



Pension Risk: From Accumulation to Retirement

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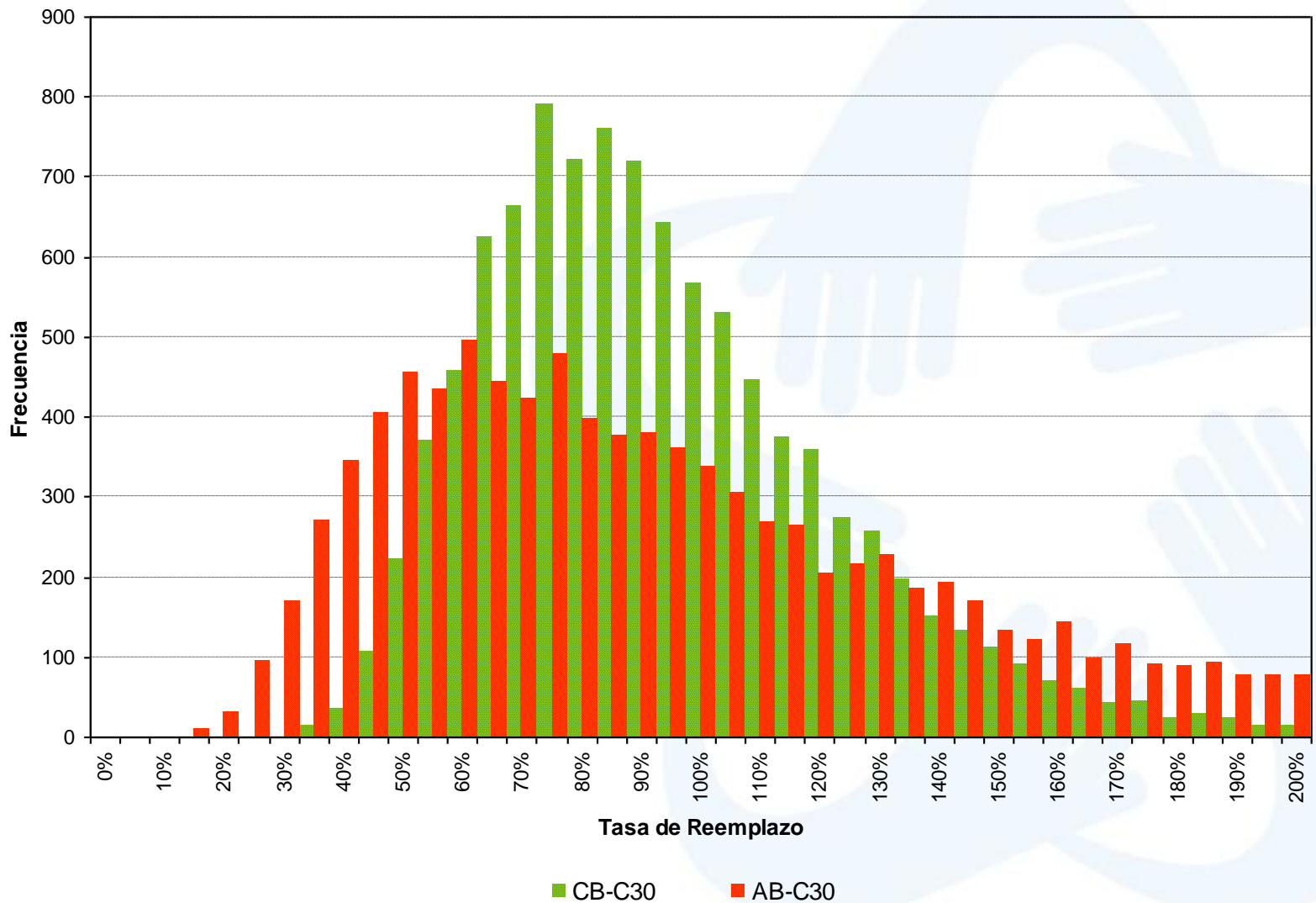
Agenda

- ❑ The Relevant Measure of Risk in a DC Pension System
 - ❑ How to Measure Pension Risk: Methodology and Outcomes
 - ❑ How To Use a Pension Risk Measure?
- ❑ Decisions at Retirement
 - ❑ Pension Types and Products in the Case of Chile
 - ❑ Pensioner Profile for Programmed Withdrawal and Annuities
 - ❑ How Does SCOMP Operate?
 - ❑ Effectiveness of the System to Introduce Greater Competition and Information
 - ❑ How to Mitigate Risks Going from the Accumulation to the Payout Phase?
 - ❑ Selection of Pension Products
 - ❑ Recent Improvements: 2008 Reform
- ❑ Final Remarks

The Relevant Measure of Risk in a DC Pension System: Accumulation

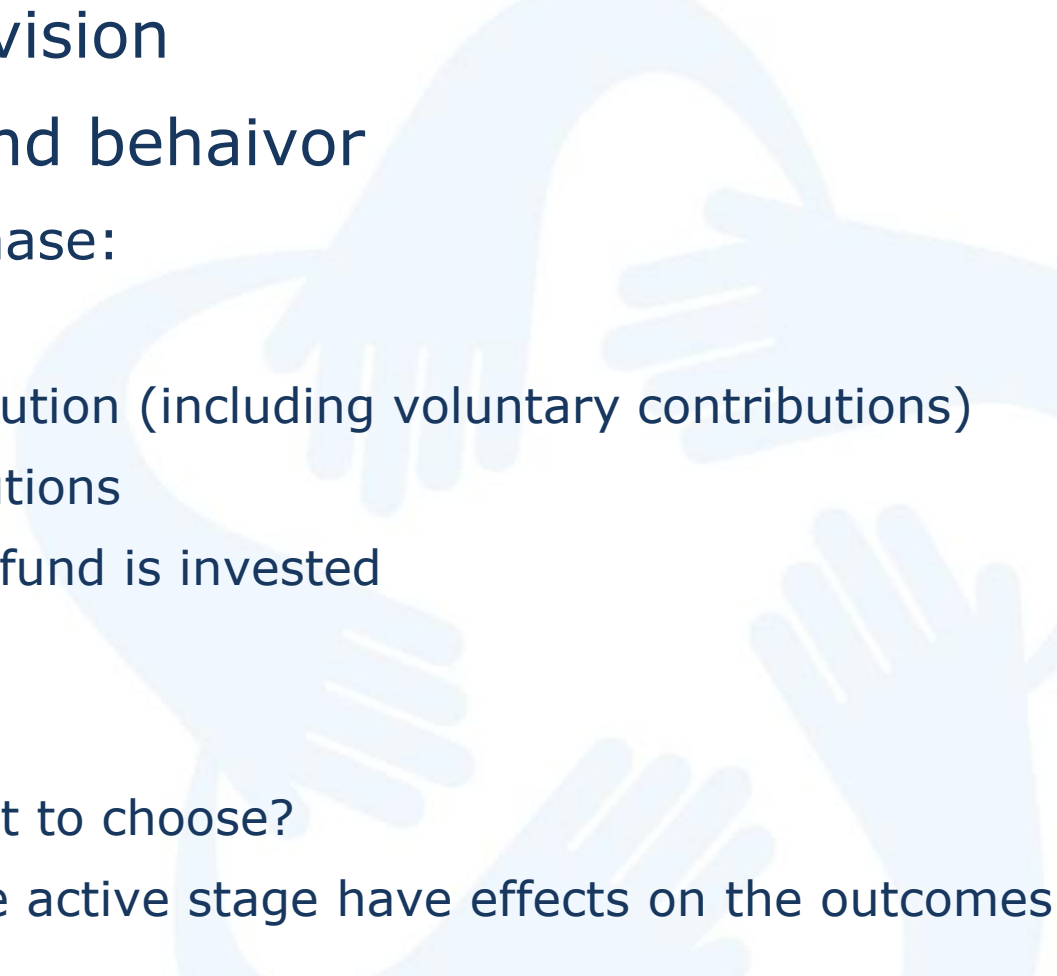
- ❑ Short term volatility versus pension risk.
- ❑ Short-term volatility of the pension funds returns is not a good indicator of the pension risk in the case of a member at the beginning of his/her active life who is still 30 years off retirement.
- ❑ It is essential to choose an appropriate variable to measure pension risk, one that includes all relevant sources of risk faced by members of the pension system.
- ❑ **Pension risk** must be measured and evaluated from the point of view of the **contributor's life-cycle** → Target variable: **Replacement Rate**.
- ❑ Main Outcome: **probability density function of the replacement rate**, and how it changes on the basis of different investment strategies.

How to Measure Pension Risk: Methodology and Outcomes

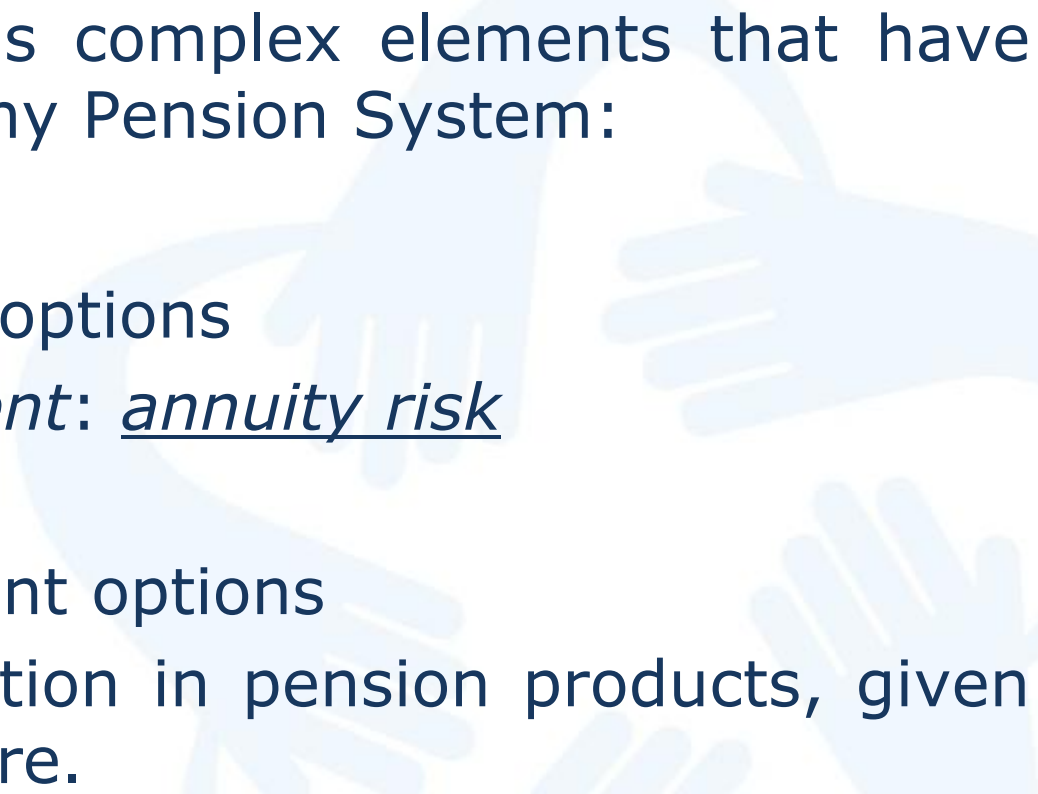


Note: Assumes a crisis at age 30

Mitigating Pension Risk

- Regulation and Supervision
 - Individual decisions and behavior
 - In the accumulation phase:
 - Contribution density
 - Amount of the contribution (including voluntary contributions)
 - Timing of the contributions
 - The way in which the fund is invested
 - At retirement:
 - Age to retire?
 - Which pension product to choose?
 - Decisions taken at the active stage have effects on the outcomes at retirement
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Information at retirement

- Retirement phase has complex elements that have to be considered in any Pension System:
 - Different payment options
 - *Timing of Retirement: annuity risk*
 - Longevity risk
 - Available Investment options
 - Degree of competition in pension products, given their complex nature.
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- A faint, light blue background graphic showing several hands of different sizes and orientations, some holding a globe, symbolizing support, care, or global impact.

Pension Types and Pension Products in the Case of Chile

➤ Types of Pension

- Age - legal
- Age – early retirement
- Disability – partial or total
- Survivorship

➤ Pension Products:

- Programmed Withdrawal
- Annuity
- Temporary Income with Deferred Annuity
- Programmed Withdrawal with Immediate Annuity

Pensioner Profile for Programmed Withdrawal and Annuities

Programmed Withdrawal

- Low life expectancy
- Low degree of risk aversion
- Higher return associated with higher volatility
- Bequest motive
- Low remuneration
- Low individual account balance

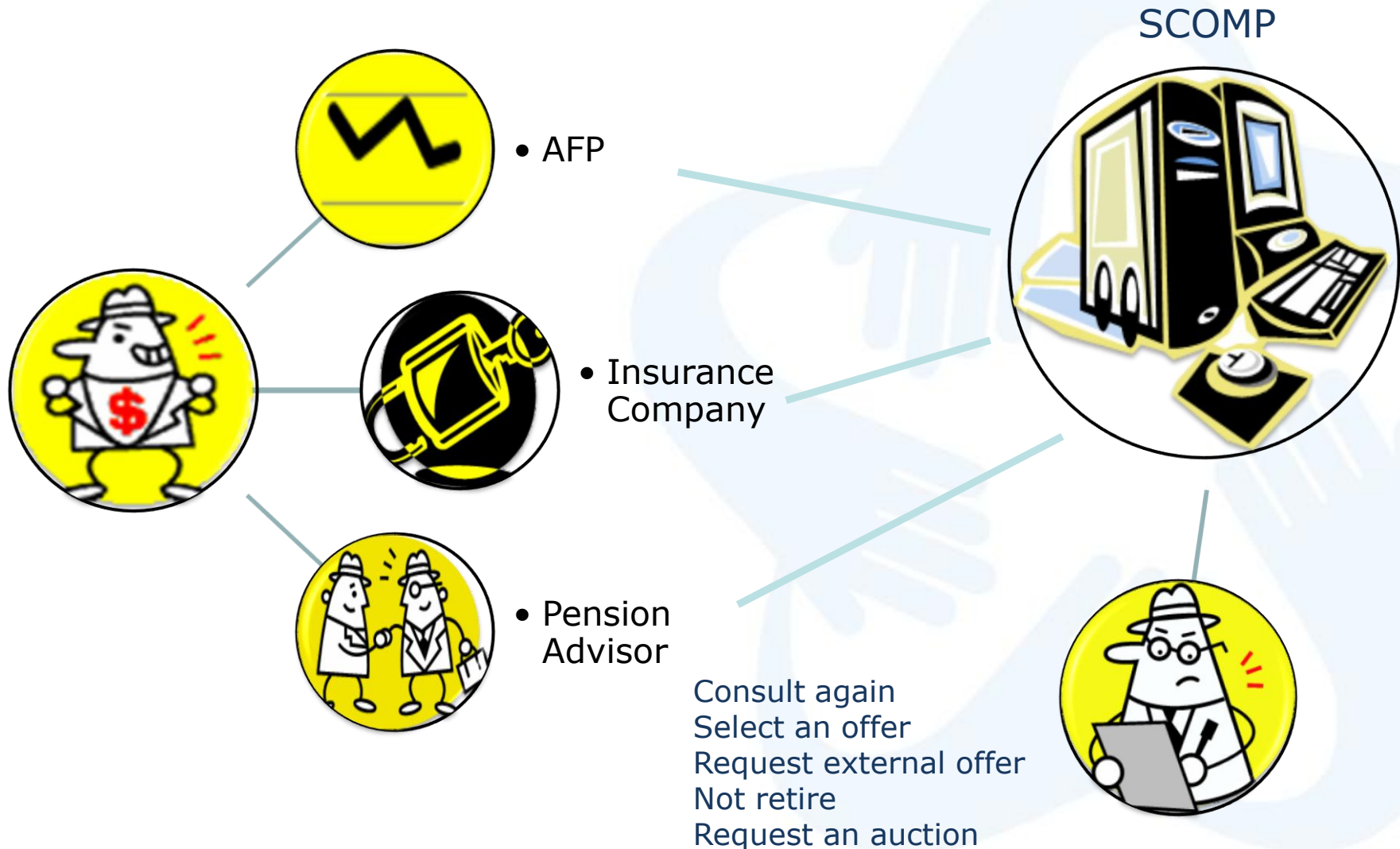
Life Annuity

- High life expectancy
- High degree of risk aversion and preference for a constant pension
- Early retirement
- High remuneration
- High individual account balance

Depending on individual characteristics, a combination of Programmed Withdrawal and Life Annuity can arise as an optimal decision.

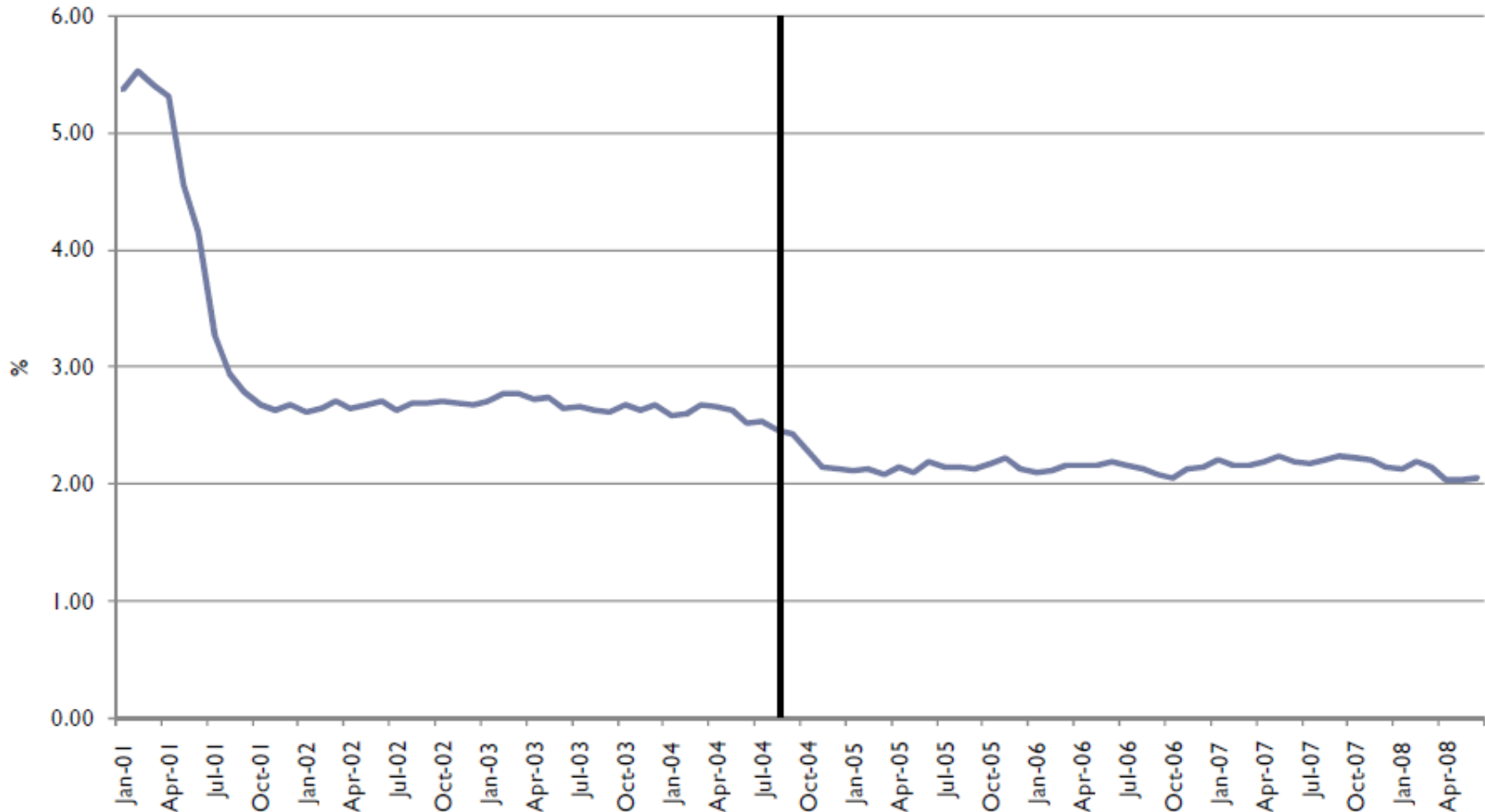
How Does SCOMP operate?

Electronic Quotation System (SCOMP), introduced in August 2004



Effectiveness of the System to Introduce Greater Competition and Information

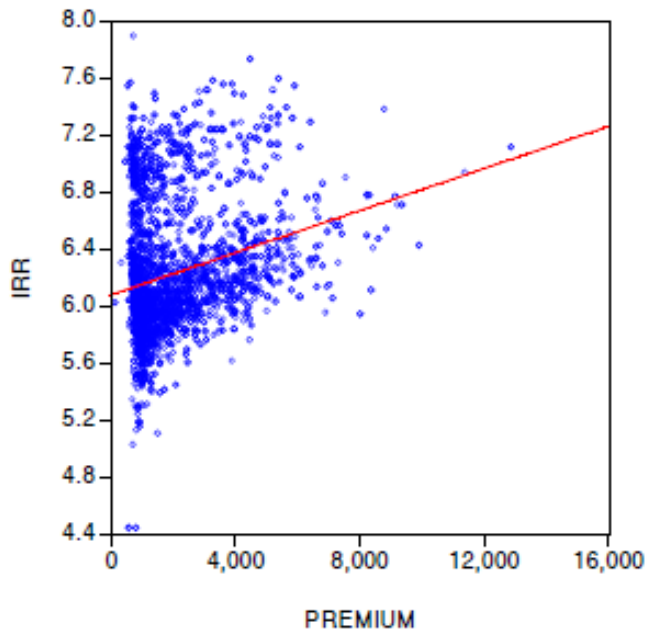
Commission Rate (Market Average)



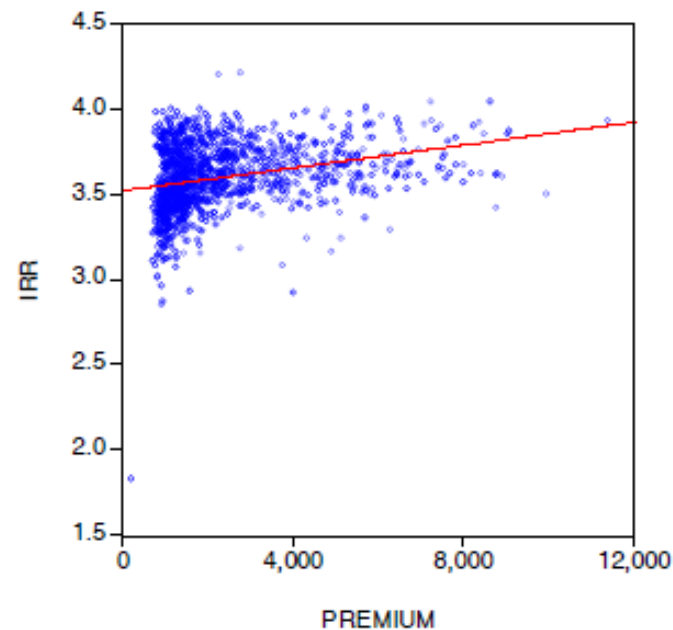
Source: Morales & Larraín, 2010

Effectiveness of the System to Introduce Greater Competition and Information

Dispersion Premium January 2002



Dispersion Premium January 2006



January 2002

	Lower Third	Mid third	Higher third	Total
Mean	5.38	5.31	5.45	5.38
Standard Deviation	0.75	0.77	0.80	0.77
Variation Coefficient	14.00	14.47	14.71	14.38

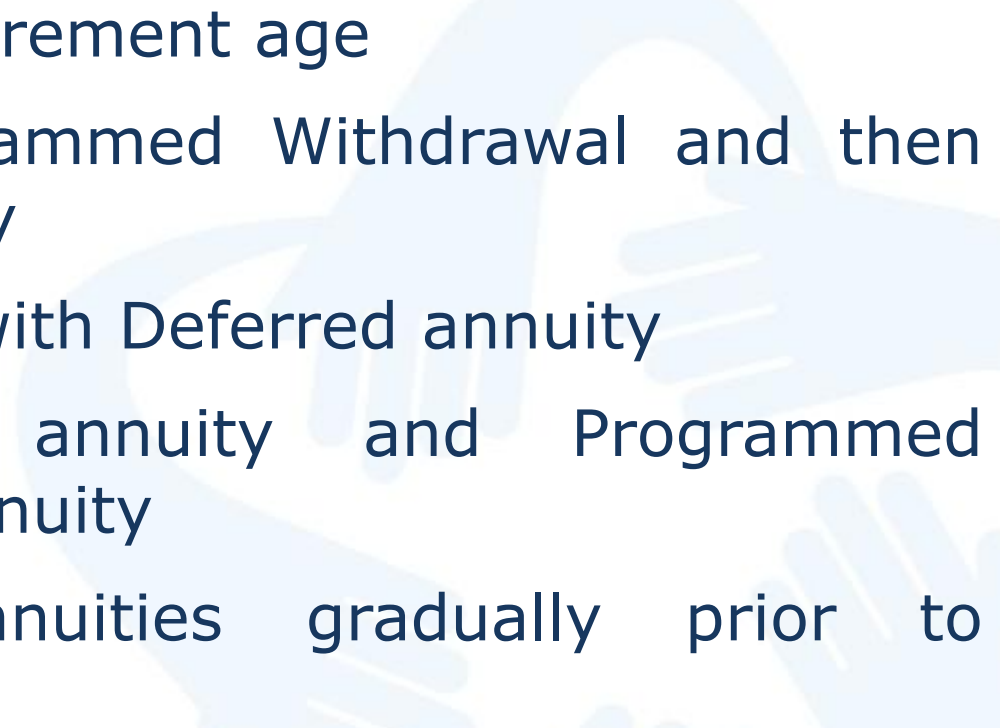
January 2006

	Lower Third	Mid third	Higher third	Total
Mean	3.38	3.38	3.48	3.42
Standard Deviation	0.43	0.32	0.34	0.36
Variation Coefficient	12.60	9.61	9.92	10.47

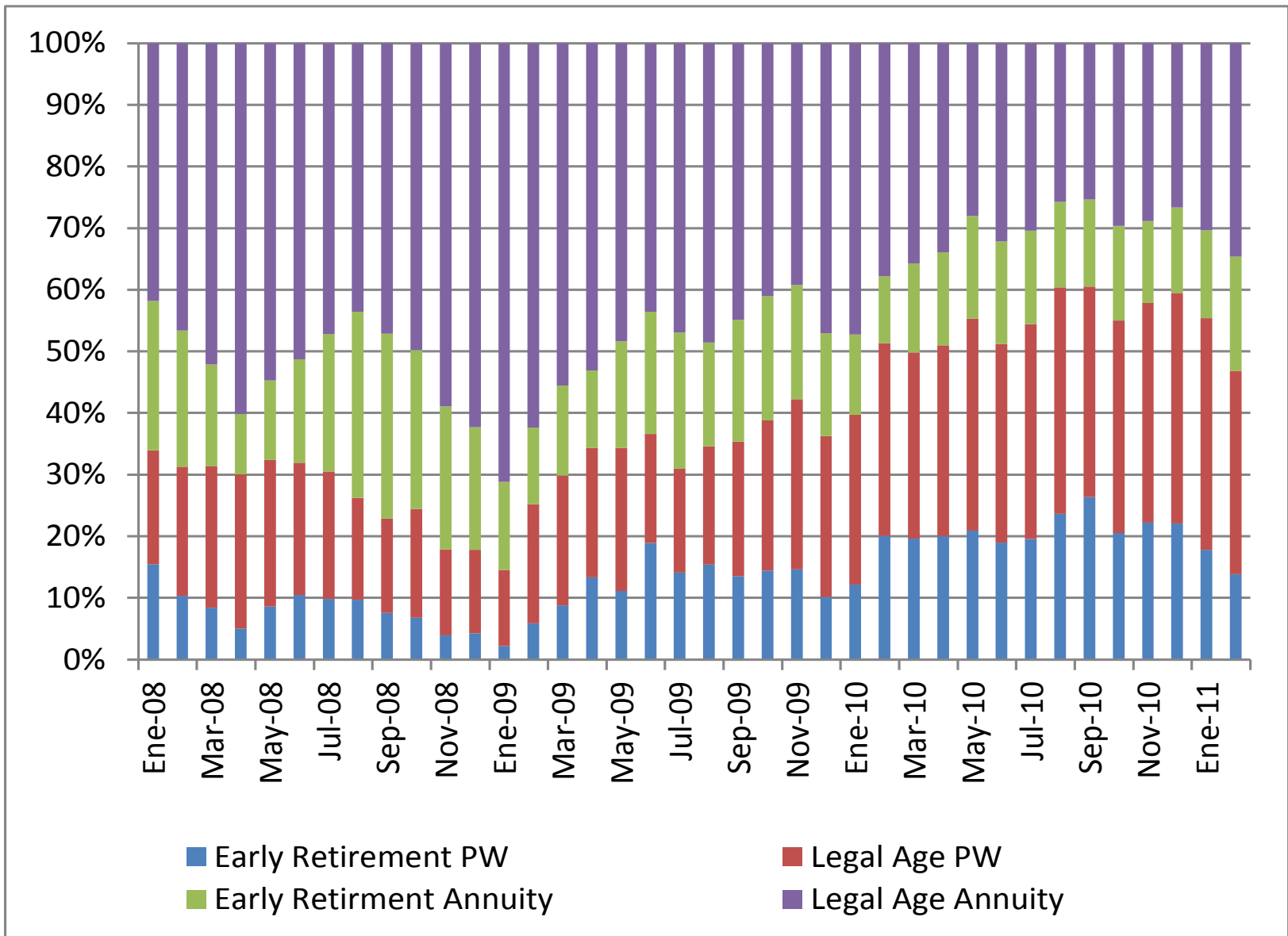
Variation %	-10.02%	-33.57%	-32.58%	-27.18%
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Source: Morales & Larraín, 2010

How to Mitigate Risks Going from the Accumulation to the Payout Phase

- Postponing the retirement age
 - Choosing a Programmed Withdrawal and then move to an annuity
 - Temporal income with Deferred annuity
 - Combination of annuity and Programmed Withdrawal and annuity
 - Start buying annuities gradually prior to retirement age
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Selection of Pension Products



Calculating Programmed Withdrawal Pensions

- For an individual with age x , her monthly Programmed Withdrawal (PW) pension for year t is given by:

$$PW_{x,t} = \frac{MAB_t}{NUC_{x,t} \times 12}$$

- Where MAB is the individual's mandatory account balance; and NUC is the Necessary Unitary Capital used to finance one pension unit.

Calculating Programmed Withdrawal Pensions

- Several variables have an impact on the NUC:
 - Mortality tables (gender and age)
 - Dynamic, updated every 5 years (2009)
 - Programmed Withdrawal interest rate
 - Forecast for future pension funds' returns
 - Existence of beneficiaries
 - Spouse (gender and age); children (number); partners with entitlement to receive benefits.

Calculating Programmed Withdrawal Pensions

- Effect of different variables on 1st year net withdrawal rates:

Cases	2011 Average PW Rate = 3.83 %		Average PW Rate = 2.5 %	
	Male	Female	Male	Female
Single	7,74%	6,01%	6,73%	4,95%
Married	6,60%	5,81%	5,50%	4,76%
1 child	6,64%	5,79%	5,57%	4,74%
2 children	6,61%	5,78%	5,54%	4,74%

Assumptions: Age 65 for male jubilee and 60 for females; age 63 for male retiree's spouse and 62 for females' spouse; male children with ages 17 and 15. Funds' returns are equal to the PW forecasted rate. The figures are the total annual withdrawals as percentage of initial balance.

Calculating Programmed Withdrawal Pensions

- Several variables must be considered in order to estimate withdrawal rates.
- It's possible that individuals' expenses do not decrease monotonically after retirement (medical and long-term care expenses).
- Moreover, in a growing economy, where real wages increase over time, a declining income path implies an ever-increasing wedge between retirees and workers' average income. This also applies, to a lesser degree, to inflation-indexed annuities.

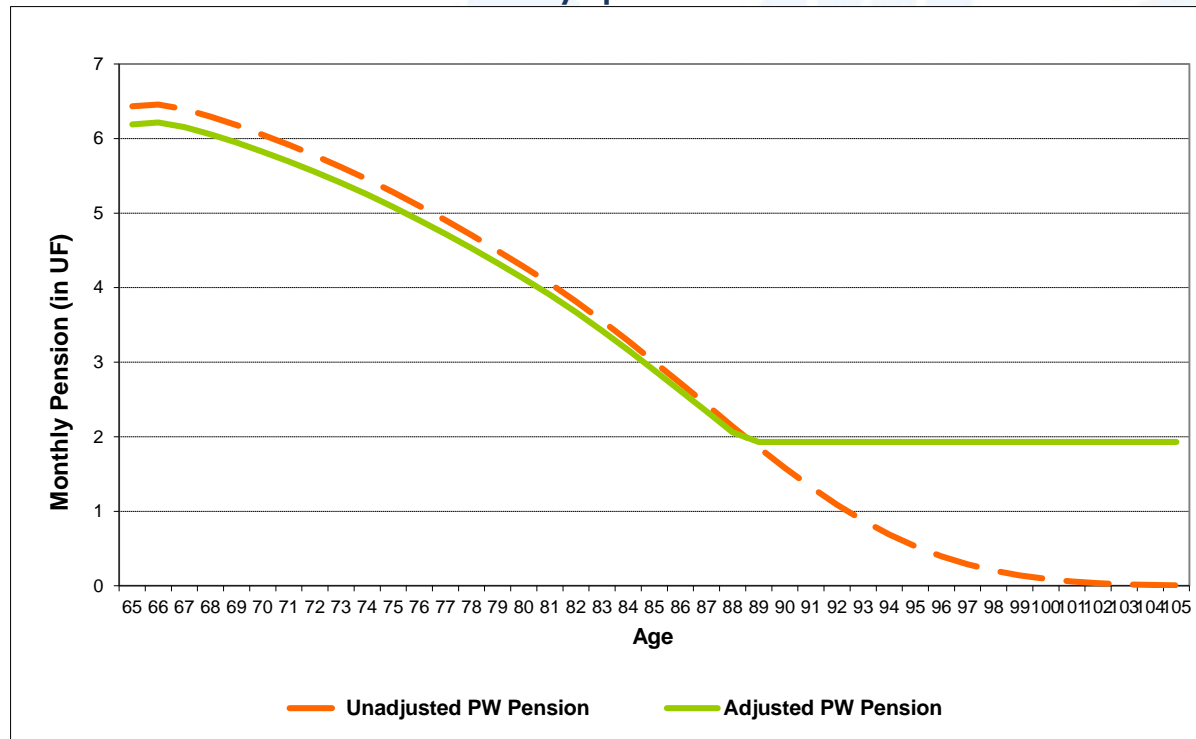
Recent Improvements: 2008 Reform

- **Solidarity Pillar**
- The 2008 reform increased coverage through a **Solidarity Pillar**
- **Basic Solidarity Pension (PBS)** for individuals without participation (contributions) in the System.
- **Solidarity Pension Payment (APS)** for individuals with self-financed pensions below the PMAS (Maximum Pension with Solidarity Payment, equal to \$255.000 upon full implementation).
- Focus: the poorest 60% of the population upon full implementation (July 2011)

Recent Improvements: 2008 Reform

Longevity Risk: Programmed withdrawals incorporate an adjustment factor

- Objective: To smooth changes in pension payments under programmed withdrawals by means of adjusted payments. The adjustment is a percentage reduction in the programmed withdrawal pension, which value is based on the balance of the individual account. The goal is to guarantee a floor for pension payments until age of 105.
- This adjustment factor is applied to all retirees who do not qualify to receive benefits from the solidarity pillar.



Final Remarks

- Improve the information given to members:
 - Develop a way to communicate information about pension risk to members in an easily and timely fashion.
 - Supervision of Pension Advisors.
 - Improve information given by SCOMP.
 - Financial and Pension Education.
 - Improve financial literacy of all members through a collaborative effort with other regulatory institutions.
 - Promote the active participation of people in their retirement savings decisions.

- Evaluate and update the methodology for calculating the relevant interest rate for programmed withdrawal (trade-off between conservative approach and attractive alternative to annuities).

- Study alternative types of pension and protection against longevity risk:
 - Temporary income with deferred annuity and partial annuitization before retirement.



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