

Consideration of life pension in Japan utilizing "Risk-Sharing Corporate Pension"

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About the speaker



- **Satoshi Fukumoto**
- Manager, Group Annuities Dept.
- Fellow of the Institute of Actuaries of Japan
- Calculate employee benefit obligation according to IAS 19



- **Nippon Life Insurance Company**
- The biggest Life Insurance Company in Japan
- The asset is over \$500 billion dollar
- More than 100 actuaries

Agenda



1. Overview of the Pension system in Japan
2. Introduction of Japan's new Pension
3. Improvement of Japan's mortality rate
4. Analysis of Risk Sharing Pension

1. Overview of the Pension system in Japan

(Number of active participants as of March 2016,
unit : million)

Corporate Pension

Employee Pension

Basic Pension

Spouses
of Private

Self
employed

NP(National Pension) (67.1)

EPF
(2.5)

DB
(8.0)

DC
(5.5)

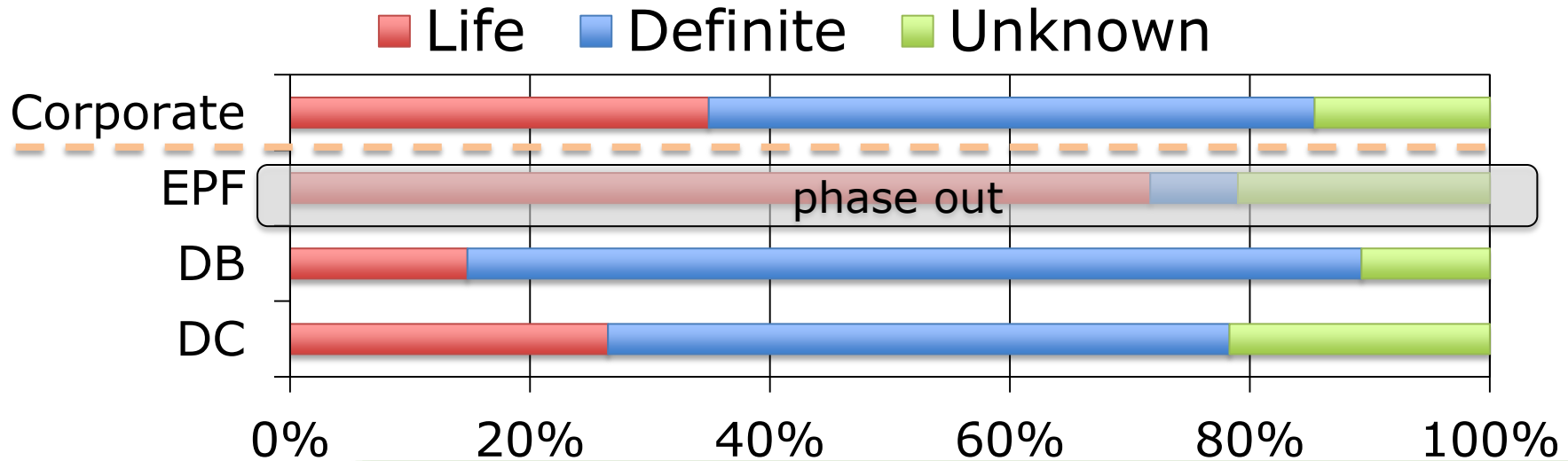
EPI(41.3)

Private (36.9)

Public

1. Payment period of corporate pension in Japan

(Number of companies in the term of corporate pension payment period as 2016)



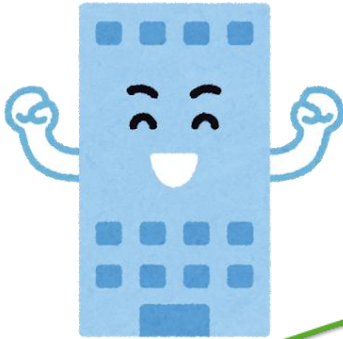
2. Introduction of Japan's new Pension

DB

Risk Sharing
Pension
Asset Operation :
Company
Benefit : Employee

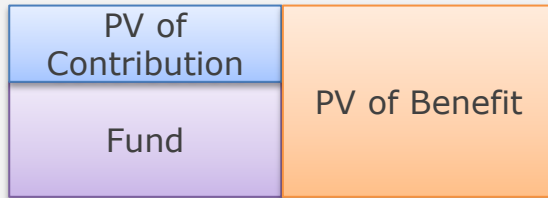
DC

Risk



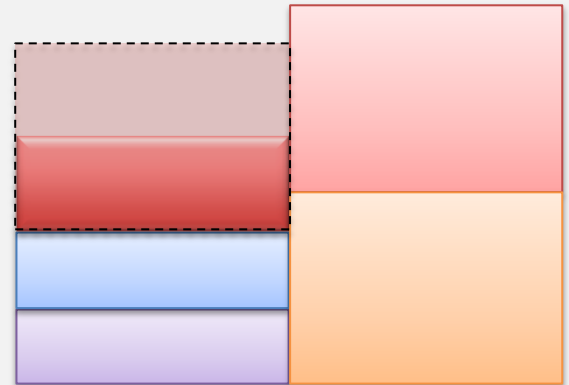
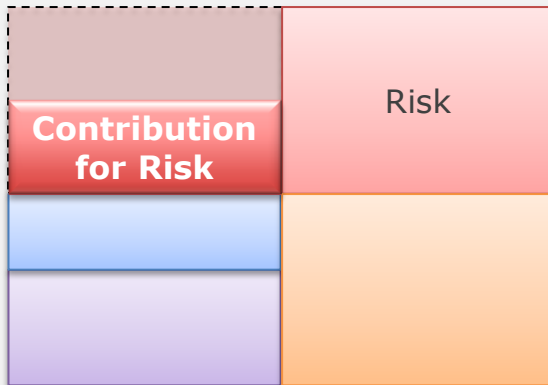
2. Contribution for Risk

DB

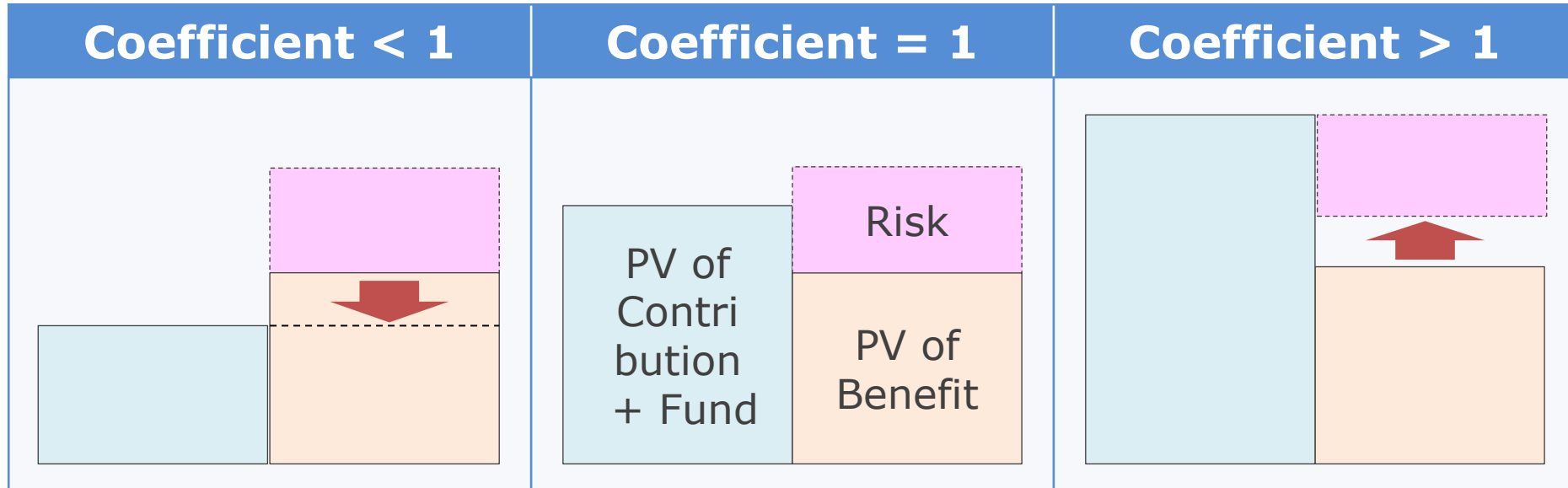


Financial deterioration

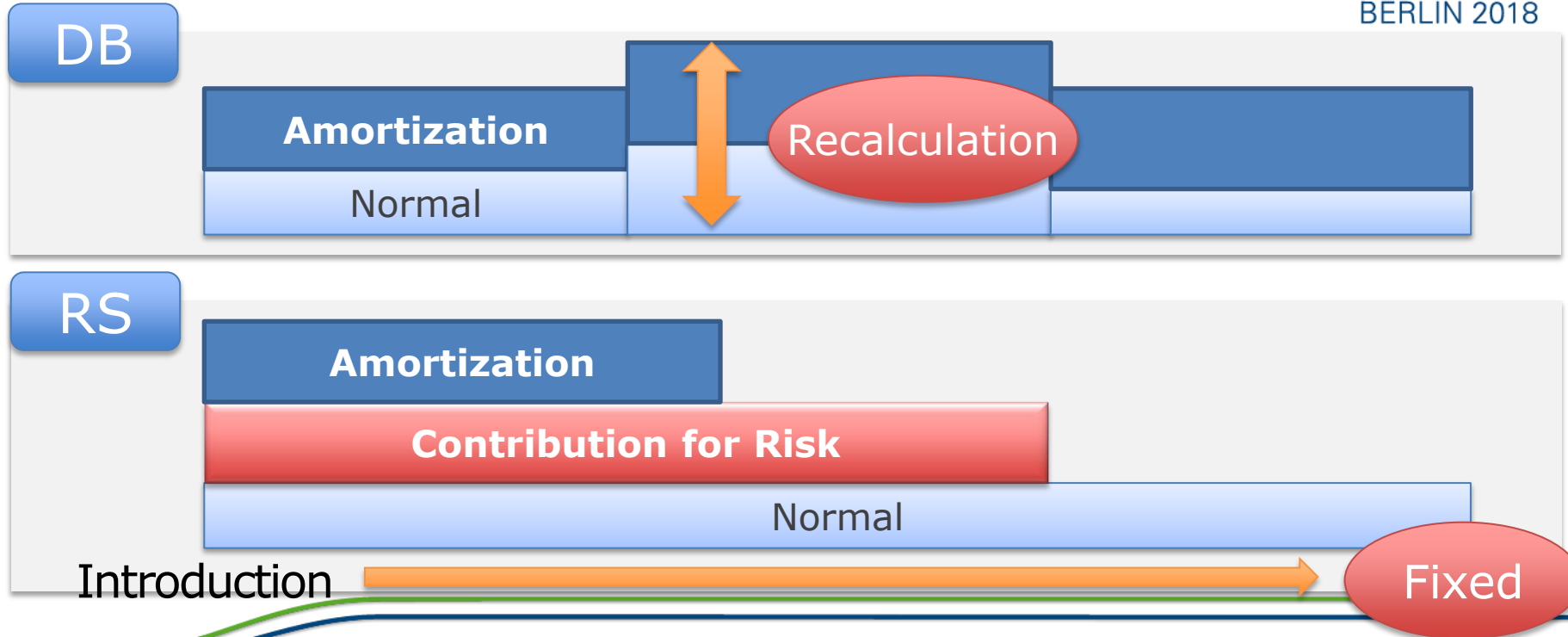
RS



2. System of benefit adjustment



2. The contribution is fixed



2. How to estimate The Risk

- Asset price risk
⇒ Asset * risk coefficient
- Interest rate reduction risk
⇒ Increase in liabilities in case the interest rate declines by 1%
- Mortality rate improvement risk
⇒ Increase in liabilities when future mortality improves

2. How to estimate The Risk

Asset price Risk

Asset * Risk coefficient

Ex) Domestic Bonds : ¥500 Foreign Stock : ¥300
¥500 * 5% + ¥300 * 50% = ¥175

《Risk coefficient*》

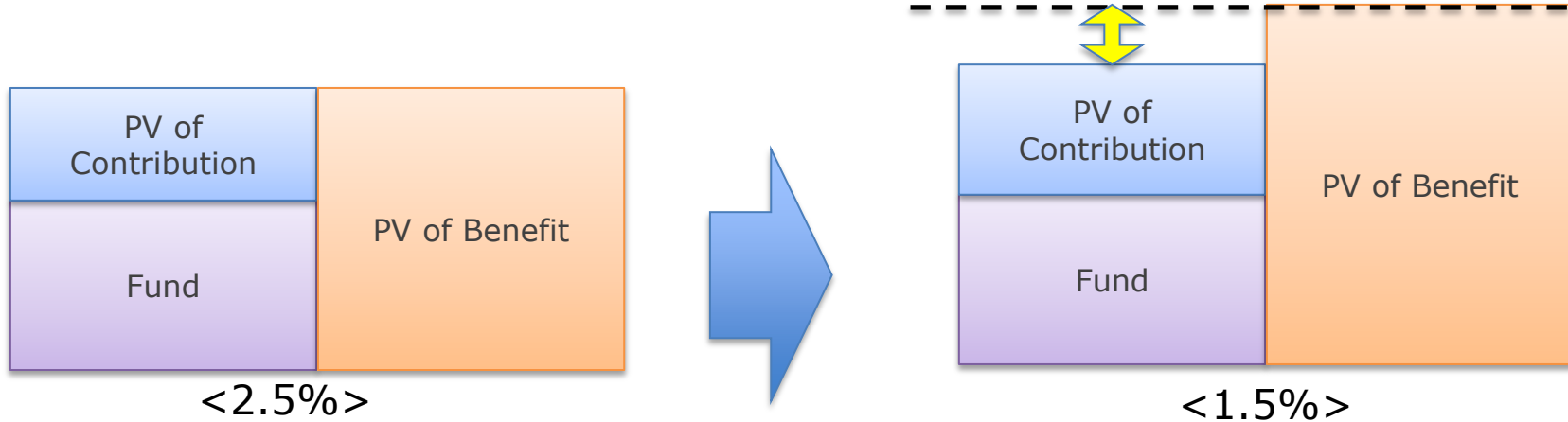
Domestic Bonds	Domestic Stock	Foreign Bonds	Foreign Stock	General account	Short-term asset
5%	50%	25%	50%	0%	0%

*Coefficients are defined by Japanese practice standards

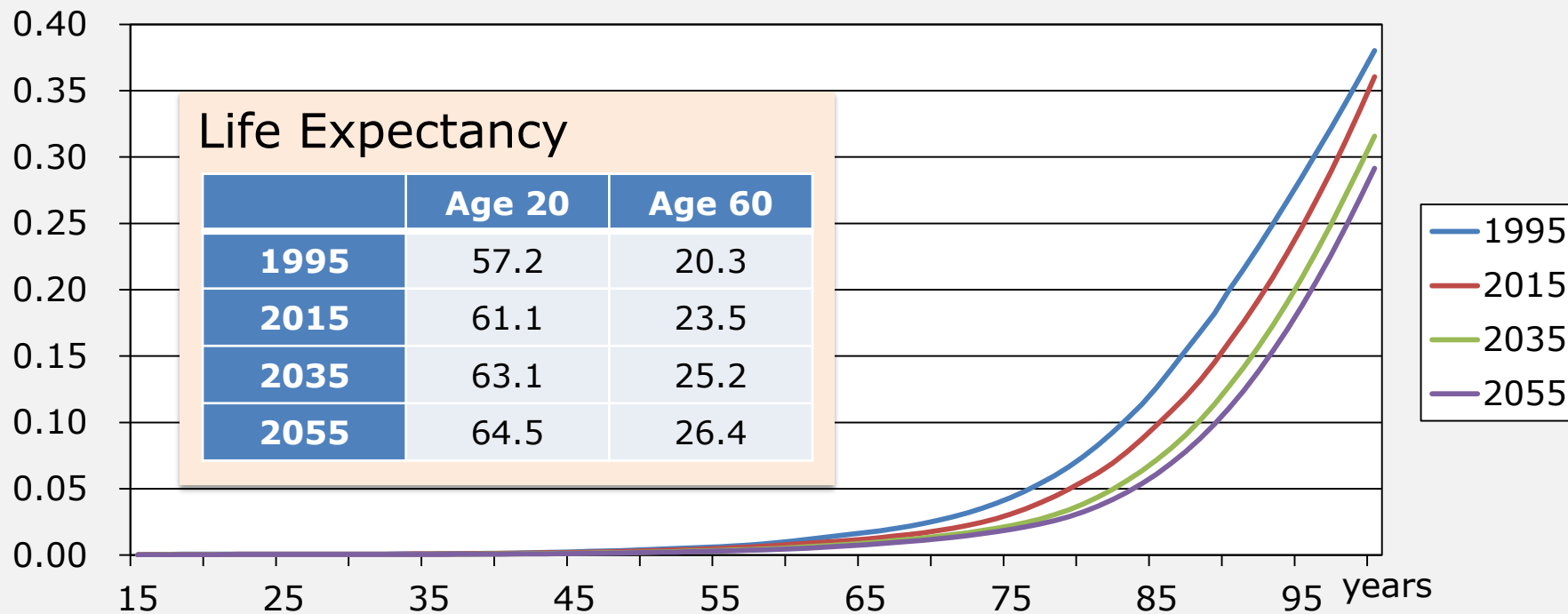
2. How to estimate The Risk

Interest rate reduction risk

Increase in liabilities in case the interest rate declines by 1%



3. Japan's mortality rate



4. Assumptions for analysis

Plan asset

All of the assets are bonds, which completely match their cash flow (= ideal LDI)

Plan design

(LDI : Liability-driven investment strategy)

Benefits are proportional to total accumulated salary (which is typical in Japan)

Entry age : 22 years old, retirement age : 60 years old

Actuarial assumptions

Salary increase rate : 2%, turnover rate : 0%,

Mortality rate (1995 to 2015) : Actual mortality rate 1995 to 2015

Mortality rate (2015 to 2035) : Mortality rate 2015 that improved 1995 to 2015 performance

Future prediction Mortality rate : Mortality rate after 20 years

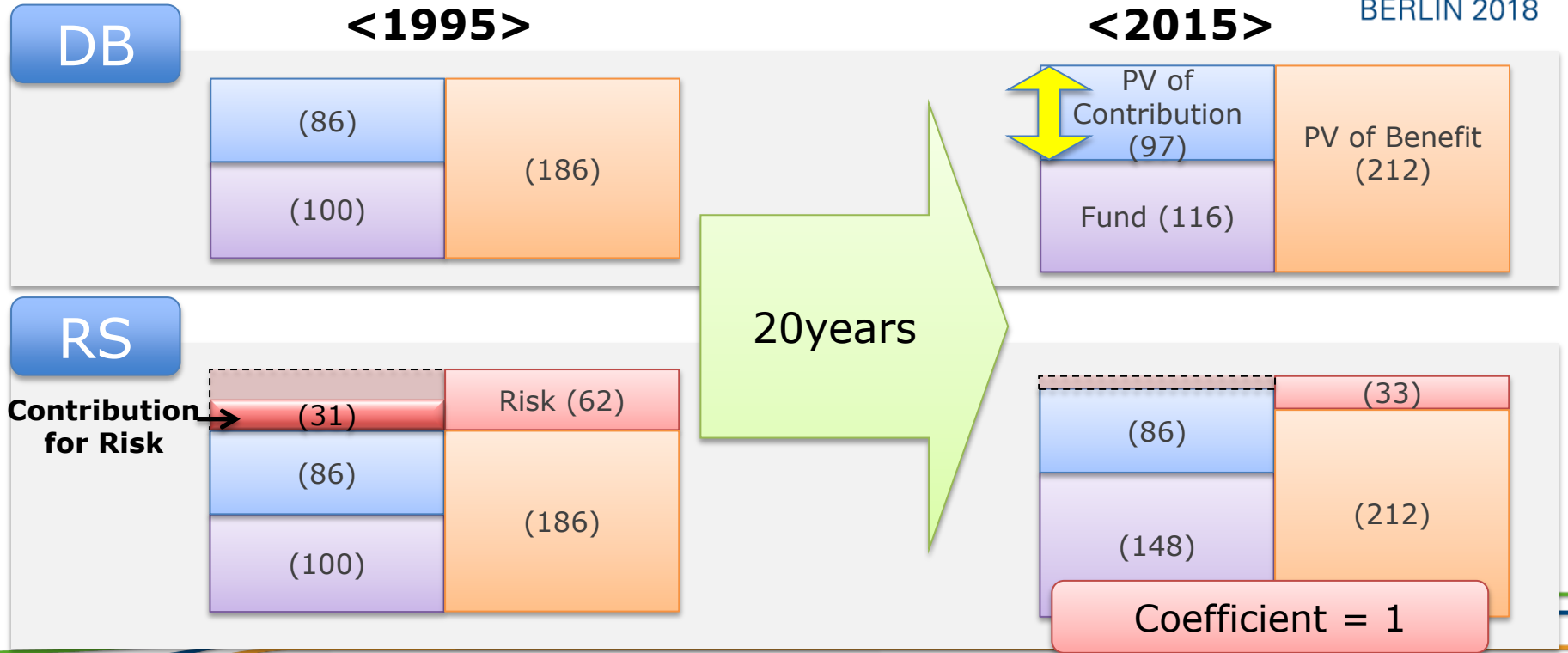
Population distribution

Fill up vacancies (The number of participants is constant)

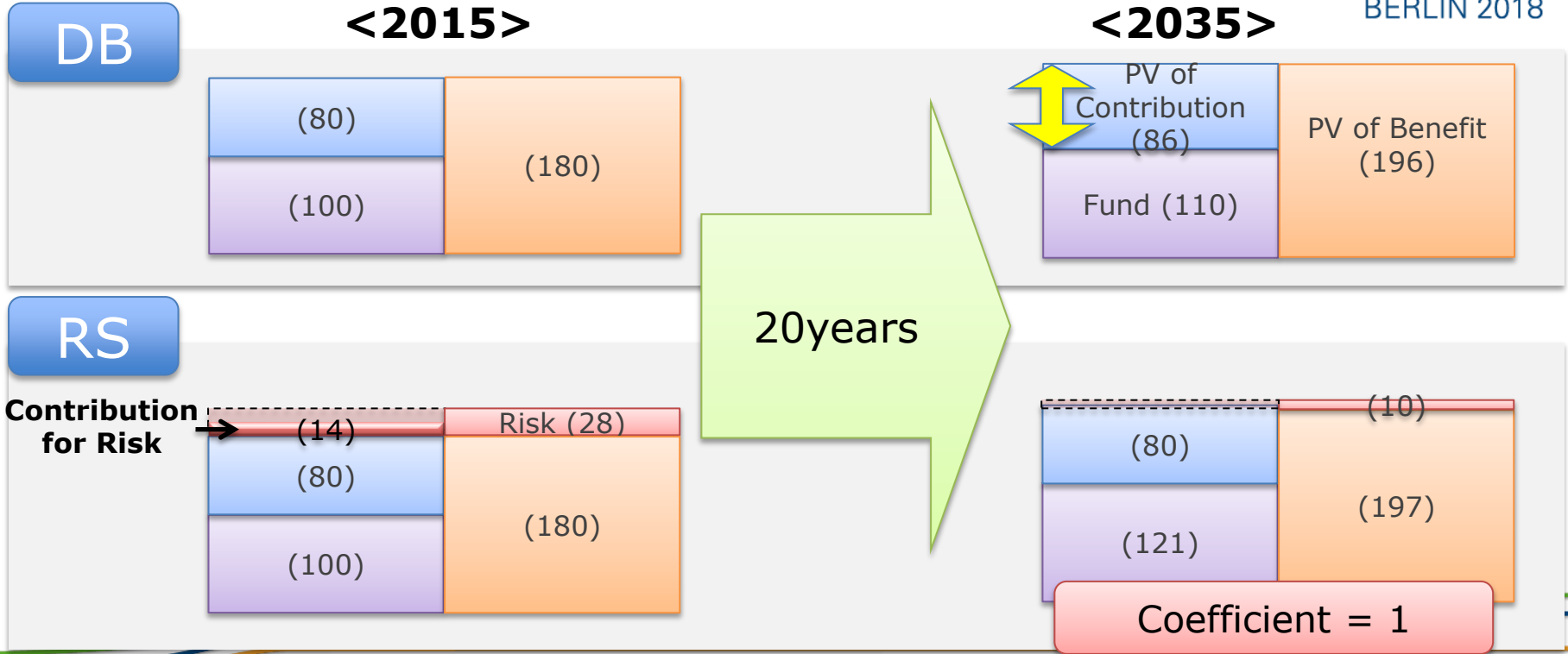
Term of benefit

Life annuity with the first 10 years guaranteed

4. Result of analysis (1995 to 2015)



4. Result of analysis (2015 to 2035)



Summary



- By utilizing "Risk-Sharing Corporate Pension" , longevity risk due to life annuity will be reduced
- It is a great merit to be able to choose the fiscal contribution timing, such as when the company's performance is good

Finally



- Introduction of "Risk-Sharing Corporate Pension" still has few cases (4 cases as of March 2018)
- As a risk not limited to life annuity , it is a continuing problem that how to estimate the impact of asset operations.

Thank you very much for your attention!



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