



Matching Adjustment Efficiency: Asset Manager Role

A Solution for Life Insurers under Hong Kong RBC

October 2024

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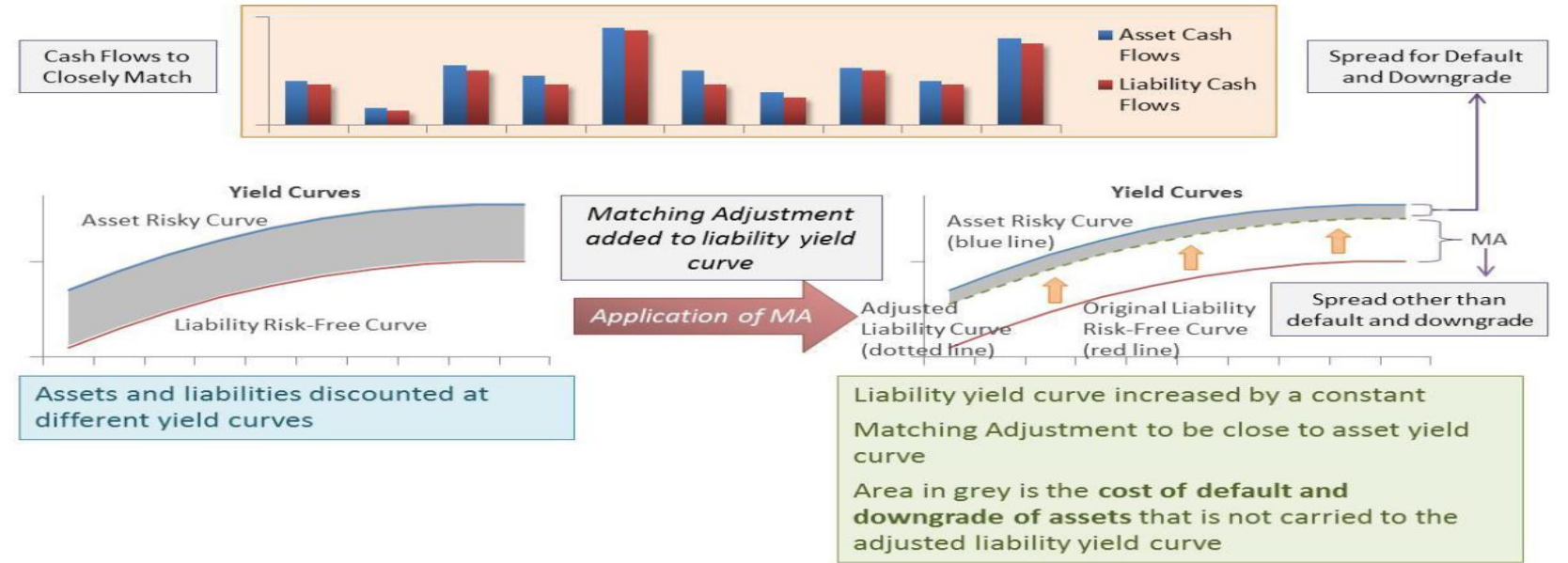
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Matching Adjustment (“MA”): Why is it?

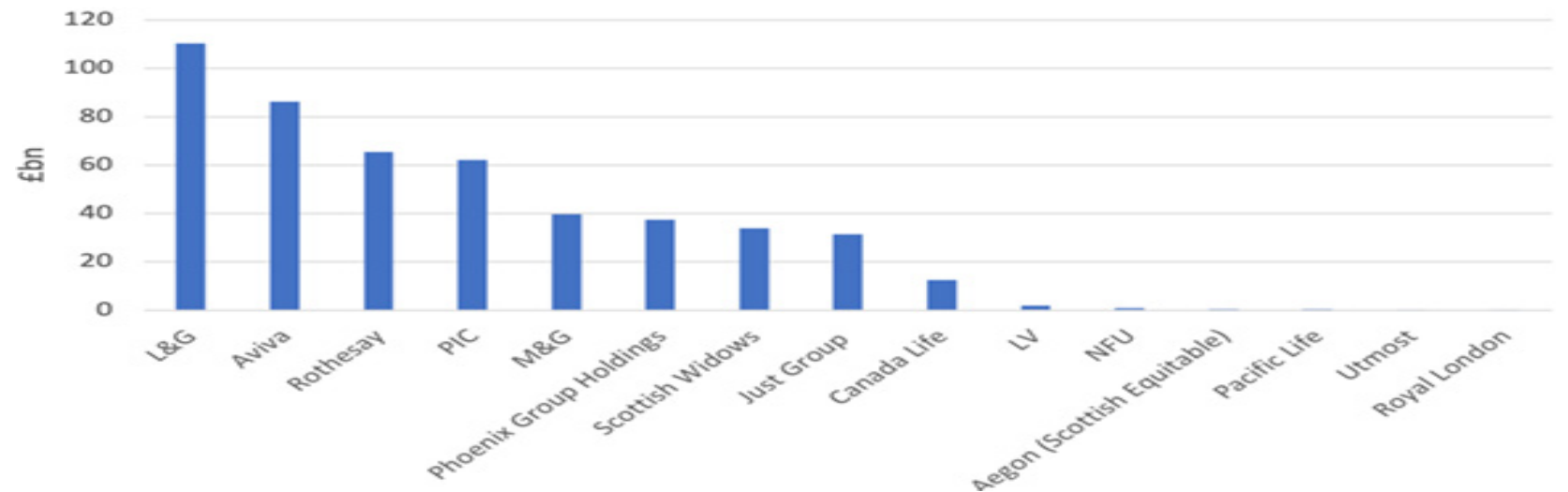
Effective tool for capital relief:

- ✓ Natural hedge for credit spread widening while acknowledging the nature of insurance FI investment
- ✓ Real-life benefit: speaking from UK insurers’ experience

Source: Insurance asset Risk, April 2023



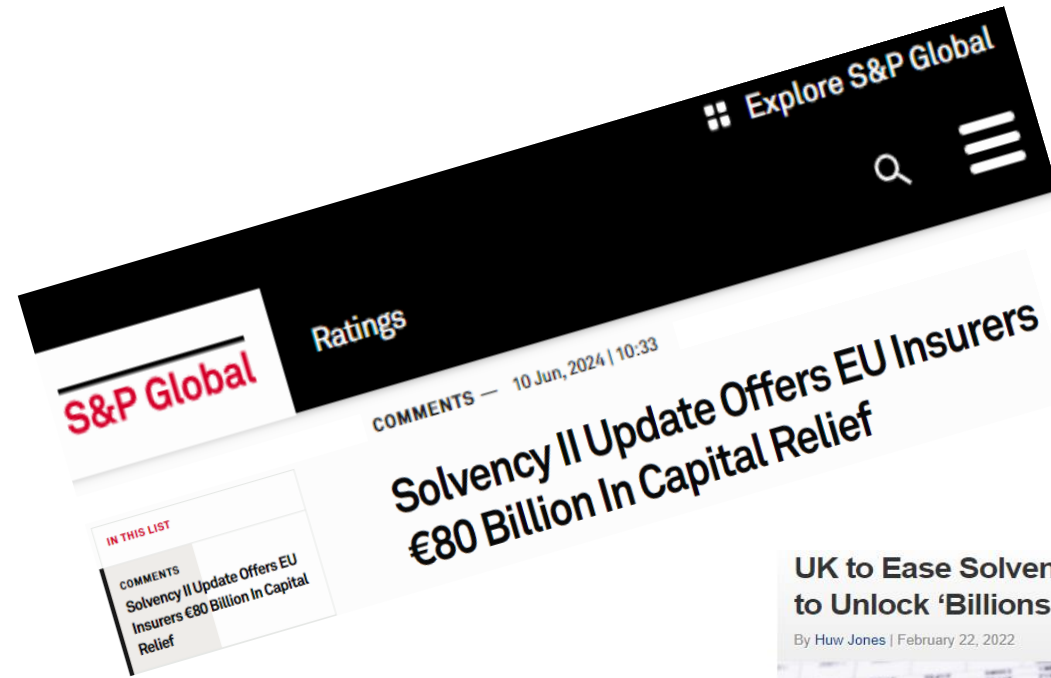
Group Solvency II capital 'saved' by using MA, 2016-2022 (£bn)



Matching Adjustment (“MA”): Why is it?

Leverage emerging industry trends to gain a competitive advantage

- ✓ The insurance regulators in UK and Europe are seeking competitive edges by adjusting capital requirements.
- ✓ Proactive management of MA portfolio to maintain efficiency rather than an adaptive / compliance only approach will help firms remain competitive.
- ✓ Trends in Asia: Hong Kong, Singapore and Korea applied MA. Thailand is in the stage of consultation.



UK to Ease Solvency II Insurance Capital Rules to Unlock ‘Billions of Pounds’

By Huw Jones | February 22, 2022.



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Article

REUTERS

Britain will unlock “tens of billions of pounds” of insurance sector capital that should boost the economy through infrastructure investment, financial services minister John Glen said on Monday.

Matching Adjustment (“MA”) - Asia: What is it?

The unique features of HK MA:

- ✓ Plus: flexible, no test requirements, smartly designed, leave room for optimisation
- ✓ Minus: higher bar for optimisation due to more complex formula; mixed effects on market risk requirements

| | SG MA | HK MA | Korean MA |
|-----------------------------------|---|---|---|
| Test Requirement | <ol style="list-style-type: none"> 1. Liability predictability test; 2. Cash shortfall test; 3. Credit spread widening test; | No test. Use formula to incentivize proper ALM and asset allocation | No test. Qualitative requirement on asset-liability cash flow matching |
| Calculation Formula | Asset IRR-liability IRR-default/downgrade adjustment | $= \text{adjusted spread}_{\text{each MA portfolio}} \times \text{application ratio} + \text{weighted constant prescribed spread} \times \text{predictability Factor}$ $\times \text{Max} \left[\text{Min} \left(20\%, \text{eligible asset percentage} - \frac{\text{asset dollar duration}}{\text{liability dollar duration}} \right), 0 \right]$ $+ \text{qualified LTA}_{\text{each MA portfolio}}$ | A-B <ul style="list-style-type: none"> • A: discount rate that aligns the PV of liability cash flows with the market value of the asset portfolio. • B: RFR |
| Impact on Market Risk Requirement | Reduce credit spread risk requirement | Mixed effects | NA |

Improving HK MA Efficiency: the Problem to Solve

Optimising MA spread with
multi-dimensional constraints
aligned with ALM requirements

3 key components:

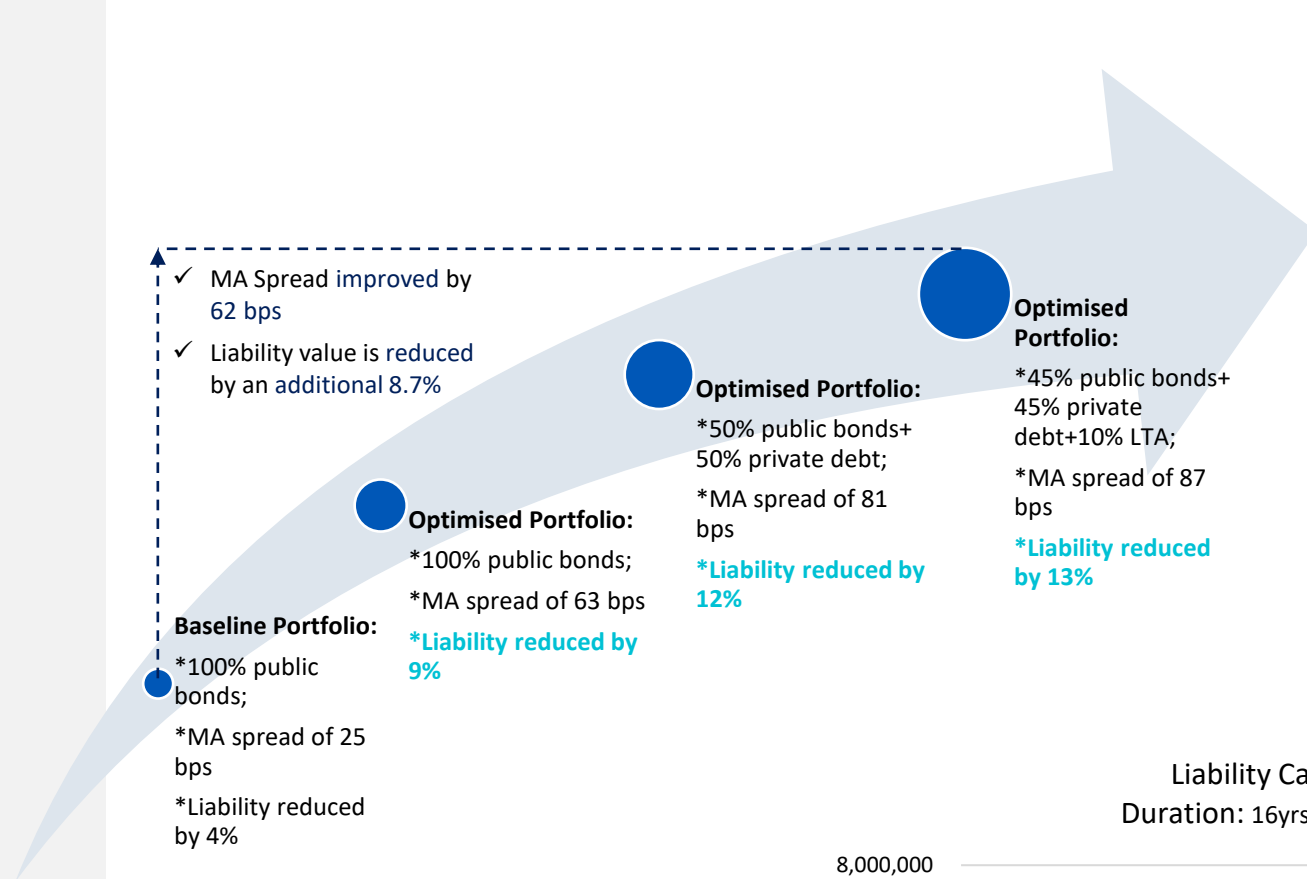
- ✓ Risk-adjusted spread
- ✓ Asset-liability cash flow matching
- ✓ Dollar duration (asset vs liability)

Decompose MA Formula



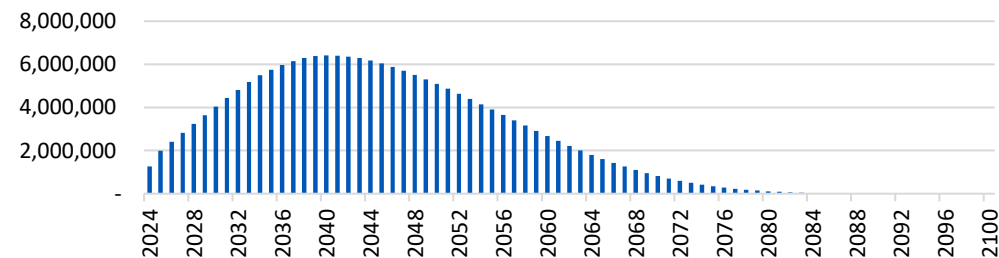
Improving HK MA Efficiency: Case study

HK MA Optimisation:
A Three-stage Process



- Stage 1: Optimise 100% public bond portfolio
 - Stage 2: Add 50% of private debt
 - Stage 3: Add 10% of Long-Term Asset (“LTA”)
- ✓ Assuming the value of liability stands at 10 billion, efficient portfolio construction can potentially deliver c. **870 million reduction in liabilities**

Liability Cashflow Profile
Duration: 16yrs PV: 93,688,763 HKD



Source: abrdn, June 2024

Stage 1

Optimise MA Portfolio with 100% Public Bonds

Compared to baseline portfolio

- ✓ Portfolio yield enhanced by 30bps
- ✓ MA spread improved by 1.5x => 5% more liability reduction
- ✓ Total market risk charge reduced by 52%

Both the baseline and optimized portfolios are constructed adhering to the same investment guidelines. However, the key distinction lies in the approach towards the underlying liabilities they support; the baseline portfolio is constructed without taking into account the specific profile of the liabilities it is meant to back

Source: abrdn, June 2024

| | Baseline | Optimised Portfolio (100% public bonds) |
|---|----------|---|
| Portfolio Characteristics | | |
| Portfolio Yield | 4.5% | 4.8% |
| Average Credit Rating | BBB+ | BBB+ |
| No. of Holdings | 67 | 79 |
| HK MA Components | | |
| Predictability Factor | 58.07% | 66.87% |
| Duration Factor | 50.38% | 93.09% |
| Application Ratio | 29.26% | 62.25% |
| Weighted Const Prescribed Spread | 0.39% | 0.43% |
| Duration Factor 2 | 20.00% | 6.91% |
| Matching Adjustment Spread (HK) | 0.25% | 0.63% |
| Matching Adjustment Benefit (HK) | 4.00% | 9.00% |
| HK RBC Risk Charge | | |
| IR Risk Charge | 16.01% | 3.48% |
| Credit Risk Charge | 4.60% | 6.80% |
| Total Market Risk Charge (Diversified) | 18.80% | 9.06% |

Stage 2

Optimise MA Portfolio with Inclusion of Private Debt

Compared to baseline portfolio

- ✓ Portfolio yield enhanced by 70bps
- ✓ MA spread improved by 2.2x => 8% more liability reduction
- ✓ Total market risk charge reduced by 53%

| | Baseline | Optimised Portfolio (100% public bonds) | Optimised Portfolio (with private credit) |
|---|---------------|---|---|
| Portfolio Characteristics | | | |
| Portfolio Yield | 4.5% | 4.8% | 5.2% |
| Average Credit Rating | BBB+ | BBB+ | BBB+ |
| No. of Holdings | 67 | 79 | 55 |
| HK MA Components | | | |
| Adjusted Spread | 0.72% | 0.98% | 1.26% |
| Predictability Factor | 58.07% | 66.87% | 70.52% |
| Duration Factor | 50.38% | 93.09% | 87.12% |
| Application Ratio | 29.26% | 62.25% | 61.43% |
| Weighted Const Prescribed Spread | 0.39% | 0.43% | 0.36% |
| Duration Factor 2 | 20.00% | 6.91% | 12.88% |
| Matching Adjustment Spread (HK) | 0.25% | 0.63% | 0.81% |
| Matching Adjustment Benefit (HK) | 4.00% | 9.00% | 12.00% |
| HK RBC Risk Charge | | | |
| IR Risk Charge | 16.01% | 3.48% | 4.04% |
| Credit Risk Charge | 4.60% | 6.80% | 6.08% |
| Total Market Risk Charge (Diversified) | 18.80% | 9.06% | 8.82% |

Source: abrdrn, June 2024

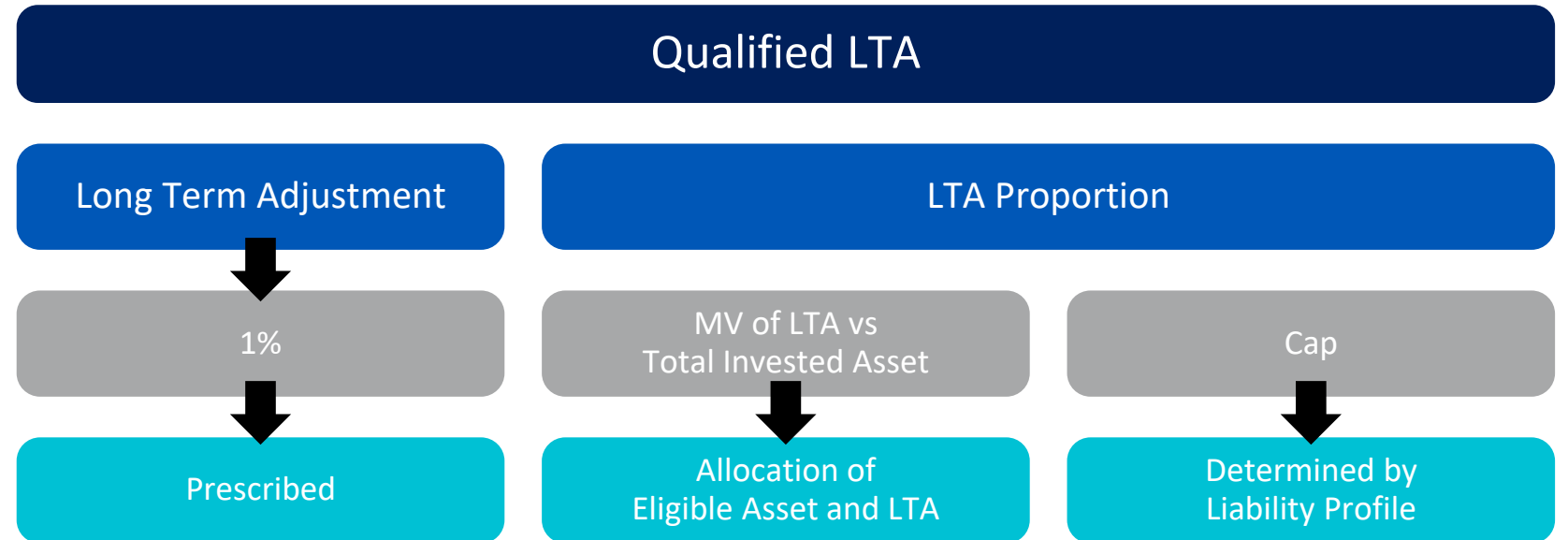
Stage 3

Optimise MA Portfolio with Inclusion of LTA

What is the optimal allocation of LTA (subject to a cap) to maximize MA spread?

✓ Higher LTA allocation → higher “qualified LTA” → higher MA spread

✗ Higher LTA allocation → lower “eligible asset allocation” → lower “duration factor” → lower MA spread



Stage 3

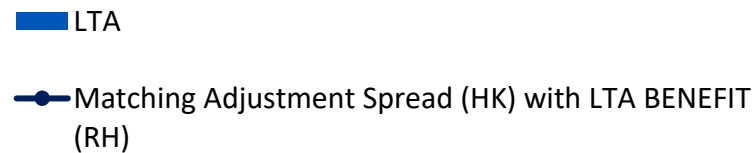
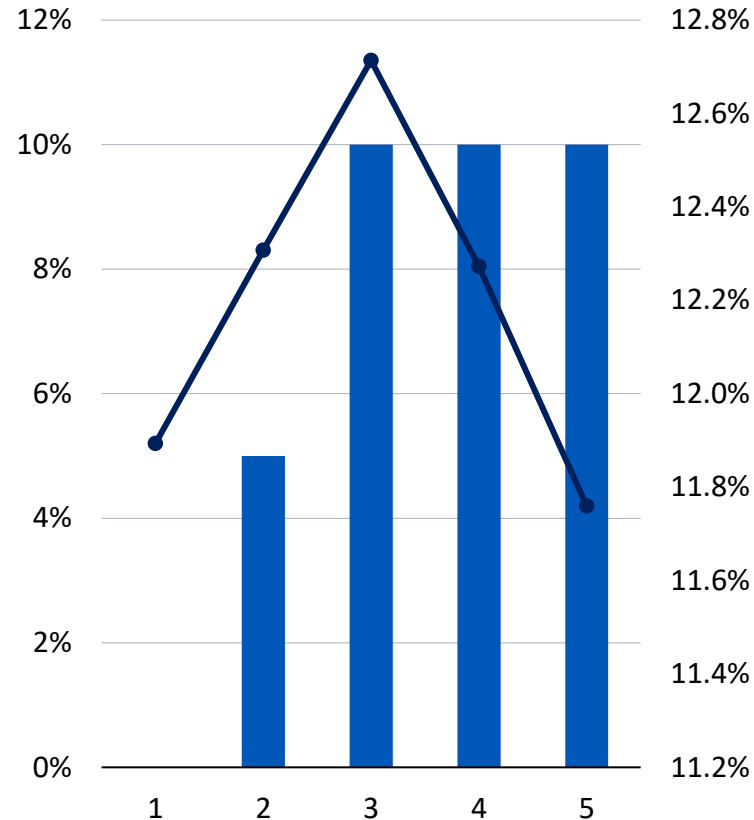
Optimise MA Portfolio with Inclusion of LTA

LTA cap: 10%

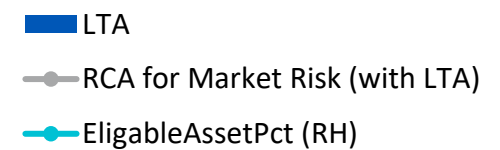
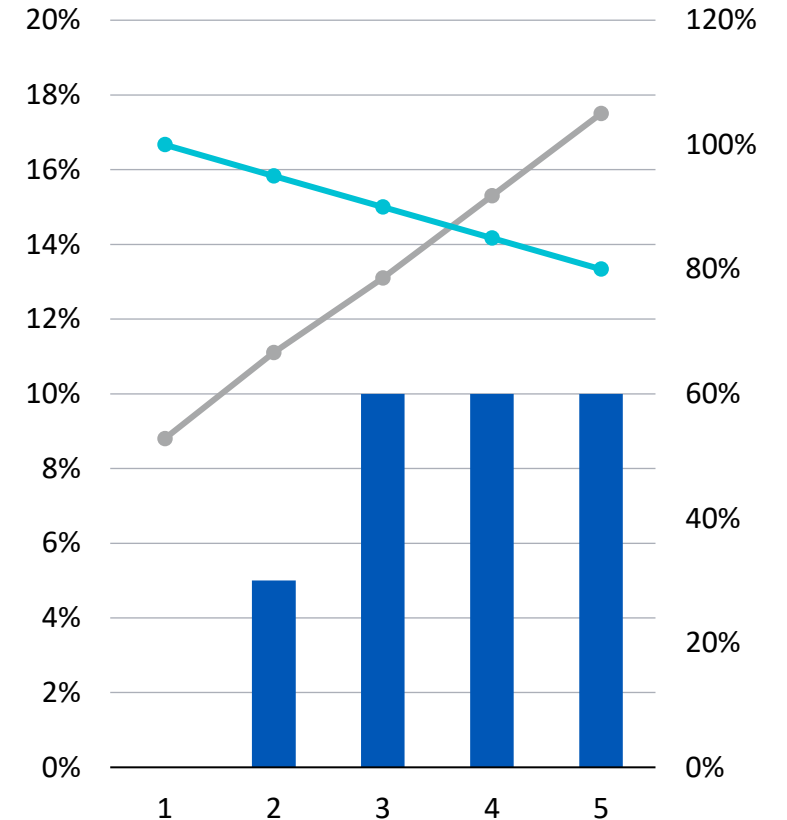
- LTA% <= 10% => higher LTA%, higher Market Risk, higher MA spread
- LTA% >10% => higher LTA%, higher Market Risk, lower MA spread

| LTA | Allocation |
|-----------|------------|
| Property | 50% |
| EM Equity | 25% |
| DM Equity | 25% |

Matching Adjustment Spread vs. LTA%

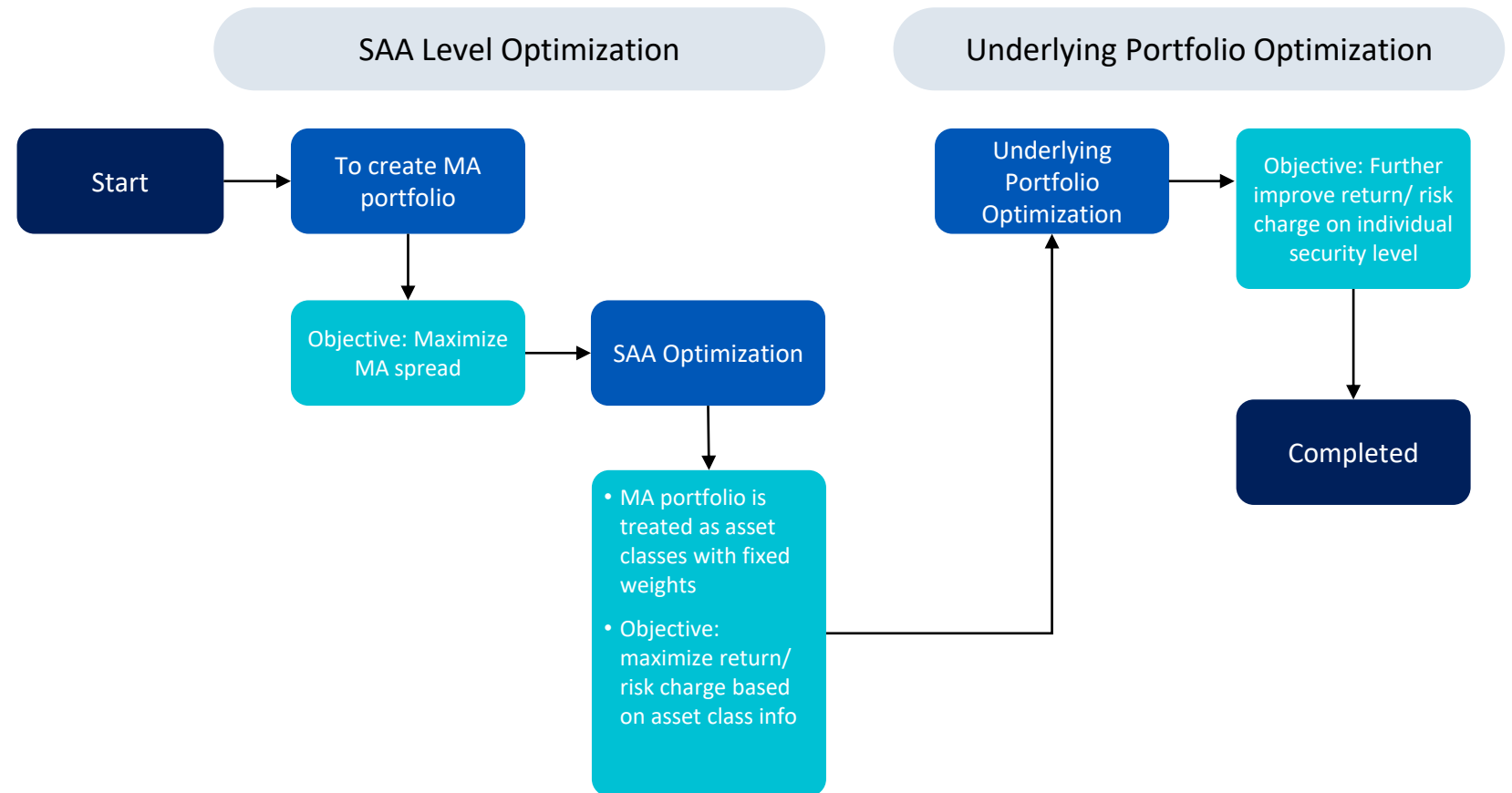


RCA for Market Risk vs. LTA vs. Eligible Asset%



Incorporate MA Portfolio into Par Fund

- The creation of MA portfolio should be the first step to construct par fund, as it takes great deal of asset-liability matching
- SAA level optimisation is largely based on index level information, such as average duration, average credit rating.
- Security-level optimisation is recommended, as certain level of granularity (e.g. different buckets of credit rating and maturity, breakdown of DM and EM) will further improve “RBC Sharpe Ratio”





Summary and Conclusion

Summary and Conclusion

Why MA is needed?

- Effective tool for capital relief
- Leverage emerging industry trends to gain a competitive advantage

What strategy to use MA?

- Not just adoption
- Proactive management of MA portfolio to maintain efficiency – maximise MA benefits

How is MA implemented?

- Efficient MA portfolio construction, leveraging technology (HK MA Optimisation)
- Incorporate MA Portfolio into Par Fund



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