

DB PENSION RISK MANAGEMENT WITH FUNDING SURPLUS AND DE-ACCUMULATION

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11:00—11:45 (18a)

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Opening

- Presenter – Takashi Kato, The Japanese Society of Certified Pension Actuaries
 - 11+ Years experience in corporate pension plan design and liability valuation (Japan and Korea)
 - 2+ Years experience in corporate pension asset allocation strategy consulting (Japan)
- Contents – review of pragmatic actions
 - Investment strategy in de-accumulation stage
 - Portfolio management for DB pension with funding surplus
- Today's goal – Find essences of action against challenges above
- Question policy – QA session after completion of 30 min presentation

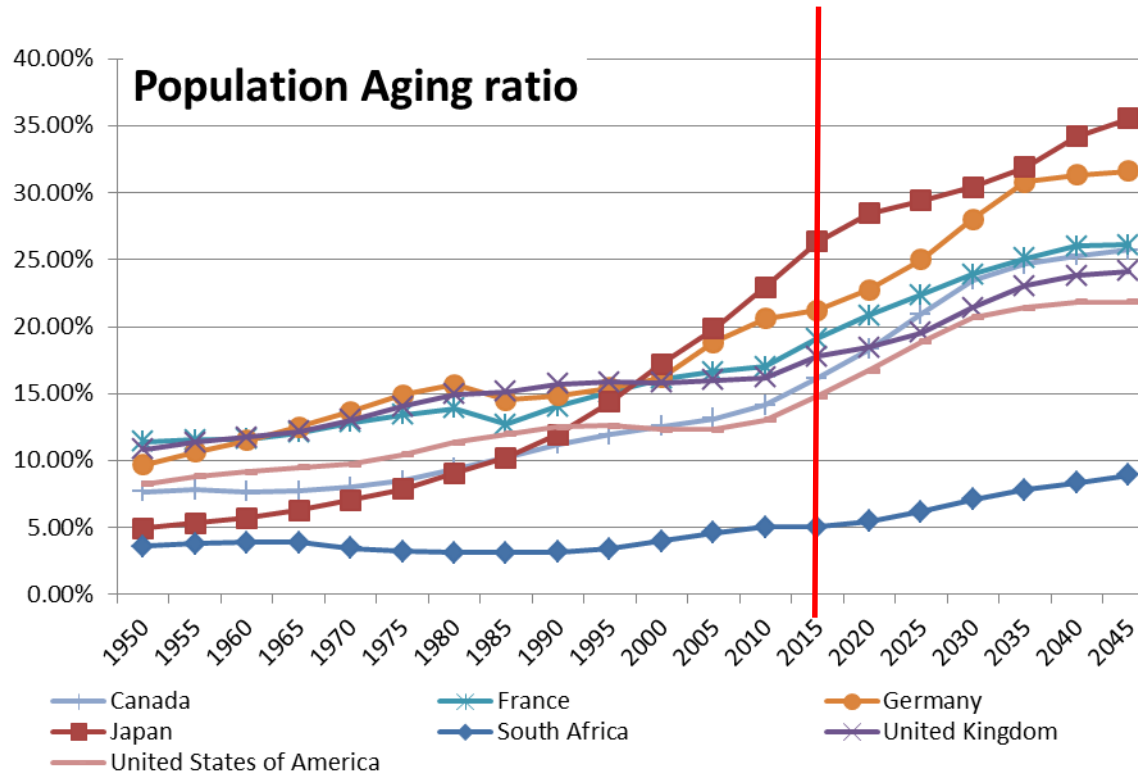
Environmental Review

Environmental review

Aging population

Japan is an Advanced Aging country

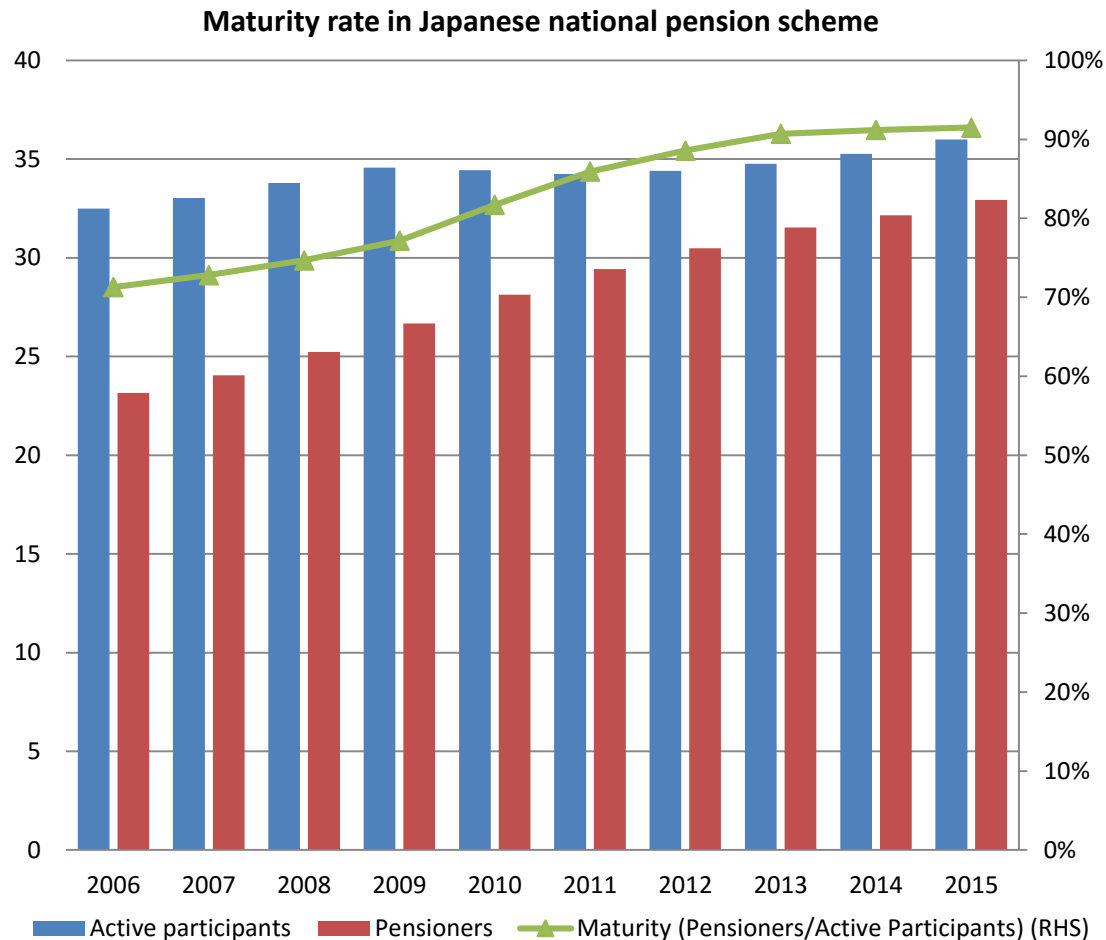
- DB pension plan likely faces de-accumulation stage



Source: 2015 Revision of World Population Prospects, *United Nations Population Division* and author developed (Data since 2020 is the projected one at medium variant)

Environmental review

Matured society in Japan



- In addition, corporate pension likely face more de-accumulation needs, due to less active participants caused by plan sponsor's de-risking activity
 - DB plan close/freeze
 - Plan change

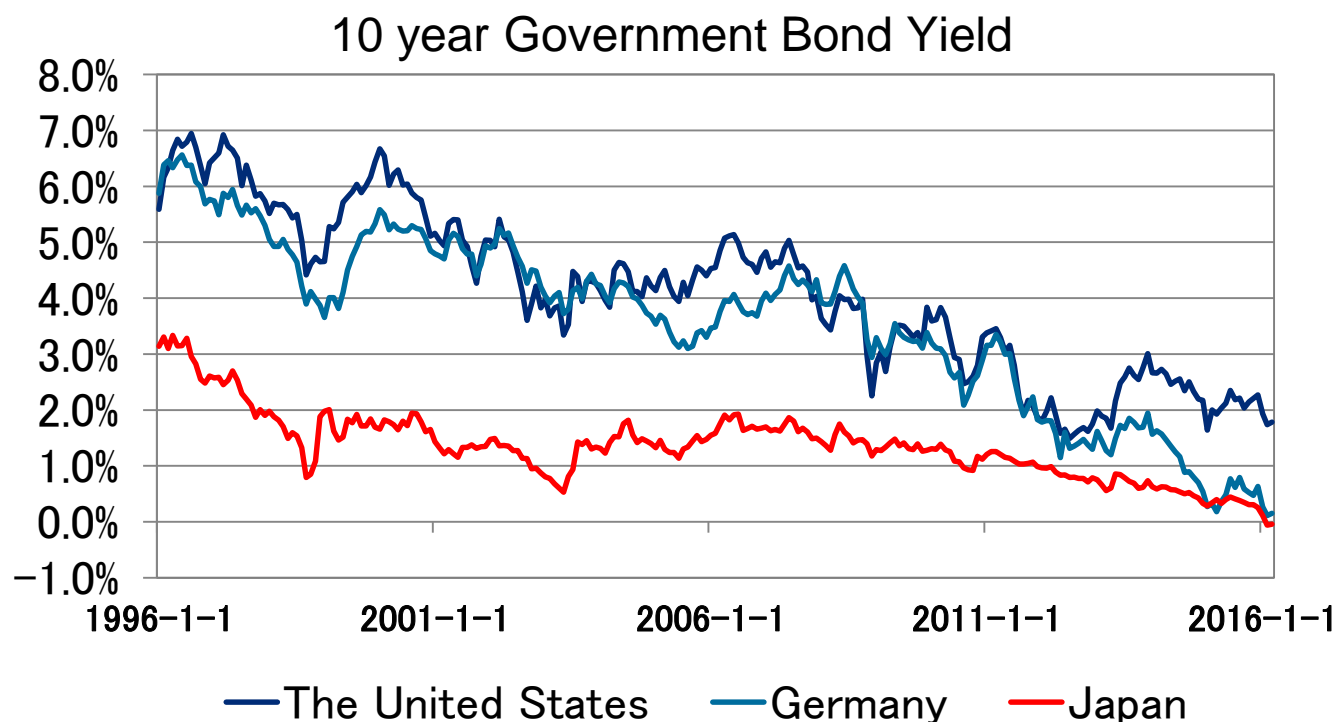
Source: *Pension Fund Association* (2015): Basic material about Corporate Pension 2015

Environmental review

Low interest

Japan is an Advanced low interest country

- DB pension plan has likely reviewed its target investment return



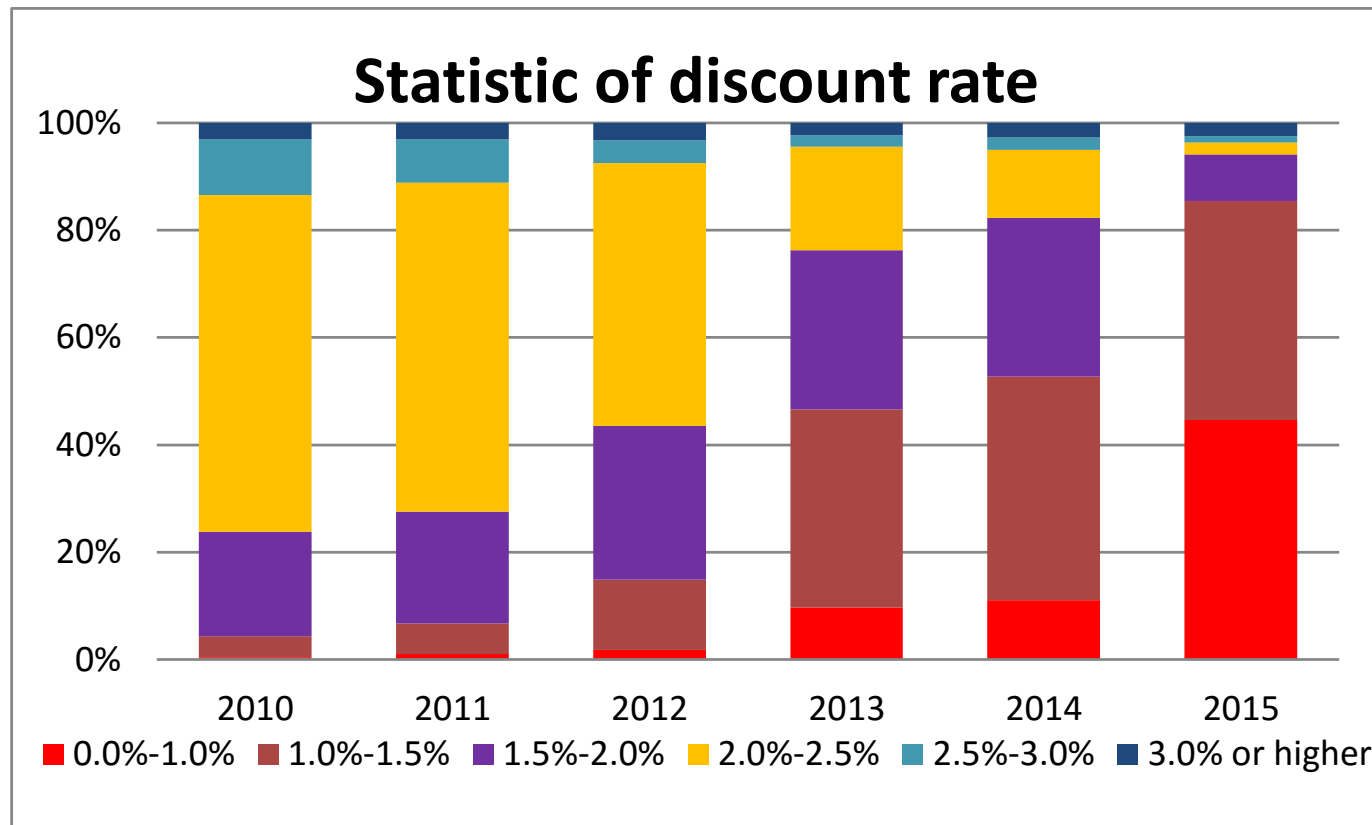
Source: Thomson Reuters Datastream

Environmental review

Effects of low interest in Japan

Greater accounting liability, but less interest cost

Discount rate summary for Japanese corporate pension accounting liability

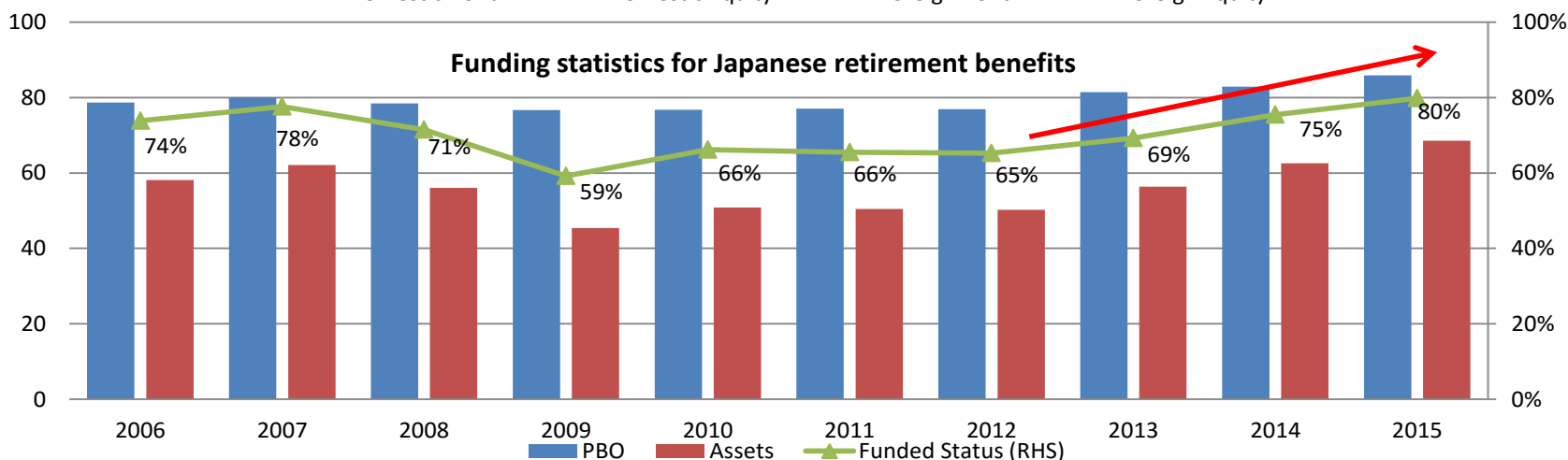
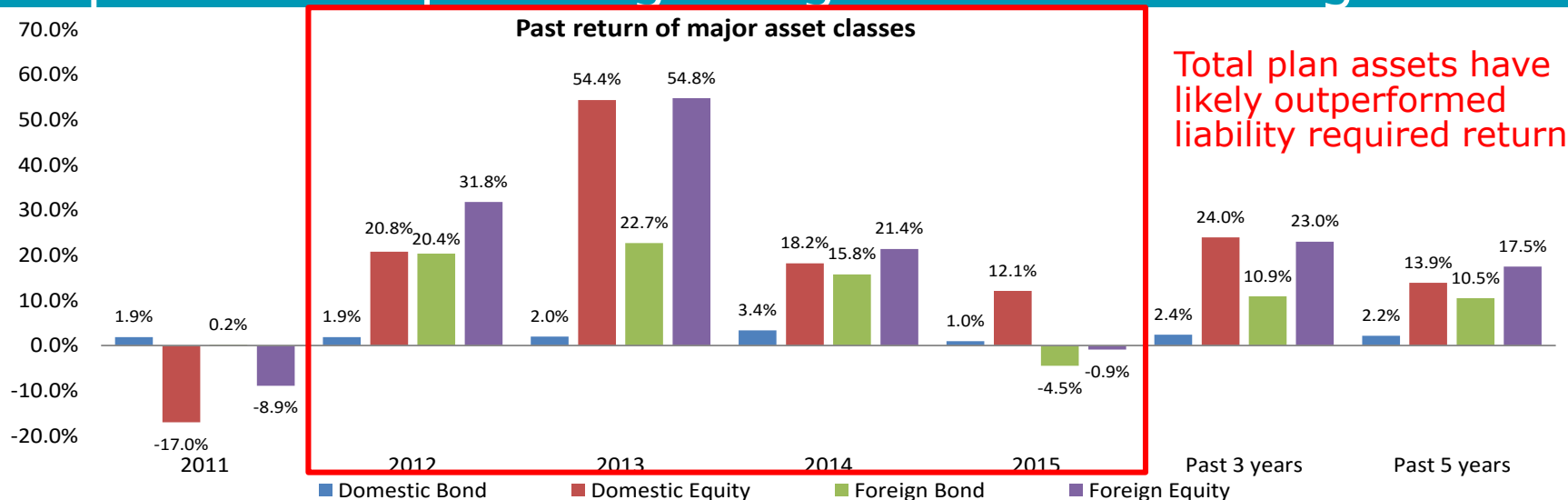


Source: *Pension Fund Association* (2015): Basic material about Corporate Pension 2015

Environmental review

Low interest but with strong booster in Japan

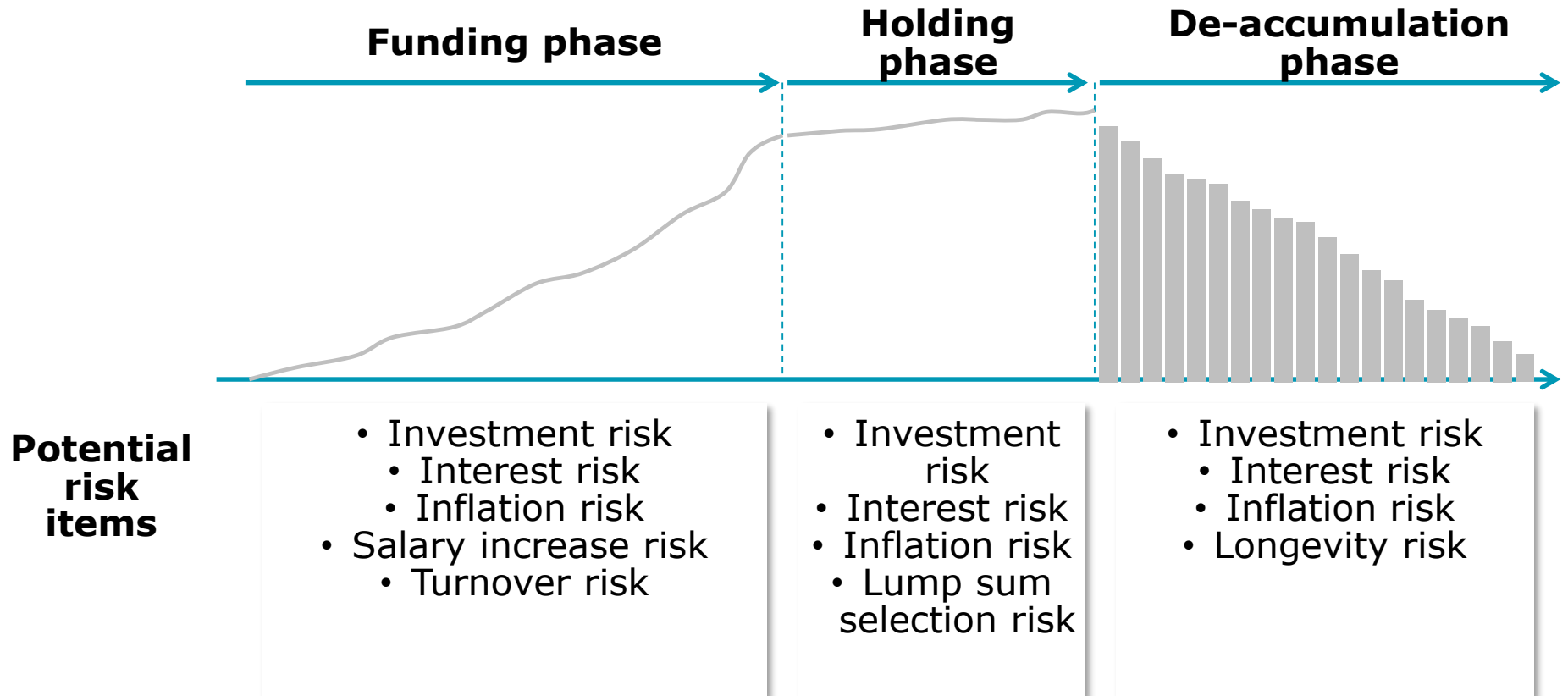
Japanese DB plan is getting healthier funding level



Source: Thomson Reuters Datastream and *Pension Fund Association* (2015): Basic material about Corporate Pension 2015

Environmental review

DB pension risks for plan sponsors

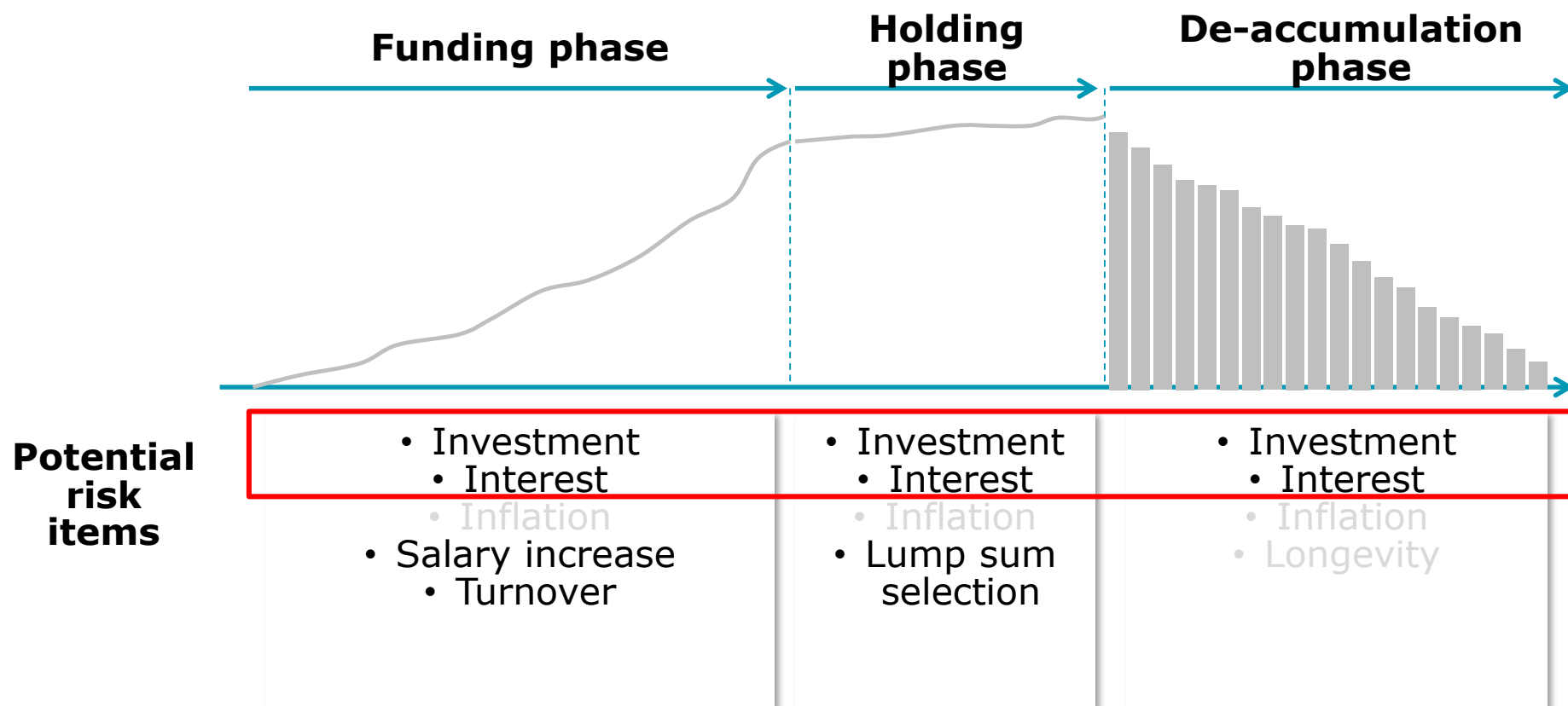


Environmental review

General DB pension risks for Japanese plan sponsors

Typical Characteristic of Japanese corporate pension

- No direct inflation linked benefits (strict defined benefit)
- Certain annuity (Majority)



Environmental review

Summary of challenges in Japan

Challenges

- De-accumulation strategy
- Low/Negative interest
 - Bonds dominated portfolio unlikely produce positive return
- Portfolio management with low expected return and potential volatile environment

Support

- Healthier funded status
 - Many funded plan has a certain surplus

Investment strategy for De-accumulation DB

Important notice for investment strategy of de-accumulation stage

Funding stage

- Current asset < Future asset
→ More negative impact in the future
- Limited affect to future contribution
→ A certain loss can be fulfilled
- Entire asset will be investable
→ Can wait until future recovery

Yr	Asset return
0	-
1	▲10%
2	17.9%

Cash flow	Funding target (EROA 3%)	Asset
	100.0	100.0
+10	113.0	100.0
+10	126.4	127.9

De-accumulation

- Current asset > Future asset
→ Today is the highest negative impact
- Liquidity requirement regardless actual investment performance
→ Shortfall may interfere with payout
- Existing asset is for coming payout
→ Short term investment view

Cash flow	Funding target (EROA 3%)	Asset
	100.0	100.0
-10	93.0	80.0
-10	85.8	84.3

Tolerant to liquidity risk

- Uncertainty the timing of result
- A certain risk can be maintained


Potential damage disturb taking the investment risk

- Elimination of unnecessary risks
- Importance to save liquidity

Cumulative return (p.a.) 3.00%

Learnings from Kita, K (2012)

Solution to de-accumulation pension plan

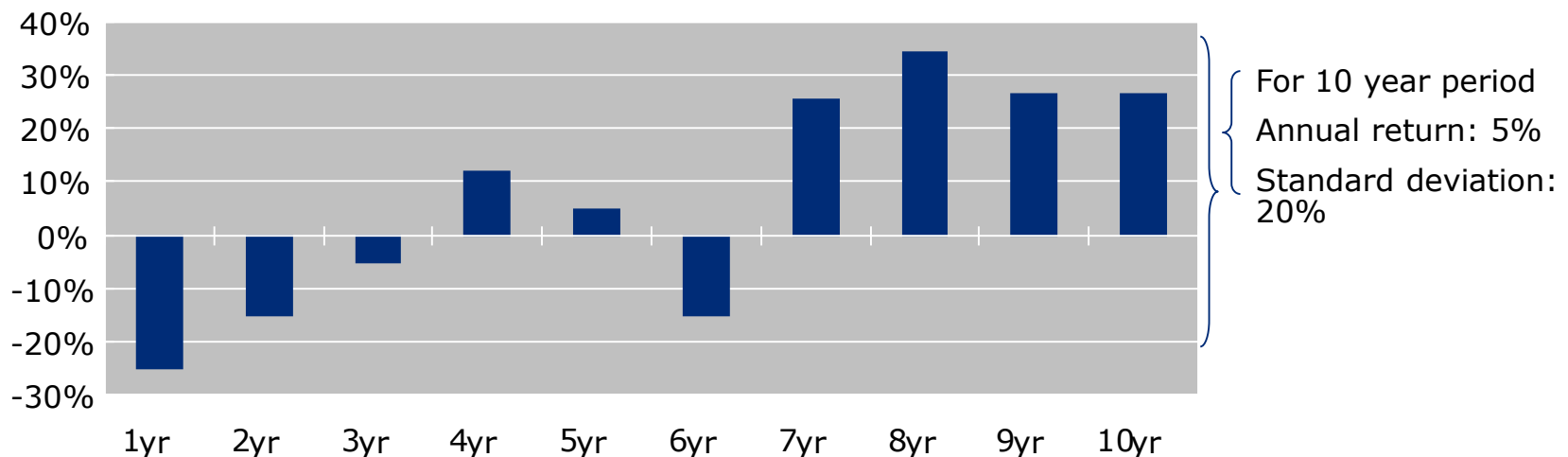
- Kita, K (2012): “The pragmatic consideration of binary portfolio” shows
 - Continuous de-accumulation pension plan is
 - Potential inefficiency for cash outflow management with traditional rebalance policy
 - Rational to sell growth portfolio only when the market is strong
- 
- Improvement of rebalance rule assists more stable achievement of target actuarial funding amount (Point)
 - Suspension of rebalance rule to keep a certain bond/equity **ratio**
 - Rebalance rule which in line with a planned **absolute value of assets**
- Pragmatic suggestions

 - Investment challenge for continuous de-accumulation pension plan
 - Proposal of rebalance rule

Overview of Kita, K (2012)

Solution to de-accumulation pension plan

- Setting
 - 3% of EROA
 - Initial asset: 100, Continuous cash outflow: 5 p.a.
 - Initial portfolio to achieve 3% of long term investment goal
 - Growth portfolio: 50% (EROA: 5%) **Volatile Return**
 - Liability matching portfolio: 50% (EROA: 1%) ← 50 of 10 year cumulative net cash outflow **Fixed Income Return**
 - Return pass of growth portfolio as below
 - Unfavorable scenario for de-accumulation pension plan

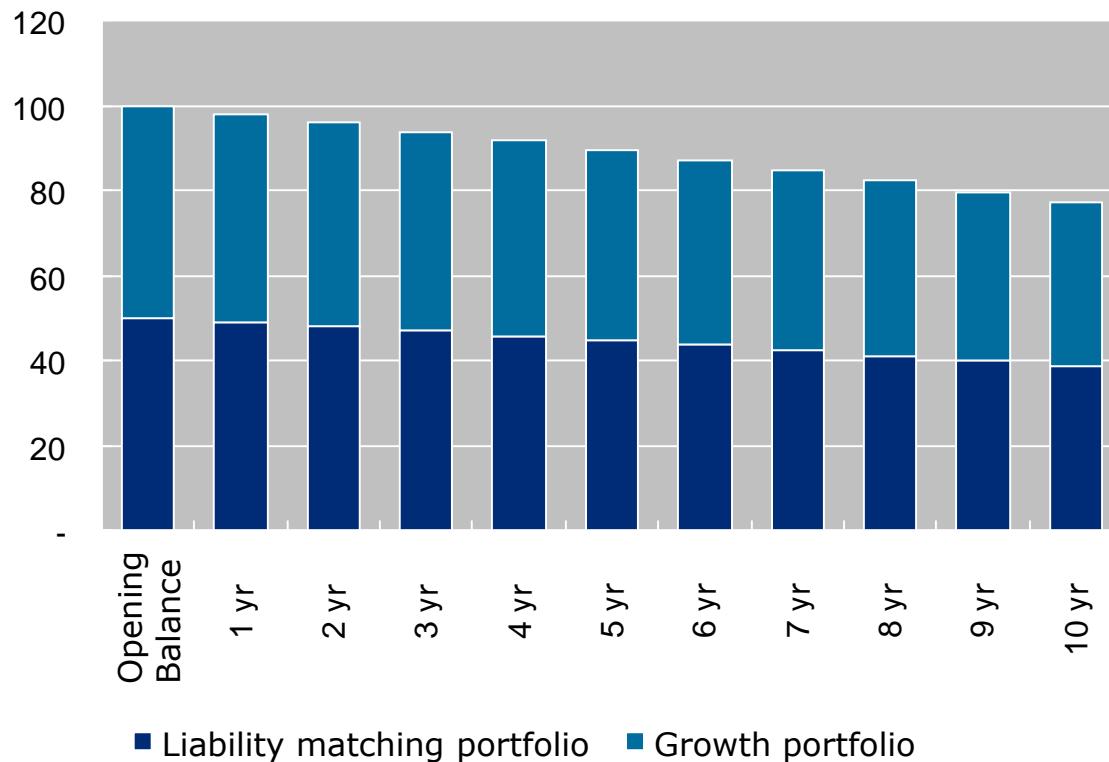


Overview of Kita, K (2012)

Simulation 1 – No investment Gain/Loss

- Target funding amount = pension liability
 - Achievement of flat 3% investment return every year
 - Immediate rebalance in order to keep EROA at 3%

Projected plan assets



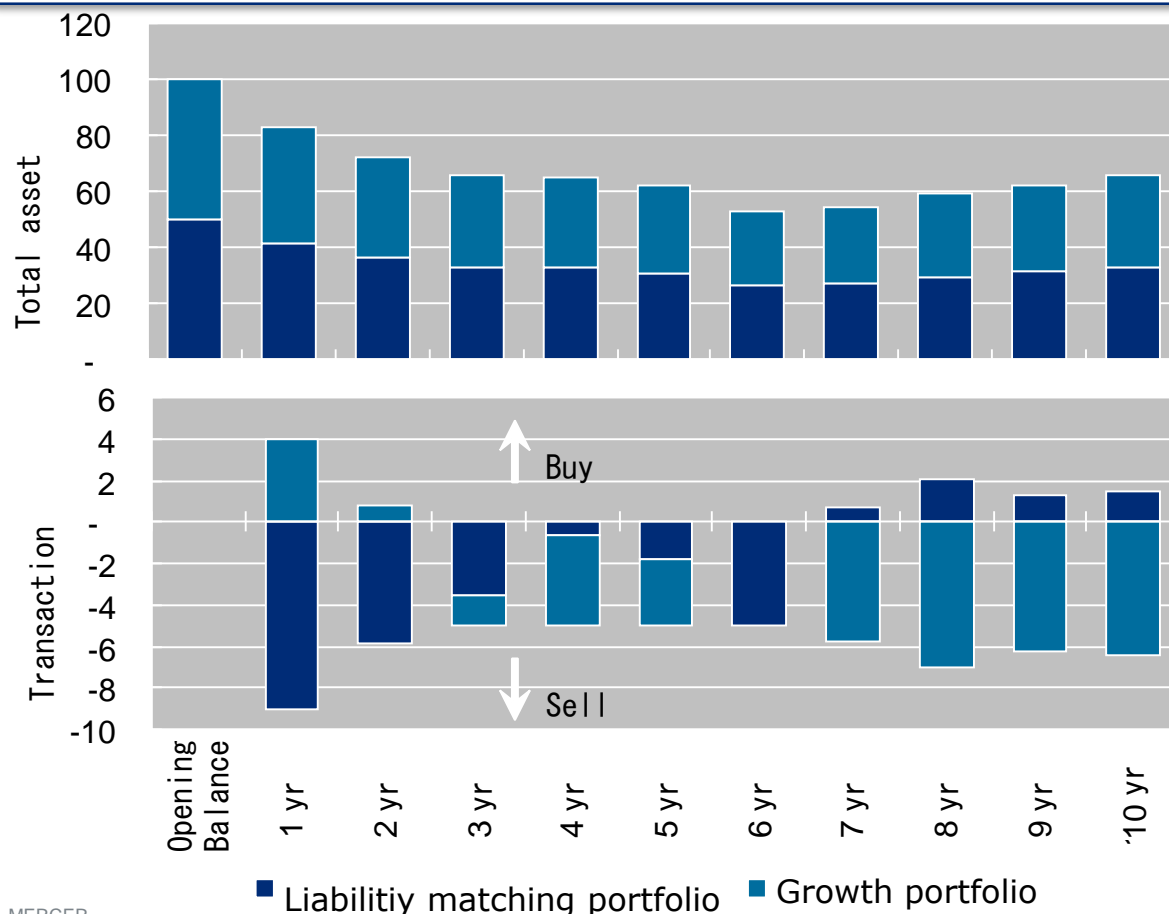
	Total asset	Growth asset
0yr	100.0	50.0
1yr	98.0	49.0
2yr	95.9	48.0
3yr	93.8	46.9
4yr	91.6	45.8
5yr	89.4	44.7
6yr	87.1	43.5
7yr	84.7	42.3
8yr	82.2	41.1
9yr	79.7	39.8
10yr	77.1	38.5

Same as
Pension liability

Overview of Kita, K (2012)

Simulation 2 – Scenario investment return

- Traditional rebalance: Systematic rebalancing regardless market environment
 - Buy growth asset due to decline in 1yr → More loss due to decline in 2yr
 - Sell growth asset, despite consecutive 3 year negative return on growth asset



	Total asset	Transaction of Growth asset
0yr	100.0	
1yr	83.0	4.0
2yr	72.2	0.8
3yr	65.7	-1.4
4yr	65.0	-4.3
5yr	62.0	-3.2
6yr	52.6	-0.0
7yr	54.6	-5.7
8yr	59.2	-7.0
9yr	62.3	-6.3
10yr	65.9	-6.5

Funding deficit

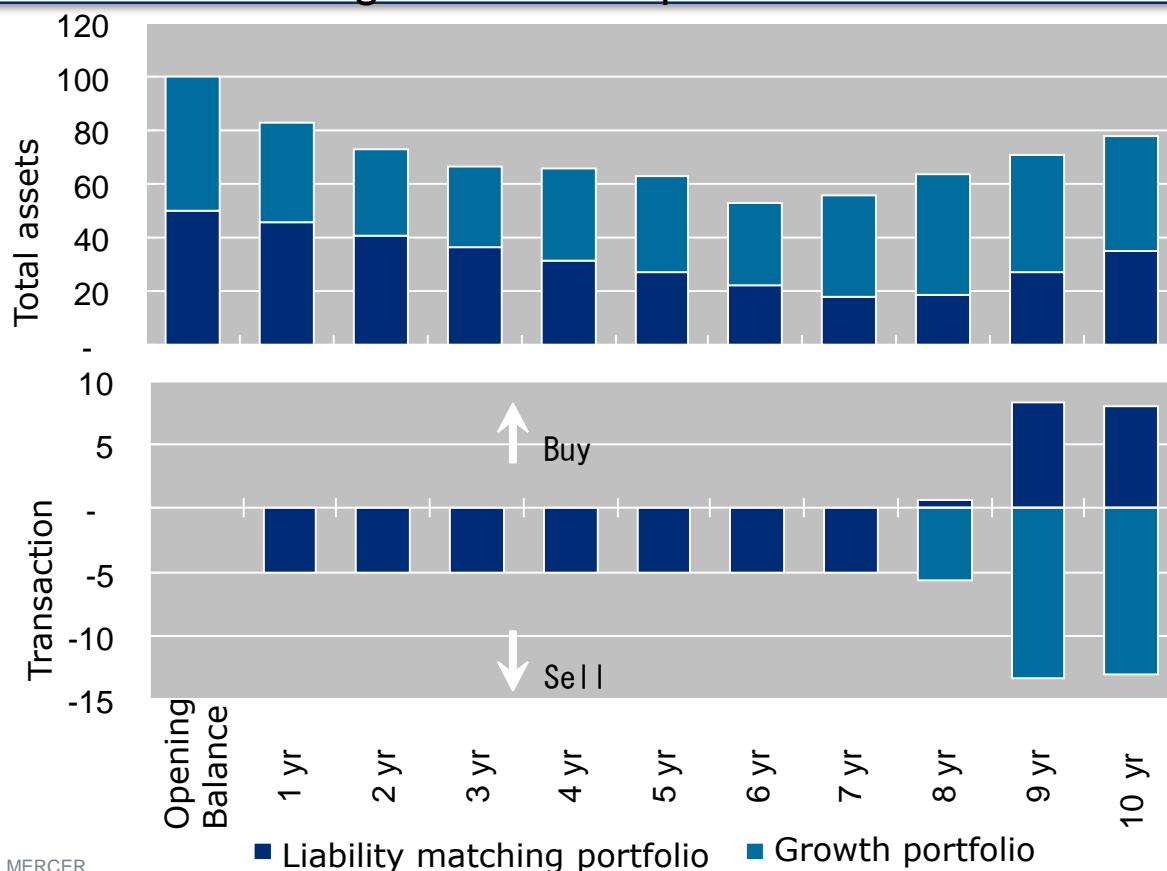
Pension liability = 77.1 at 10yr

Overview of Kita, K (2012)

Simulation 3 – Scenario investment return

- Sell only during strong market: Sell growth portfolio only if the growth portfolio exceeds 100% of projected one
 - To adjust growth assets to 100% of expected growth assets
 - No re-risking in downside phase

Achieve 100% funding at 10yr



	Total asset	Transaction of Growth asset
0yr	100.0	
1yr	83.0	-
2yr	72.8	-
3yr	66.6	-
4yr	65.6	-
5yr	62.7	-
6yr	52.6	-
7yr	55.5	-
8yr	63.7	-5.7
9yr	70.8	-13.3
10yr	77.7	-13.0

Achieve 100% funding
Pension liability = 77.1 at 10yr

Kato's Key findings and proposal

Utilization of funding surplus

Investment challenge in de-accumulation stage

- Beginning impact is considerable at absolute value, regardless the achievement of % of long term EROA
- Potential sale of "return waiting assets" in case of traditional rebalancing
- De-risking would be an ideal solution if possible

De-risking would be an ideal action in case of funding surplus

- Liability requires EROA times 100% of pension liability
- Surplus can be preserved from investment risk, preparing for benefit payment

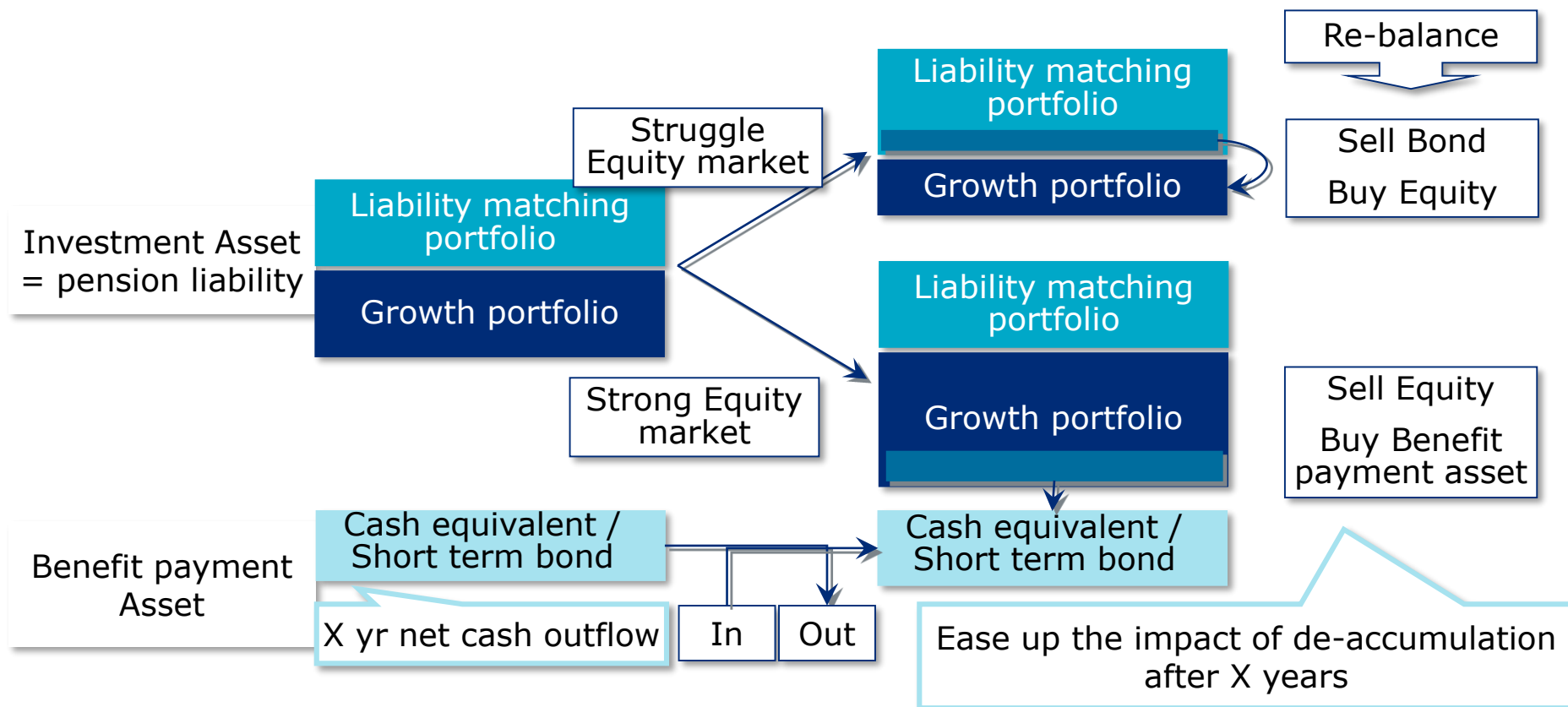
Possible approach (Kato's proposal)

- Define "Benefit payment portfolio" which is isolated from investment assets
 - A few year net cash outflow as opening balance, funding occasionally when the expected return on growth portfolio is recognized
- Traditional rebalance policy is applied to pension liability equivalent assets
 - Growth portfolio: 30% of **plan asset** $\pm 10\%$ \rightarrow 30% of **pension liability** $\pm 10\%$

Potential portfolio management (sample)

Liquidity control employing “Benefit payment asset”

- Illustration of process

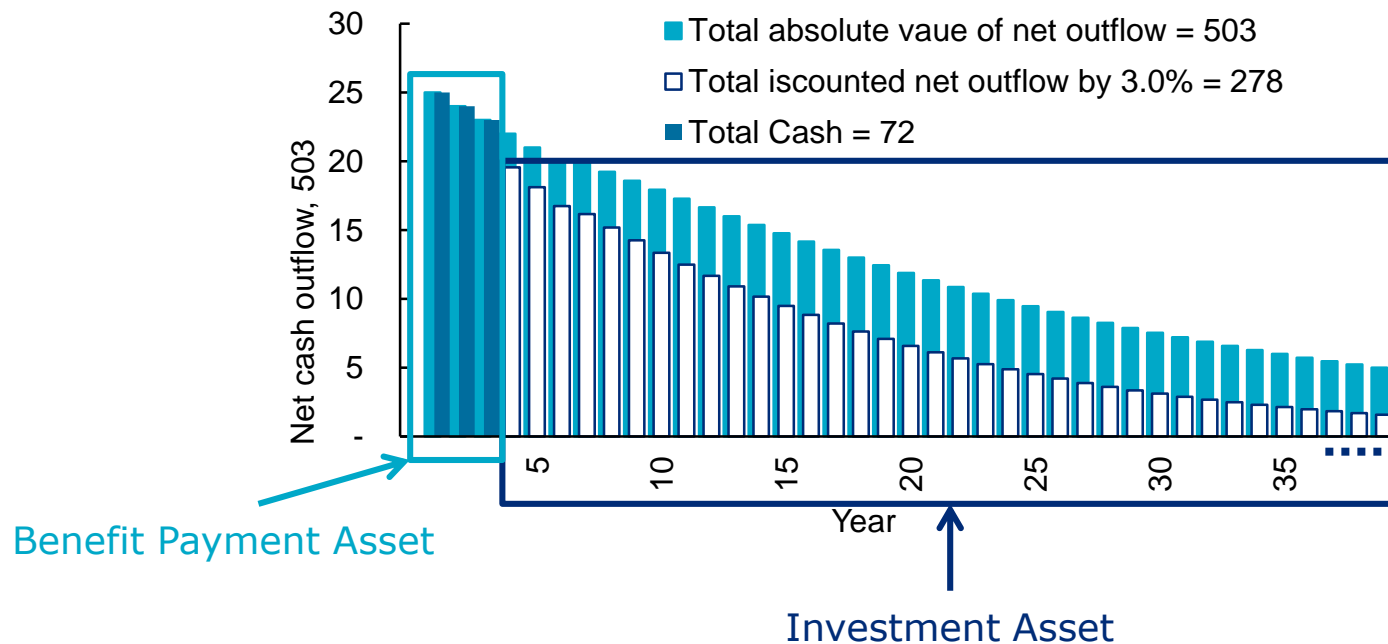


Cash Flow Focus Portfolio Construction

Cash flow match in short term and equity thereafter

Cash utilization in more cash out flow phase

- Concept : full short term cash flow matching with approximately projected payment schedule
 - The actuarial reserve is close to target investment return 3.0% portfolio, which is the current plan assets



Review

- De-accumulation pension plan should be risk aversion
- De-risking actions
 - Saving as “Benefit Payment Asset”
 - Rebalance policy – Not % of total asset but % of pension liability
- Liability and cash outflow monitoring investment plan
 - Actuary’s advice would be essential
 - Monthly/Weekly liability roll forward
 - Cash flow projection

Acknowledgement

- Kounosuke Kita – *The pragmatic consideration of binary portfolio*. Mizuho Pension Report No. 101 page 34-47 (2012, in Japanese)

End

Thank you for listening!

Any questions/comments are
welcome!