” and solvency crisis of 2001-2002

## Technical Motivations

- More timely market based and flexible solvency standards
- Conformity with accounting standards
- Adjustment to complexity of financial markets
- Adaptability to new financial products
- Greater efficiency of operations and allocation of capital – movement toward efficient frontier
- Method for allocation of scarce supervisory resources

## Characteristics of Four Systems

	Mandate	Cover %	Assets %GDP	Number of Funds	Legal structure	Type of Plan
<b>Netherlands</b>	Quasi-mandatory	90	120	700	Occupational	Mostly DB
<b>Denmark</b>	Quasi-mandatory	80	124	111	Occupational and open <sup>1</sup>	Mostly DC with absolute return guarantee (DB-like)
<b>Australia</b>	Mandatory	90	104	1,004	Occupational and open <sup>2</sup>	DC
<b>Mexico</b>	Mandatory	28	8	18	Open	DC with ceiling on downside risk (VaR)

## The Basic Risk Management Architecture

### For the institution:

- Risk management strategy
- Board committees
- Risk management functions in the managerial structure
- Internal controls
- Reporting responsibilities

### For the supervisor:

- Regulations, including minimum risk management standards
- Risk-based solvency rule
- Risk scoring model guiding supervisory actions
- Internal organization of the agency, with specialist risk units

### Market Discipline:

The contribution of the actuary, auditor, fund members, rating companies, and market analysts to sound risk management

## Main Elements of RBS

- Requirements for risk management process within institutions
- Solvency standards and stress testing
- Risk scoring methodology
- Disclosure and market competition
- Use of third party reviews
- Organization of supervisor

# Risk Management Structure and Procedures

- **Netherlands**
  - Risk management plan at registration
  - Centralized function & Accountability of board
- **Denmark**
  - Guidelines and plan by Board of Directors
- **Australia**
  - Guidelines and risk management plan at licensing. Trustee licensing standards
- **Mexico**
  - Specific requirements for policies, procedures, risk management committees and Chief Risk Officer

# Solvency Standards

- **Netherlands (FTK)**
  - Annual market value solvency plus 5% margin
    - Cohort actuarial standard w/ longevity adjustment
    - Published yield curve discount rate from zero swap
  - Solvency buffer stress test
    - Less than 2.5% probability of insolvency
    - Fixed factors by asset class (equity 25-35%, real estate 15%, euro 20%, fixed income by duration)
    - For average asset allocation – 30% buffer
    - Option for fund specific methods with prior approval
  - Long term continuity
    - Wage growth, rate of return
  - Recovery period maximum: 1 year for margin, 15 for stress test

## Solvency Standards

- **Denmark**

- Minimum requirement: 3 million euros or 4% of liabilities plus 0.3% risk investments
- Beginning 2009 yield curve from zero coupon swap marker discount rate
- Traffic lights stress test
  - Red Light: Insolvent with decline of 12% equities, 8% real estate, duration based for fixed income
  - Yellow light: 30% equities, 12% real estate
- Indicator of increased attention rather than trigger for required actions
- Provides signal to market

## Solvency Standards

- **Mexico**

- Defined contribution system – solvency principles used to limit member risks
- Value at Risk (VaR) limits
  - Daily standard: 0.6% for standard portfolio, 0.1% for higher risk portfolio
  - Rolling 500 day calculation period
  - Parametric VaR with 5% significance
- Quantitative asset limits also remain
- Directive action by supervisor when limit is exceeded, so far has not happened

## Risk Scoring Methods

- **Netherlands (FIRM)**

- Integrated system applied to all types of institutions within supervisors authority
- Functional breakdown of institution
- Standard templates and default scores as starting point
- Inherent risk –mitigation = net risk
- Specific consideration given to management quality and risk management procedures
- Probability and impact combined due to inherent relationships

## Risk Scoring Methods

- **Australia (PAIRS & SOARS)**

- Risk scores mapped into supervisory response matrix
  - response is less structured than evaluations
- Distinction by fund size
- Probability and impact treated separately
- Weighted in non-linear formula to distinguish higher risks
- Similar treatment of gross risks and mitigates

## Third Parties and Market Discipline

- All systems use third parties auditors and to varying degrees require assessment of risk management capacity
- All impose “whistle blower” obligations to varying degrees
- New accounting standards and regulatory requirements strengthen movement to market valuations
- Mexico has extensive monthly disclosure – consistent with open funds based system
- Denmark has annual disclosure – including risk assessment
- Netherlands and Australia have less reliance on disclosure – reflect occupational origins and DB character

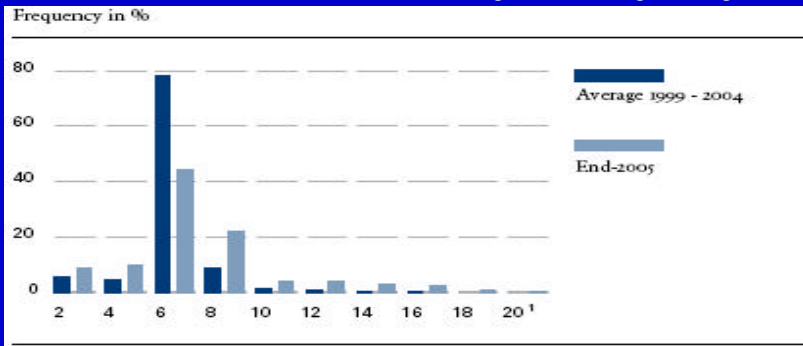
## Organization of Supervisor

- Australia, Denmark and Netherlands are integrated supervisors – to varying degrees
- Denmark combines life insurance and pensions in operating division – similar to organization of funds
- Australia has little specialization of divisions
- Netherlands has modified matrix - dedicated pension fund units supported by centralized risk assessment technical units
- Mexico remains separate pension fund authority

## Preliminary Assessment

- **Netherlands**

- No meaningful change in coverage – longer term movement to career average plans and contingent indexation
- DB remains predominant
- Asset allocation remains unchanged - so far
- Duration of fixed incomes show significant lengthening



## Preliminary Assessment

- **Denmark**

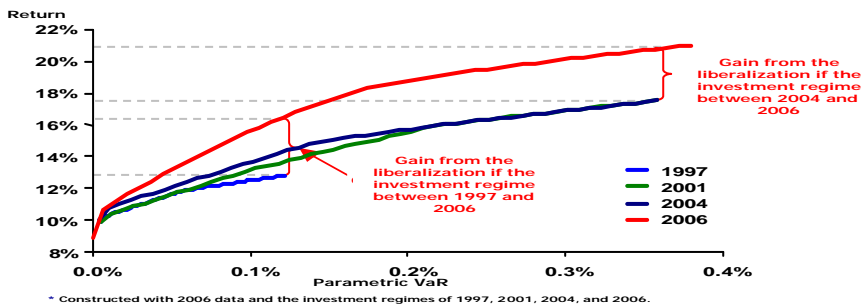
- Movement to more contingent profit distributions – shift of form toward pure DC
- Modest decline equity exposure
- Increased use of derivatives
- Increase foreign bonds (likely to increase durations)
- Reversal of net effect of 100 basis point interest rate movement – from simulated loss of 15 billion DKK in 2001 to gain in 2003 and 2004

# Preliminary Assessment

- Mexico

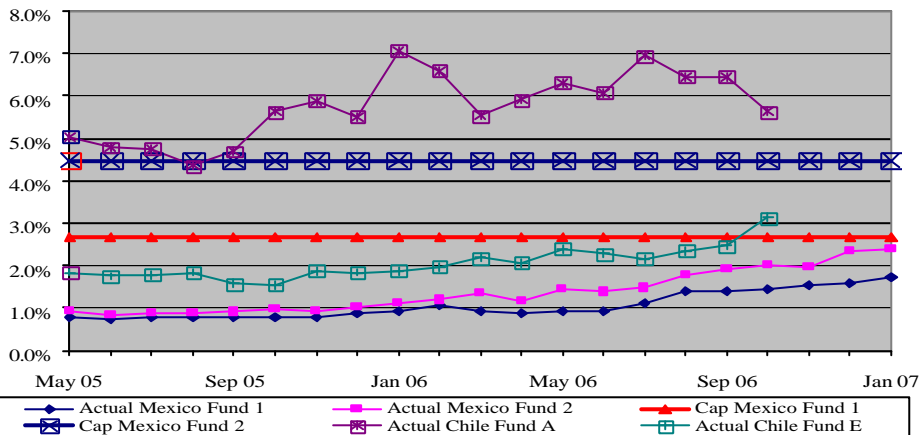
- Increase in theoretical efficient frontier associated with relaxation of quantitative limits and introduction of VaR

## Estimated Improvements in the Risk-Return Trade-Off



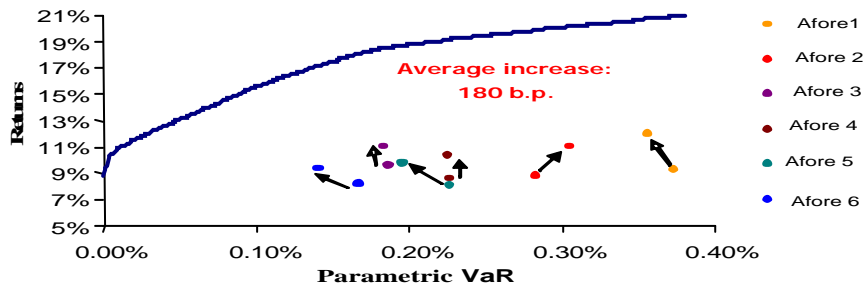
- Funds remain well below current VaR limits
- Current level of VaR is below Chilean Funds with more restrictive limits

## Monthly VaRs of Pension Portfolios in Chile and Mexico



- Supervisor estimates movement toward efficient frontier by funds

### Preliminary Evidence of Efficiency Gains for Selected Funds



## Initial Observations

- Methods applicable to wide range of conditions and supervisory authorities
- Movement to some convergence – especially in Europe
- Too early to tell if objectives of efficiency gains are met
  - so far no performance standards or comprehensive measurement of outcomes
  - No efforts to measure funds operating costs or regulatory burden
- Preliminary evidence suggest modest impact on financial structure of funds – primarily diminishing duration impact
- Effects of Implicit assumption of no mean reversion in equity returns remain outstanding – could lead to excessive solvency margins

## More Observations

- Interactions of multiple parameters, quantitative limits and other asset controls not yet addressed
- Factors in Risk Scoring methodologies remain arbitrary and subjective – If disclosed will be subject to fragmentation and individual challenges
- Still very limited use of market discipline principles – requires shift in culture of supervision
- Staff with technical skills to continue to develop methods will be difficult to retain in public sector
- Political economy of development and adoption is important

## Challenges

- Integrating risk parameters with retirement income targets
- Retrospective nature of developing parameters – assumption of traditional asset class relationships
- Potential pro-cyclical nature of systems
- Accommodating individual diversity of members risk preferences in public DC systems
- Adequacy of solvency standards for next financial crisis
- Transition to less subjective standards while retaining flexibility
- Political economy of acceptable risk levels