Funding Standards of Corporate Pension in Japan

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Yohei Iwata
Mitsubishi UFJ Trust and Banking Corp.

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Corporate Pension Plans in Japan

- Defined benefit pension plan
  - Defined-Benefit Corporate Pension Plan (DBCPP)
  - Employee's Pension Fund (EPF)
  - Tax Qualified Pension Plan (TQPP)
- Defined contribution pension plan
  - Defined-Contribution Corporate Pension Plan (DCCPP)

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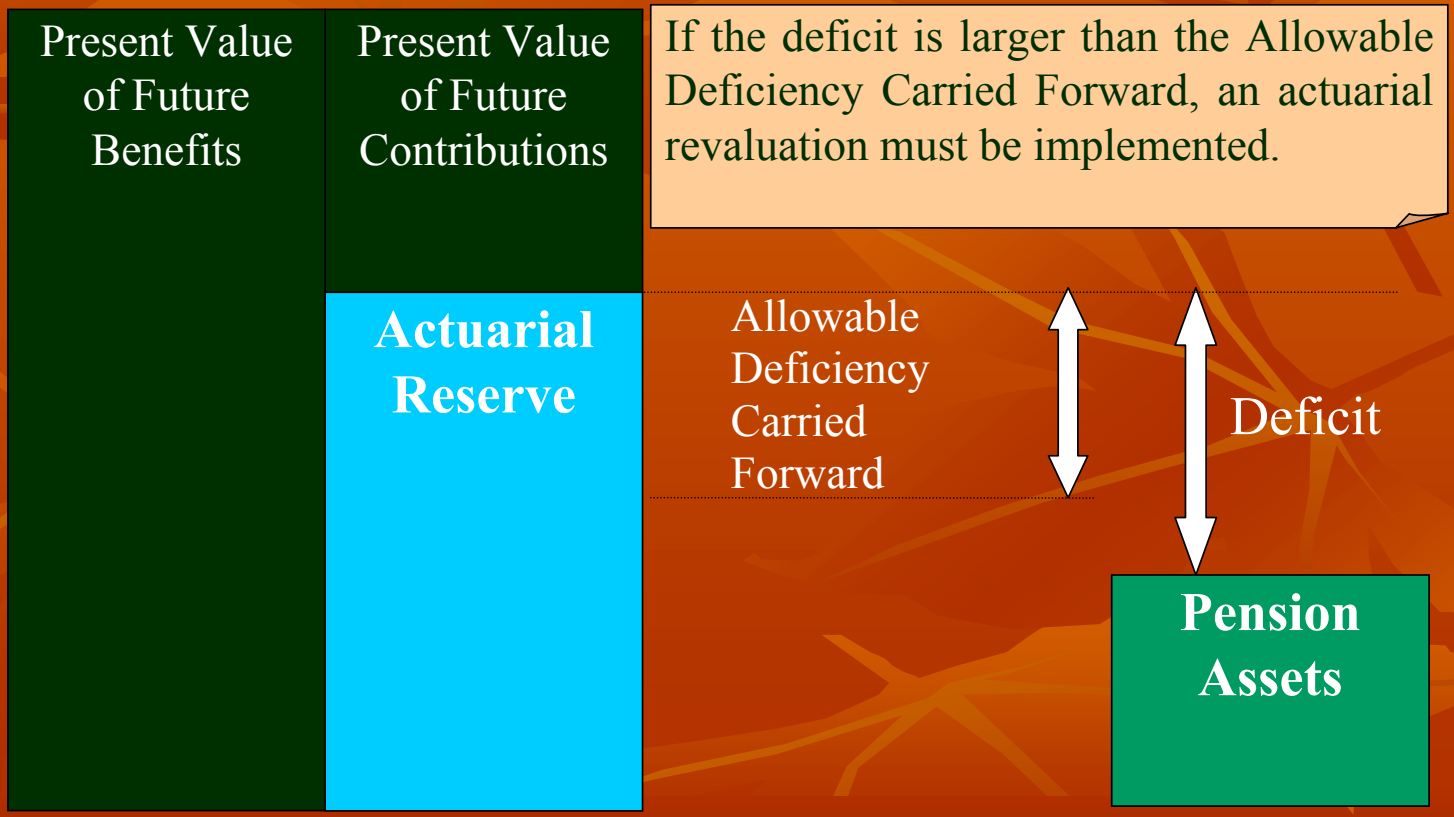
Funding Standards of Defined-Benefit Corporate Pension Plan

- Funding Requirements for Continuance (FRC)
- Discontinuance Funding Requirements (DFR)
- Maximum Funding Standard

Funding Requirements for Continuance (FRC)

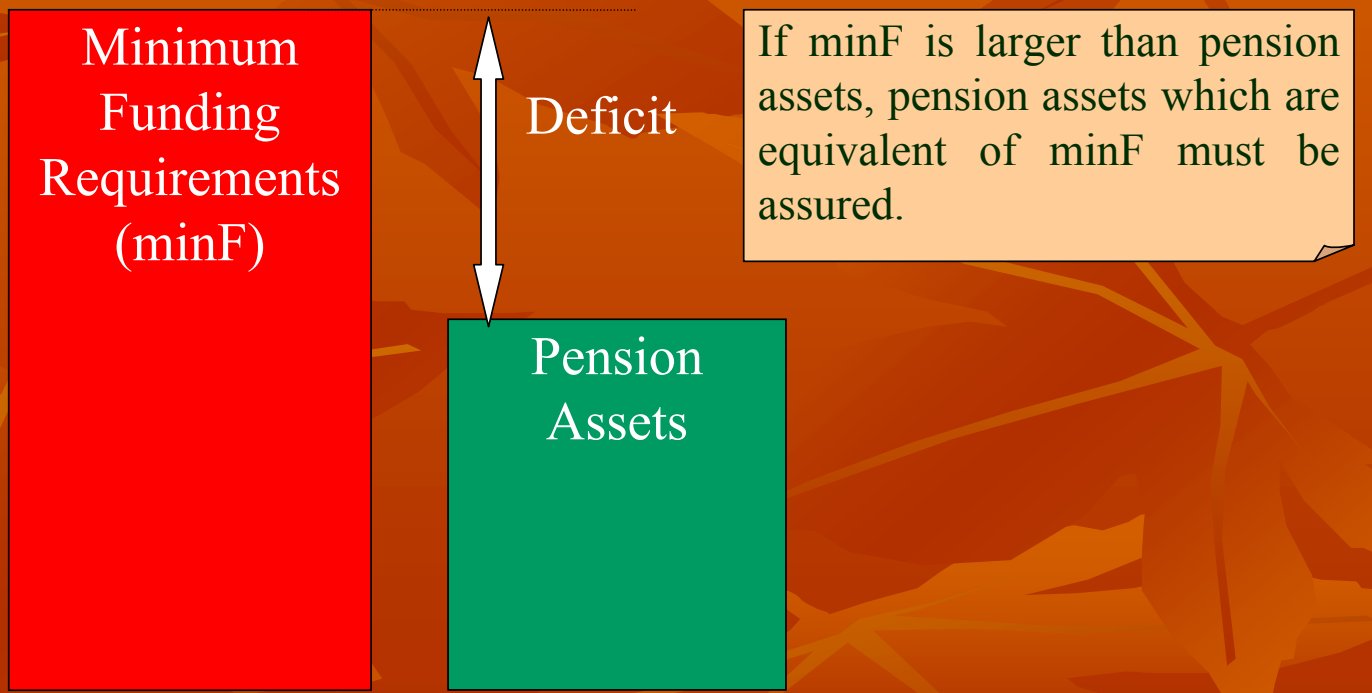


Allowable Deficiency Carried Forward

- There are three way to calculate ADCF
  i. Present value of Normal Cost for the next 20 years × fixed rate less than 15% *
  ii. Actuarial Reserve × fixed rate less than 15% *
  iii. Either i or ii whichever is smaller

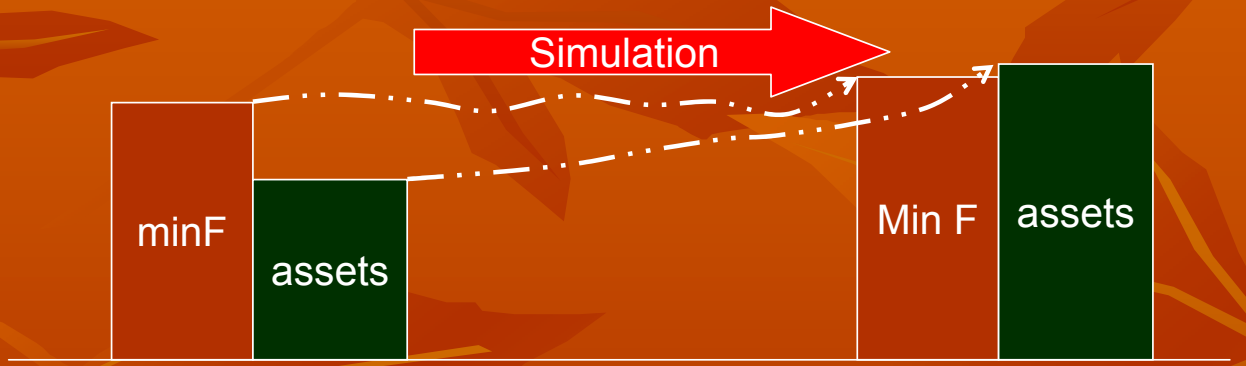
  * *The business owners has decided in advance*

Discontinuance Funding Requirements (DFR)



How to secure necessary assets when the DFR is not met?

- Restoration Plan



- Setting the contribution according to the funding level

Maximum Funding Standard

1. (present value of future benefits)
   -(present value of future normal costs)
2. Minimum Funding Requirement

>If pension assets grows higher than 150% of the larger one of these amounts, the business owners will have contribution holidays

Several Points of Contention concerning Funding Standards

1. Discount rate used for Funding Requirements for Continuance
2. Discount rate used for Discontinuance Funding Requirements
3. Relationship with Accounting Standard

Discount Rate Used for Funding Standard and Accounting Standard

Situation	Discount rate
Funding Requirements for Continuance (FRC)	The rate the business owners originally set based on the expected rate of return on plan assets
Discontinuance Funding Requirements (DFR)	The fixed rate specified in advance to be within 80-120% of average earning yields of 30-year government bonds for 5 years
Accounting Standards	The rate based on the yields of stable and long-term bonds

Discount rate used for the Funding Requirements for Continuance

- Discount rate is set based on expected rate of return
- Business owners have initiative to decide how much of the risk premium to reflect in the discount rate
- A higher risk premium will lift the probability of being short of funding

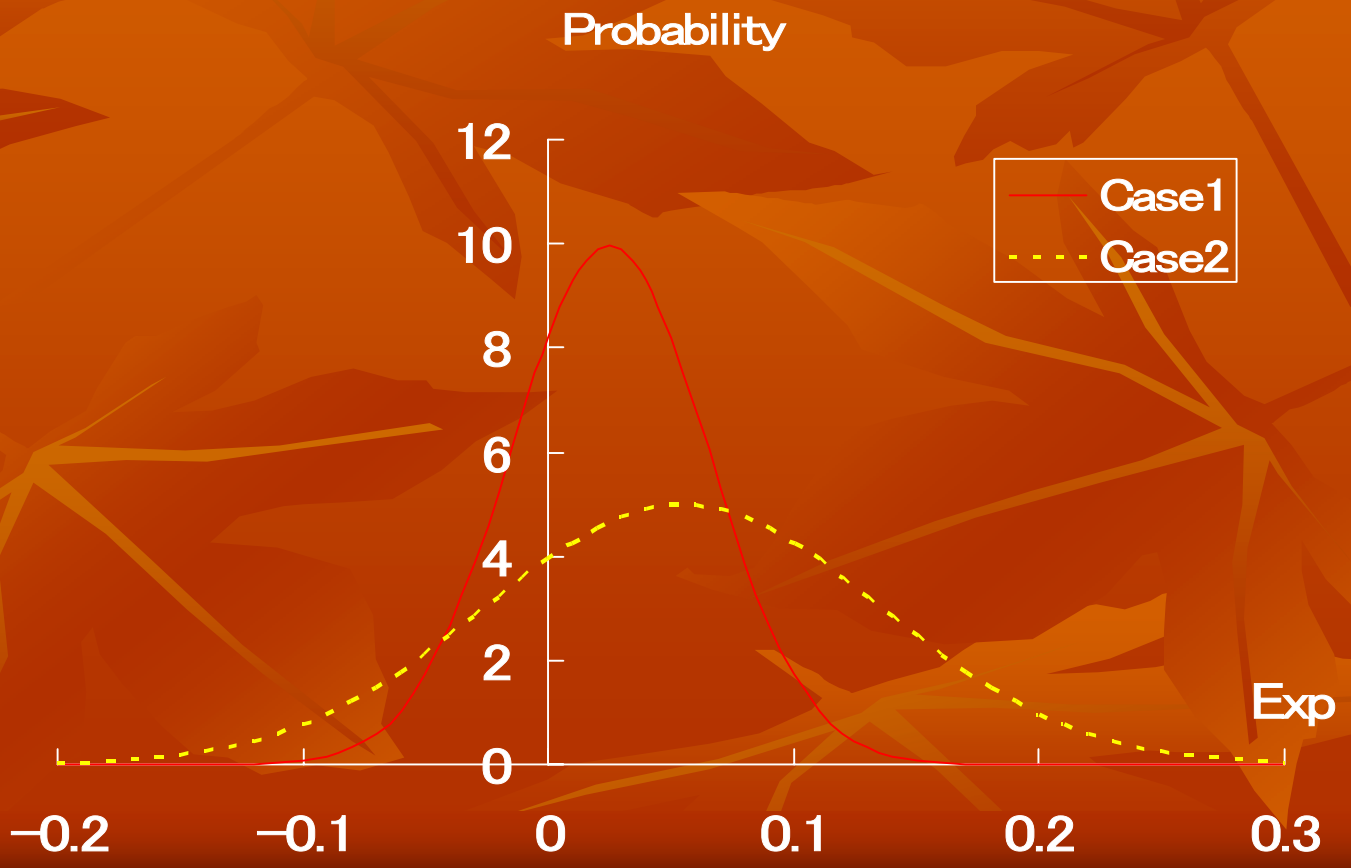
>Introducing the concept of fluctuation of assumptions to the financial verification process will enable us to verify the funding status of pensions more accurately

Calculation Samples
(1) Assumed Scenarios

- Expected rate of return (Exp), Discount Rate for the FRC (D/R) and Standard Deviation of Exp (SD)

	Exp	D/R	SD
Case1 (Low risk low return)	2.50%	2.50%	4.00%
Case2 (High risk high return)	5.50%	5.50%	8.00%

Calculation Samples
(2) Probability Distribution



Calculation Samples (3)Other Assumptions

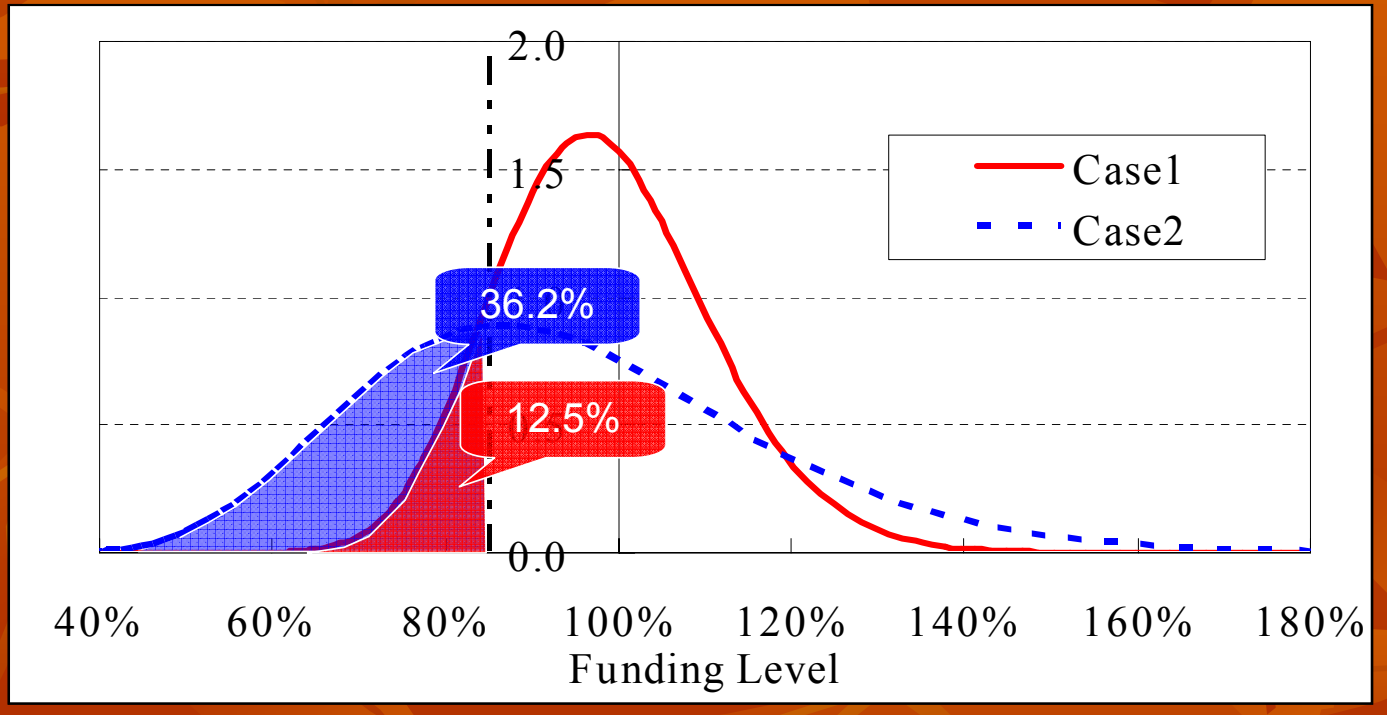
- The funding level at the start of calculation is 100%
- All the parameters excluding the Exp shift according to the actuarial assumptions
- The pension plans has reached a steady state

$$F \times i = C \times \sqrt{1+i}$$

- The ADCF is equal to 15% of the Actuarial Reserve

Calculation Results (1)

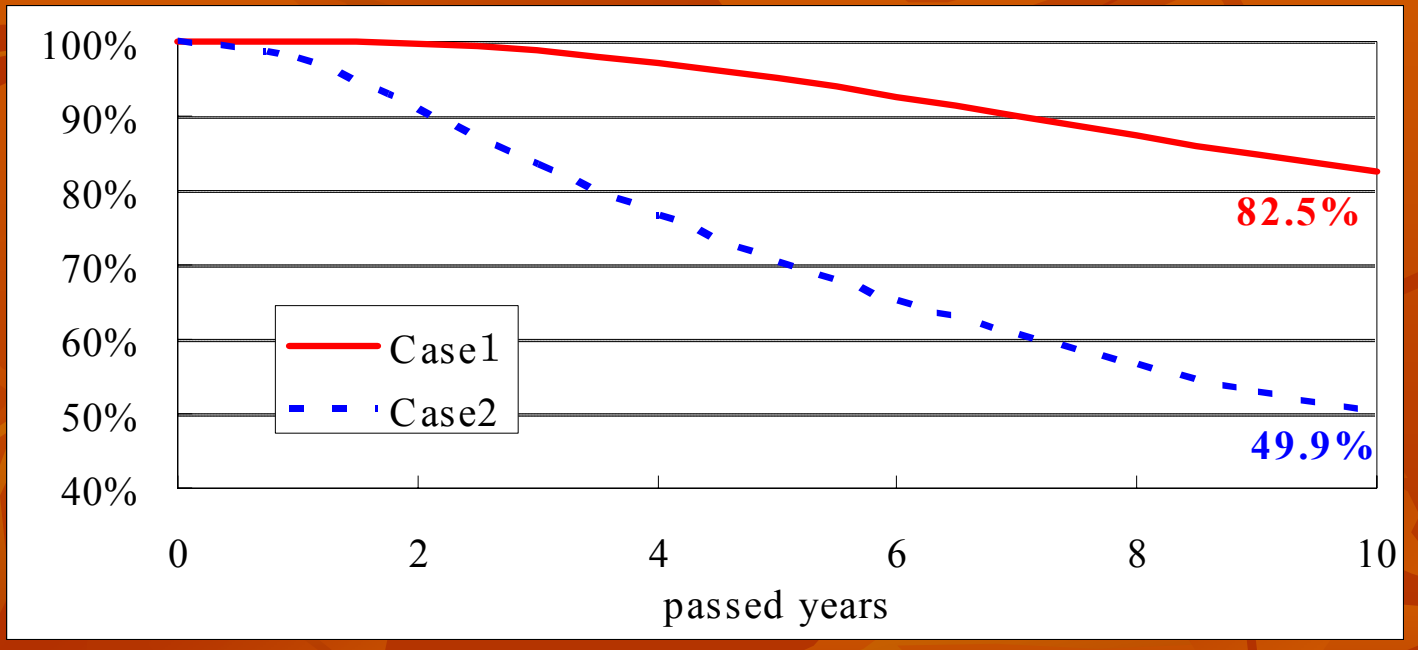
- Probability distribution of the funding level after 10 years



The probability of being short of funding after 10 year in Case2 is almost 3 times larger than in Case1

Calculation Results (2)

- Probability not in conflict with the FRC



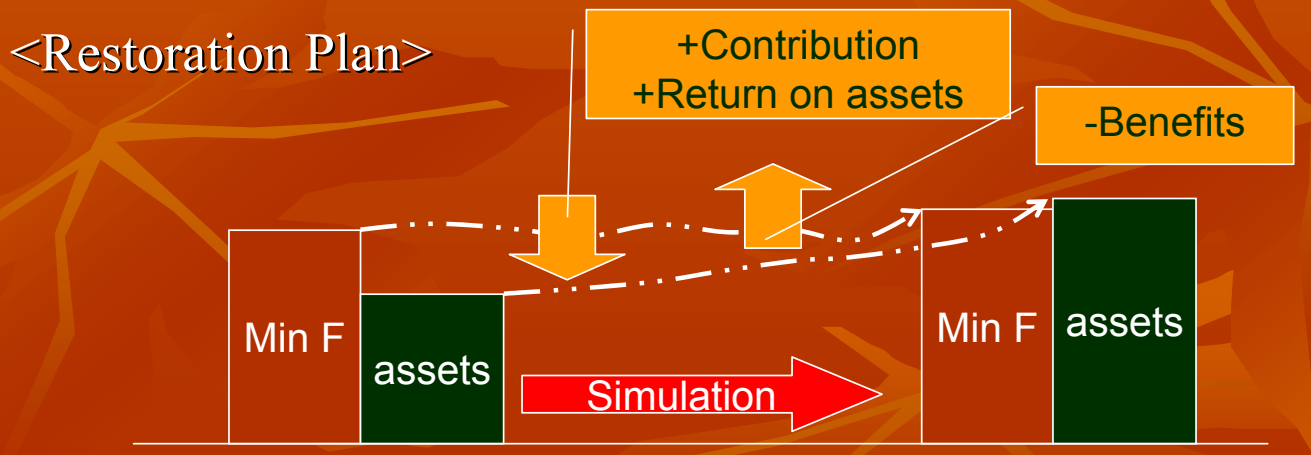
In Case2, one for every two pension plans will have conflicted the FRC at least once for ten years

Discount Rate Used for Discontinuance Funding Requirements (DFR)

- The discount rate to calculate Minimum Funding Requirement is set based on the average earning yields of government bonds
- It would be reasonable to use bond yields maturing in the same time frame to average the outlay of pension liabilities
- The dependence on a business owner's risk tolerance will be decreased

Discount Rate Used for Discontinuance Funding Requirements (DFR)

- Why can the expected rate of return for the Restoration Plan be the discount rate for the FRC ?

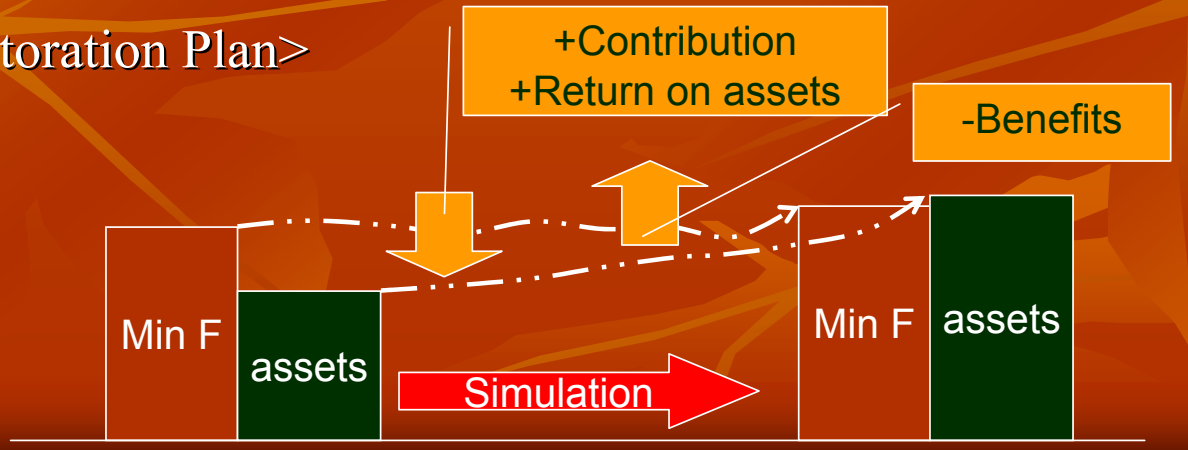


Discount Rate Used for Discontinuance Funding Requirements (DFR)

- Relationship between discount rate of the FRC and income of the simulation for the Restoration Plan

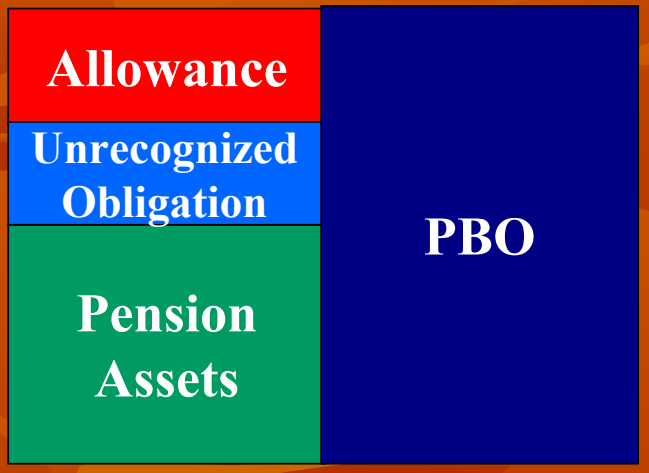
Situation		Contribution	Expected return on assets
D/R of the FRC	Low	High	Low
	High	Low	High

<Restoration Plan>

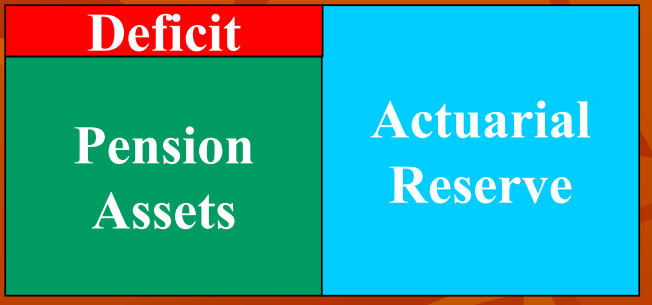


Relationship with Accounting Standards

<Corp. Accounting>



<Pension Finance (FRC)>



- Pension Finance and Corporate Accounting have different verification systems

There are companies which need to report their reserve allowance in their accounting even if the funding level of the FRC reaches 100%

Relationship with Accounting Standards

- The method for setting the discount rate is one of the factors of this problem
  - A lower discount rate than the FRC often occurs
  - The contributions of pension plan are set according to the liabilities calculated based on the discount rate of the FRC

A company still needs to report its reserve allowance in its accounting even if the funding level of the FRC reaches 100%

Personal Viewpoint

- A Funding Standard based on risk level
  - The Application of Protection Measures
  - Subjects of Future Investigation
  - Relaxation of Regulation
- Relationships to Accounting Standards

A Funding Standard based on risk level

- Tradeoff relationship is formed between risk and return
- A pension plan with high-risk asset management requires higher risk tolerance

> It would be reasonable to have some kind of protection against future risk

When should the protection measures be applied?

1. Run a simulation for a given term for each pension assets and pension liability
   - Risks caused by the fluctuation of actuarial assumptions should be taken into consideration.
2. If there is a high probability that the future funding level will be lower than the fixed level as standard, appropriate measures to protect the contribution should be taken

- The results of 1. are also used for the pension assets simulation for the Restoration Plan

Subjects of Future Investigation

- How to measure the fluctuations of actuarial assumptions
- How to consider the influence of parameters other than actuarial assumptions
  - Maturity of a pension plan
  - Ability of pension plan to adapt to interest risk
- How to define the co-relation functions of each parameter
- What kind of mathematical model should be applied to simulate future assets and liability

Relaxation of Regulation

- Permission for setting of contribution rates to allow funding levels to be maintained at more than 100%
- Increasing the flexibility of contribution methods

Relationships to Accounting Standards

- A comprehensive negotiation between labor and management about their pension plan including risk allocation
- Funding standards based on risk level can reduce the disparity between both standards

The Roles of Actuary

- Drastic changes in the environment of the corporate pensions
- Exposed risk around corporate pension

>Great expectations on the pension actuary as the specialist of risk assessment