

The Actuarial Profession
making financial sense of the future

Matching adjustment - an industry view on the latest Solvency II answer to an important risk based capital modelling question

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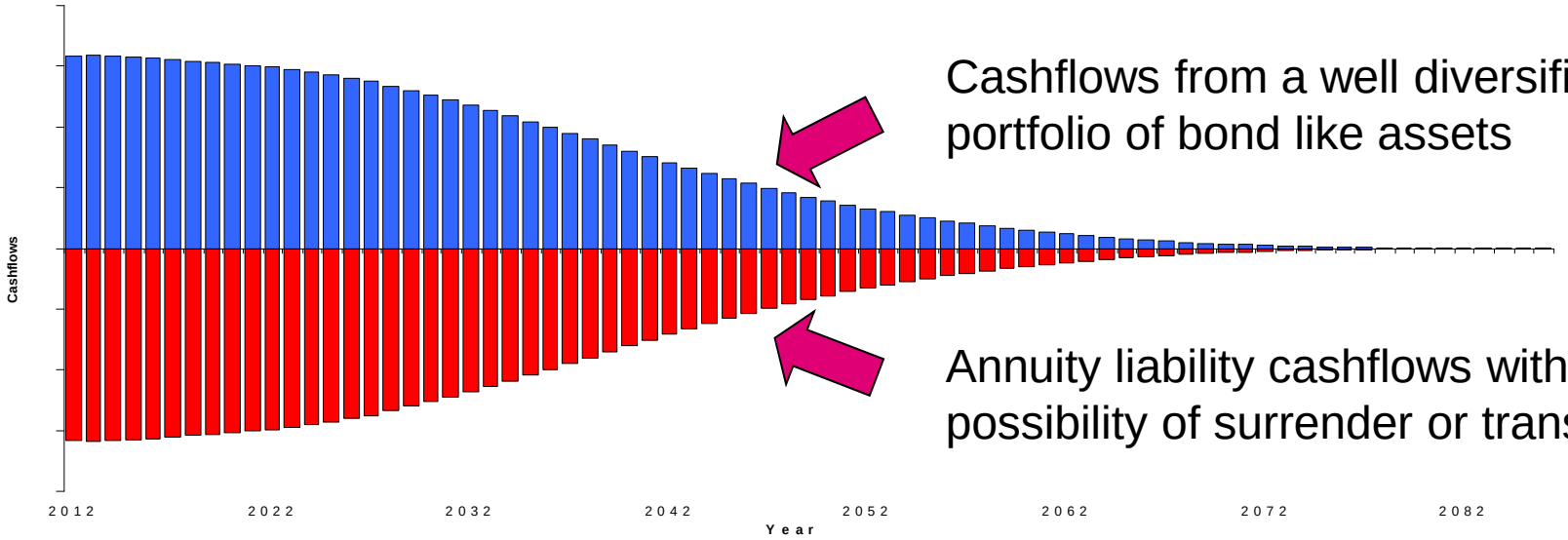
SII Matching adjustment

An industry view

London 14 March 2013

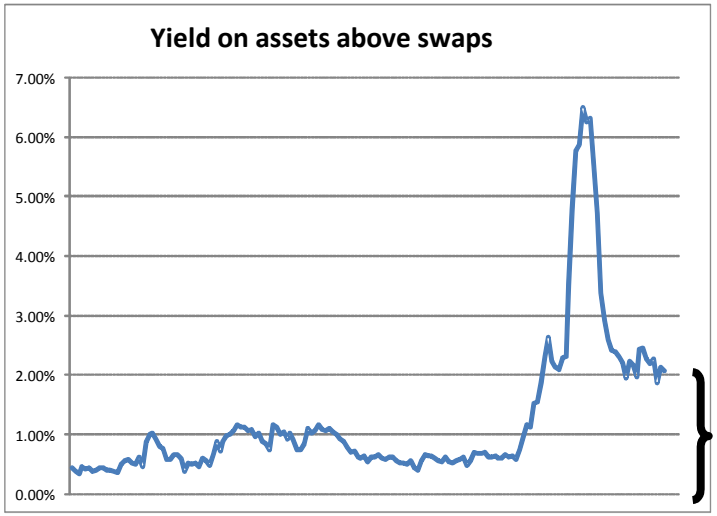
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Matching adjustment: the key question



Cashflows from a well diversified portfolio of bond like assets

Annuity liability cashflows with no possibility of surrender or transfer



How much of the yield above swaps should be used to discount the liability cashflows?

Given the only market risk is default: All but an appropriate allowance for default

Extreme market consistent answer: None of it

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What we intend to cover

- Brief history
- Draft rules
- Worked example
- Key issues and implications
- Proposed way forward: Alternative matching adjustment
- Industry comment
- LTGP update

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Brief History

Regulatory attitude constantly changing

- Solvency I – allows for illiquidity premium
- ICA – allows for illiquidity premium
- Early Solvency II – pure market consistent, no allowance for illiquidity
- QIS 5 - Illiquidity premium: 50%(spread – 0.4%)
- Draft Level text 2 (Oct 2011) – matching premium (MP)
- LTGP released on 28 January, running until end March
- Omnibus II – matching adjustment (MA) still under discussion, vote recently delayed again
- Matching Premium and Matching Adjustment are the same concept with different detailed calibration and so can be use interchangeably

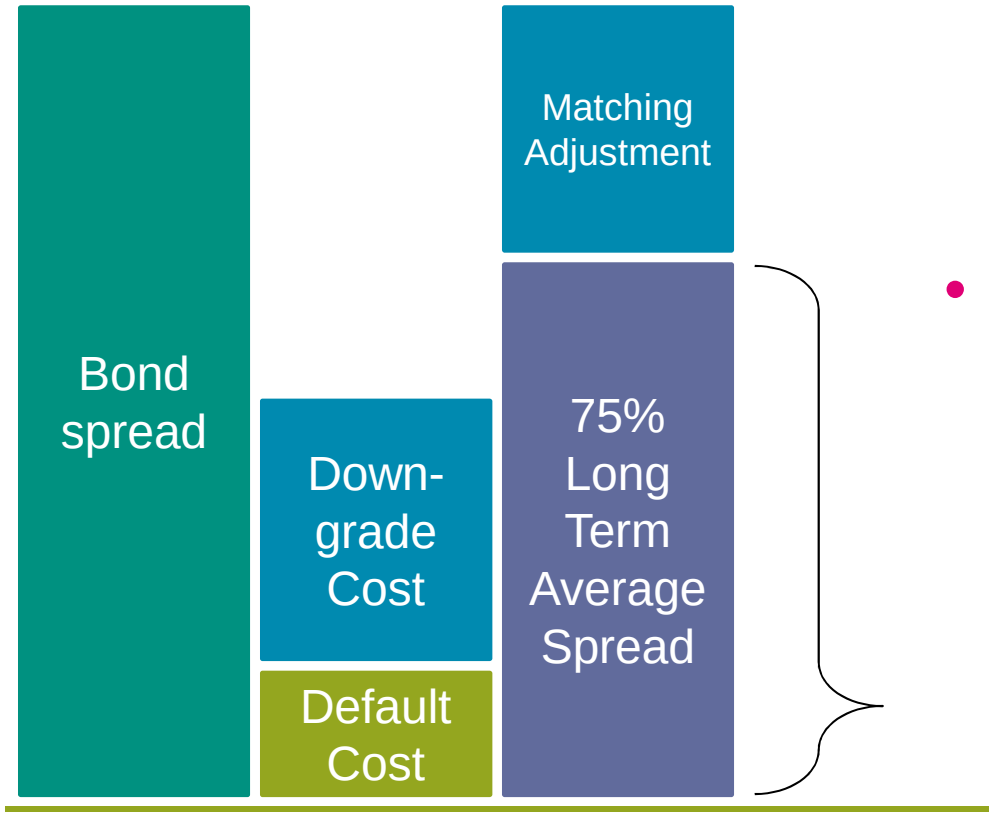
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Matching Adjustment – what is it trying to achieve?

- Some long term products (e.g. annuities) are backed with assets which match the cash-flows closely and are expected to be held long term.
- These assets often have yields in excess of the risk free plus expected defaults.
- As the assets are not intended to be sold, the investor expects to earn the additional yield and reflects it in lower prices offered to consumers.
- The value of the risk adjusted, matching asset and liability cash-flows should be equal
- Examples of assets used by annuity writers include:
  - Corporate bonds
  - Swaps
  - Mortgages (including equity release)

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How does the Matching Adjustment work?

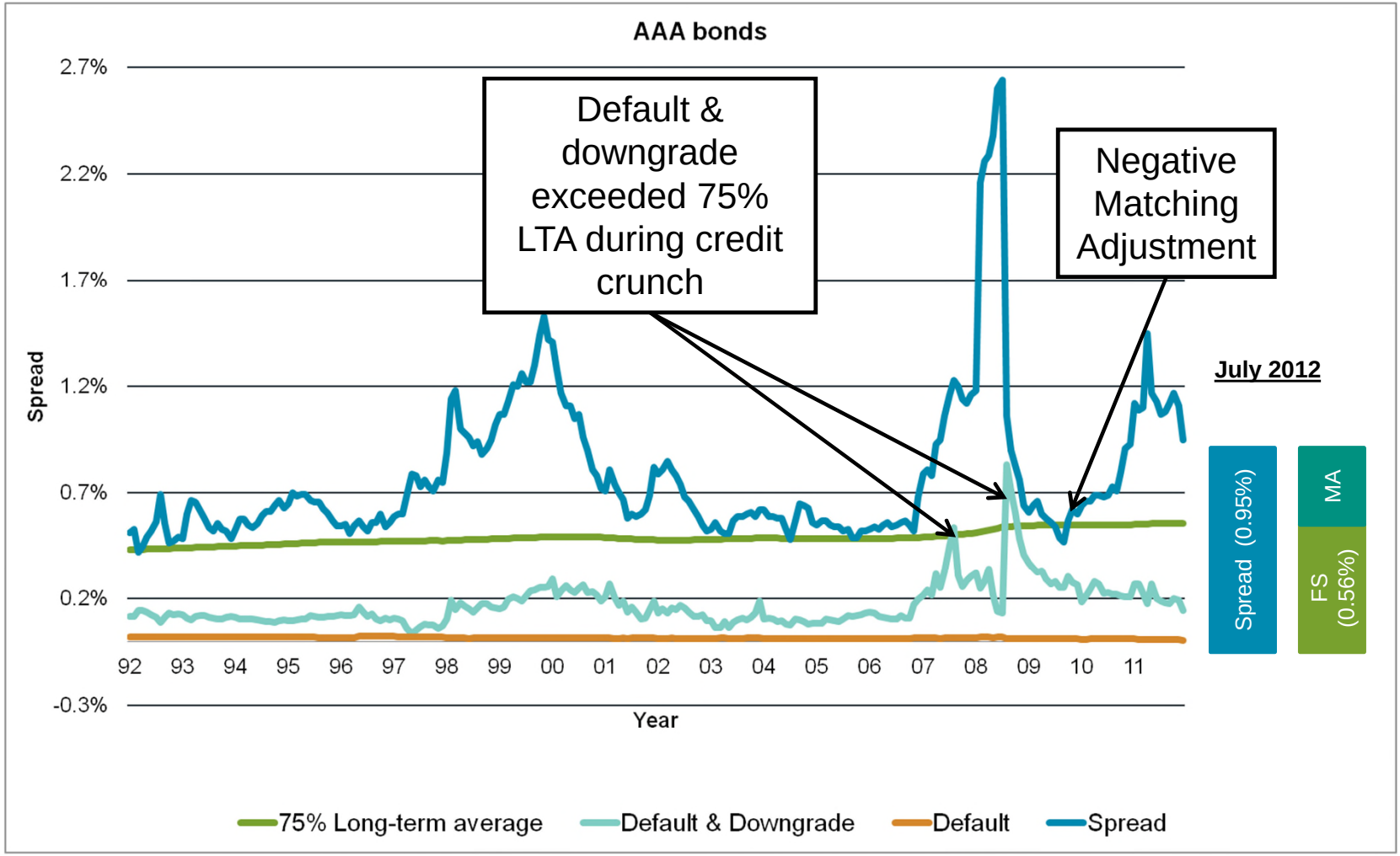


- Allows a proportion of the spread to be reflected in the discount rate
- Disallows the higher of
  - Default and downgrade cost
  - 75% long term average spread

= Fundamental spread

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Example of how it would have worked in the past based on AAA bonds



Data Sources:
Merill Lynch UK index, 15+ years Sterling Corporate securities
Moody's transition matrix: Average One Year Letter Rating Migration rates

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Which liabilities does it apply to?

Liabilities

- The only underwriting risks are:
  - Longevity
  - Expense
  - Revision
  - No options (except surrender where surrender value <= assets)
- No future premiums

Implications

- Covers immediate annuity products
- LTGA appears to exclude:
  - Deferred annuities
  - Certain continental European products
- More products brought into scope of “Extended MA”

- LTGA changes definition of Risk Free Rate

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Which assets does it apply to?

Assets

Specific assets that match cash-flows.

- Ring-fenced
- with no possibility of transfer
- not actively traded
- equal to BEL

Asset criterion:

- Rated BBB or higher
- Maximum 30% BBB (15% if bought post 31/12/12)
- “Bond like”, with fixed cash-flows (or linked to an index)
- Issuer has no options

Implications

Covers:

- Some corporate bonds
- Assets held via SPV?
- Gilts

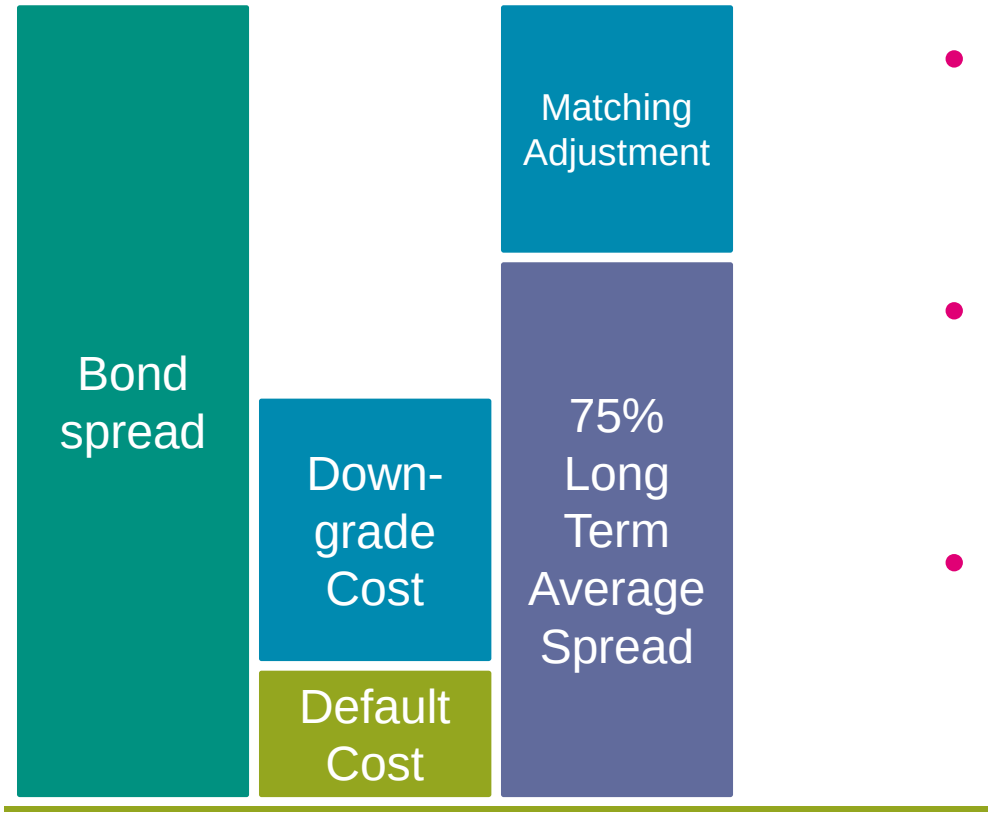
May not cover:

- Swaps?
- Callable bonds
- Subordinated debt
- Mortgage assets/equity release

LTGA: swaps okay when considered together with other assets

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Some other restrictions

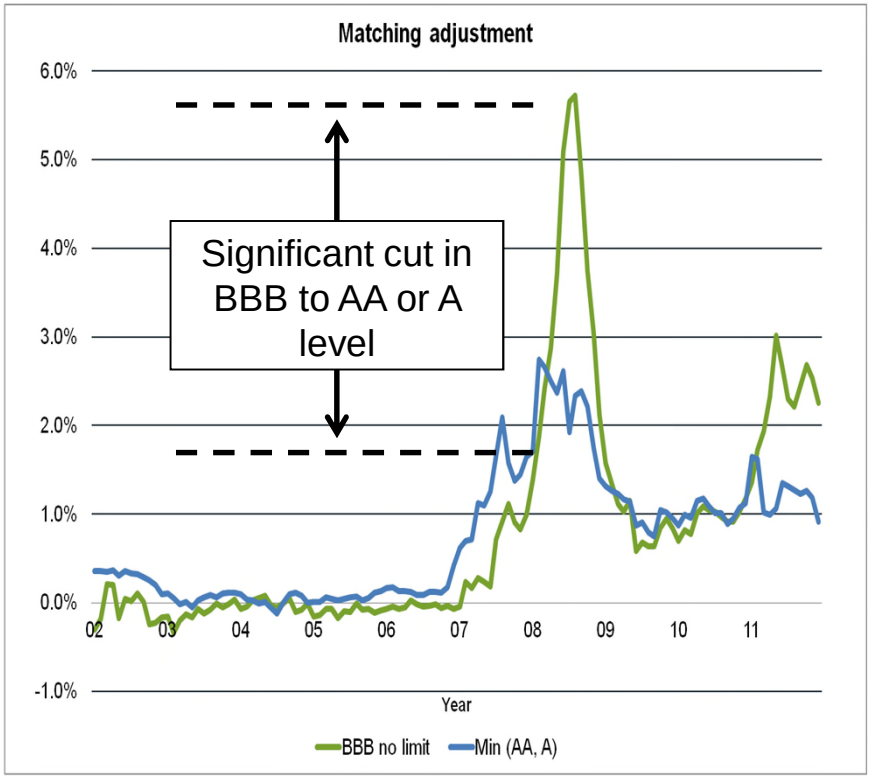


- Assumes all assets replaced on downgrade (not just BBB)
- BBB matching adjustment can't exceed that for AA or A
- Under LTGA this has shifted to the higher of AA or A

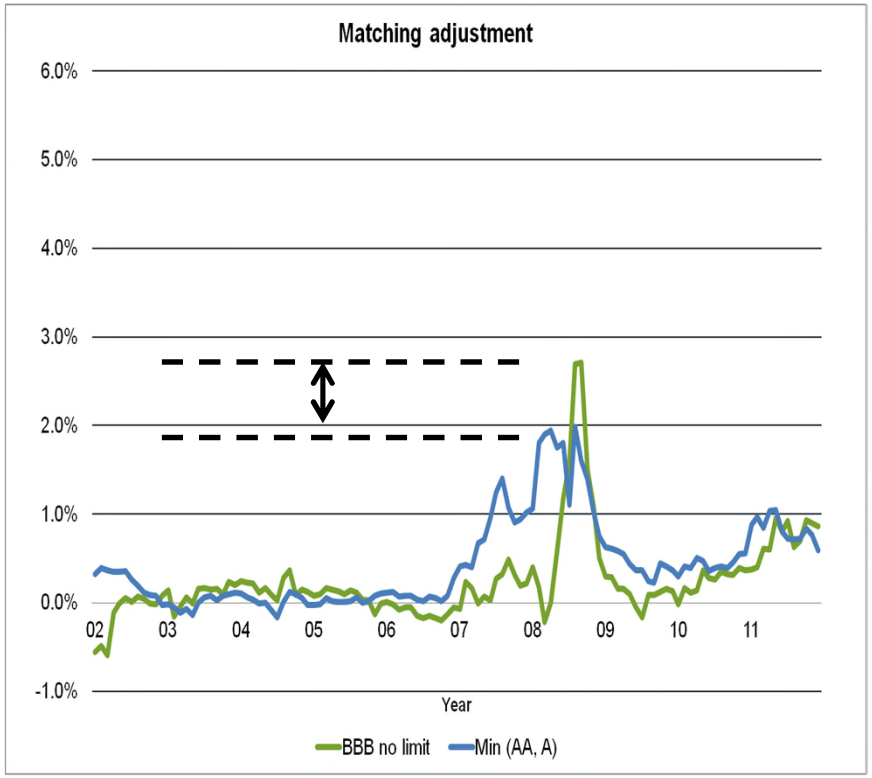
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Illustration – impact on attractiveness of BBB bonds

UK ML Corporate 7-10 years



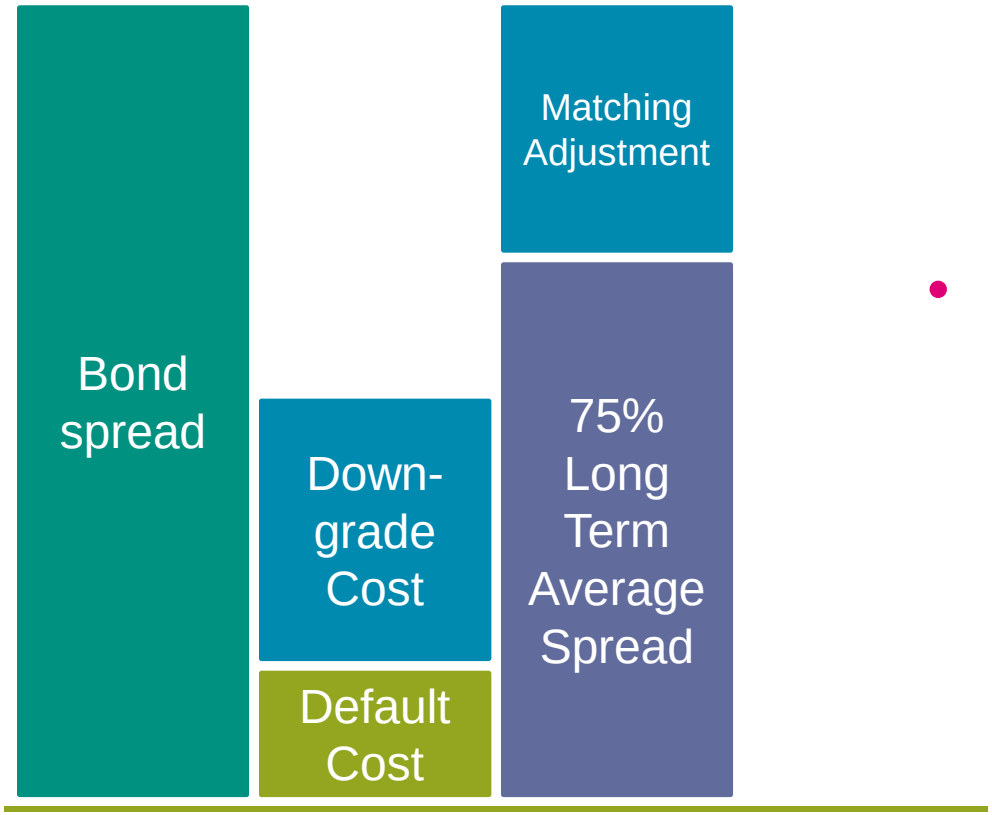
UK ML Corporate 15+ years



Data Sources:
Merill Lynch UK index, 7-10 years Sterling Corporate, All
Merill Lynch Uk index, 15+ years Sterling Corporate Securities
Moody's transition matrix: Average One Year Letter Rating Migration rates

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How does the MA respond to stress?



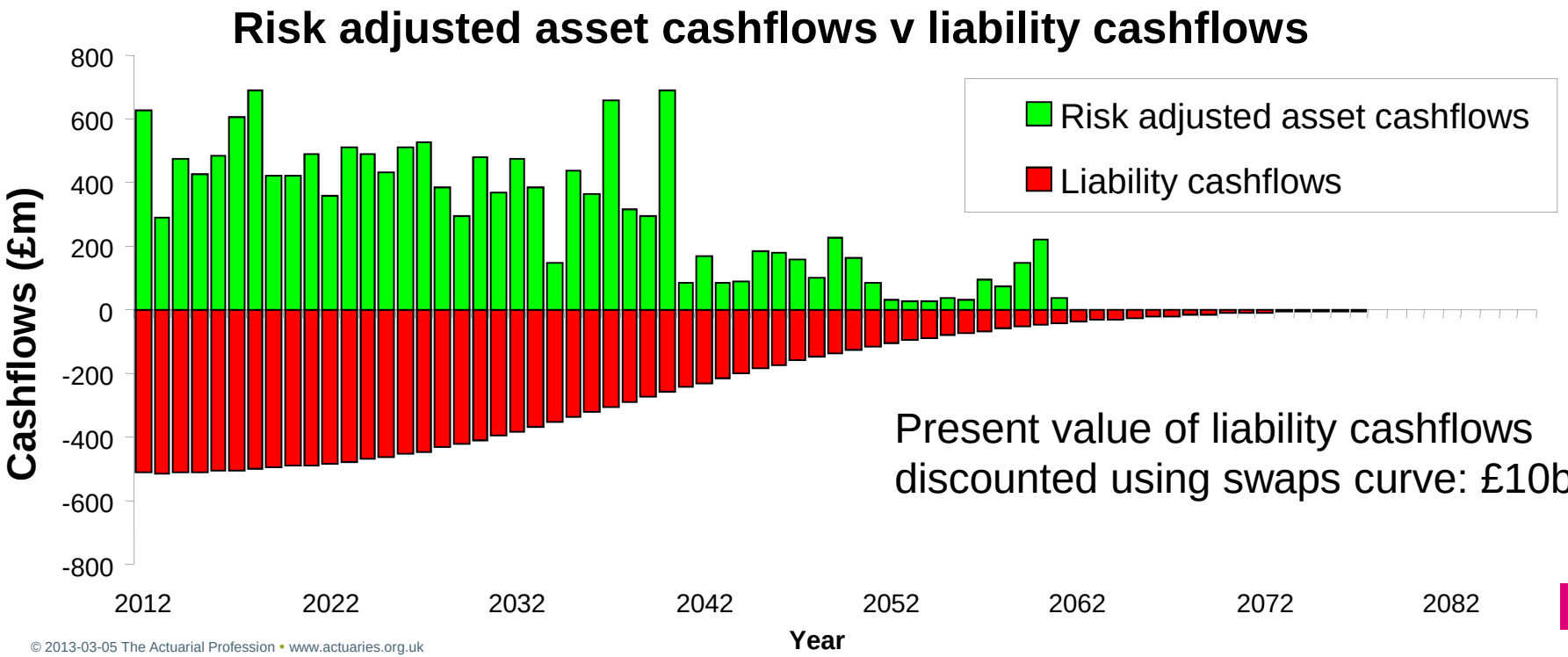
- 75% maximum in the Fundamental Spread only changes by 1/30th of the spread stress (i.e. small)
- Change in default/downgrade may change which part of the FS maximum bites

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Matching Adjustment – worked example

Illustrative model annuity portfolio

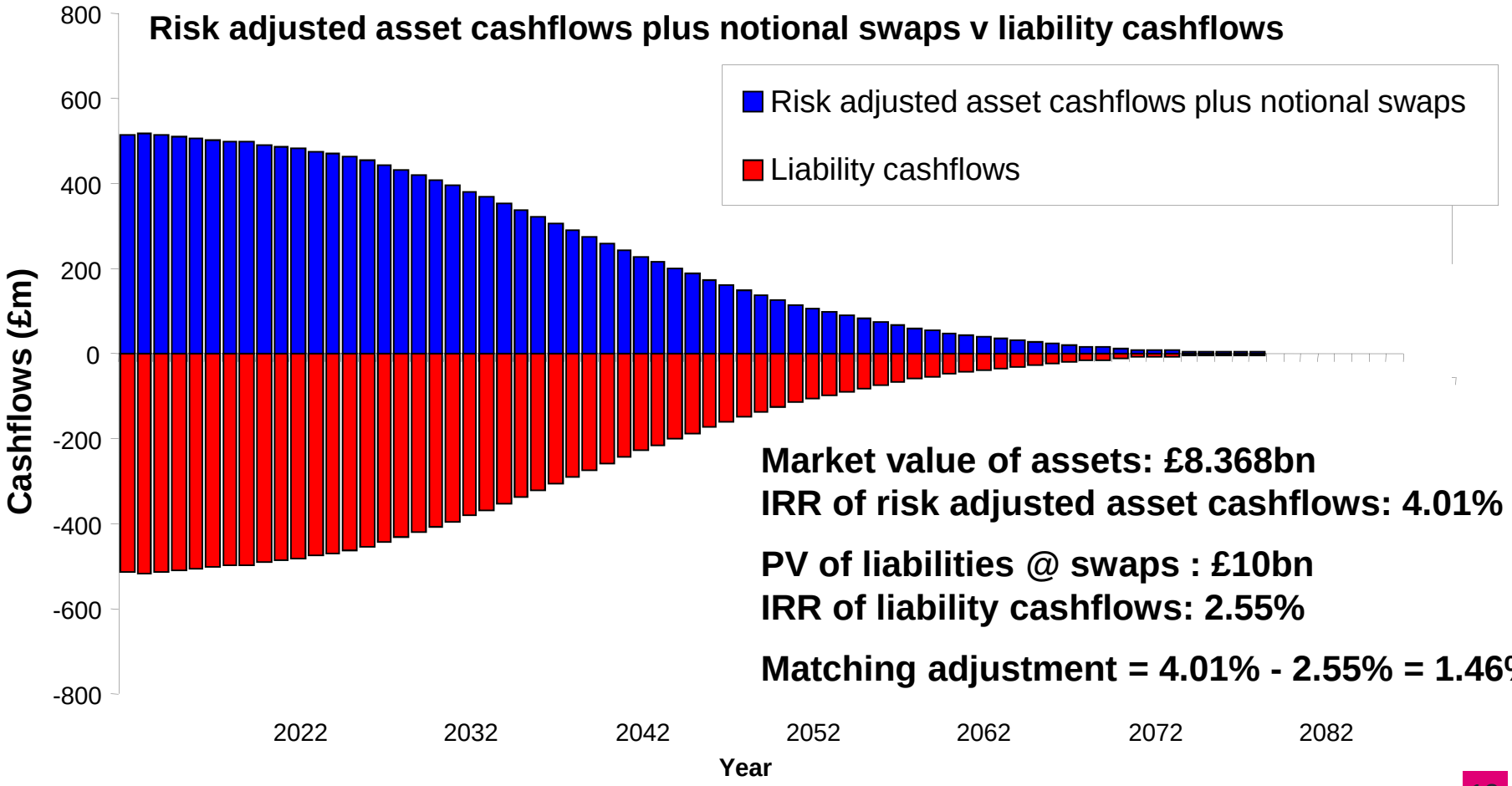
1. Identify eligible **liabilities**
2. Select a portfolio of eligible **assets**
3. Calculate **fundamental spread** appropriate for each asset
4. Calculate risk adjusted asset cashflows that broadly match



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Worked example – deriving matching assets

- Convert risk adjusted asset cashflows to be completely matched eg using notional swaps.



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Simpler approximation for matching adjustment

Illustrating the dynamics

- Assets are split into rating categories
- Changes to asset prices, swap rates, migration matrices etc. can be reflected in this approximate calculation of the matching adjustment:

		Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
	% assets in rating category	10%	10%	20%	30%	30%	100%
	MV assets £m	837	837	1,674	2,510	2,510	**8,368**
A	**Gross yield**	3.32%	3.60%	4.65%	5.12%	5.88%	4.92%
B	**Swap rate**	2.58%	2.50%	2.59%	2.57%	2.52%	2.55%
C	**Credit spread = A - B**	**0.74%**	**1.10%**	**2.06%**	**2.55%**	**3.36%**	**2.37%**
D	**Allowance for default and migration**	0.09%	0.03%	0.07%	0.16%	0.47%	0.22%
E	**75% average spread**	0.03%	0.30%	0.48%	0.80%	1.00%	0.67%
F	**Fundamental spread = higher of D or E**	0.09%	0.30%	0.48%	0.80%	1.00%	0.68%
G	**Fundamental spread post BBB restriction**	**0.09%**	**0.30%**	**0.48%**	**0.80%**	**1.78%**	**0.91%**
	Matching premium = C - G	**0.65%**	**0.80%**	**1.58%**	**1.75%**	**1.58%**	**1.46%**

Present value of liabilities discounted at swaps + matching adjustment **8,368**

Assets - Liabilities **0**

PV of liabilities is very sensitive: 1bp increase in MA reduces liabilities by £10m

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Illustrating the dynamics when spreads rise

Holding BBB assets sub-optimal

Base position: 30% BBB

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	10%	10%	20%	30%	30%	100%
MV assets £m	837	837	1,674	2,510	2,510	**8,368**
Credit spread = A - B	0.74%	1.10%	2.06%	2.55%	3.36%	2.37%
Fundamental spread	0.09%	0.30%	0.48%	0.80%	1.78%	0.91%
Matching premium = C - G	0.65%	0.80%	1.58%	1.75%	1.58%	1.46%
Present value of liabilities discounted at swaps + matching adjustment						8,368
Assets - Liabilities						0

No BBB holdings

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	10%	10%	20%	60%	0%	100.0%
MV assets £m	837	837	1,674	5,021	-	**8,368**
Credit spread = A - B	0.74%	1.10%	2.06%	2.55%	3.36%	2.12%
Fundamental spread	0.09%	0.30%	0.48%	0.80%	1.78%	0.62%
Matching premium = C - G	0.65%	0.80%	1.58%	1.75%	1.58%	1.51%
Present value of liabilities discounted at swaps + matching adjustment						8,317
Assets - Liabilities						51

Credit spreads doubled for A and BBB; unchanged for AAA and AA.

Assumed no change to LTA spreads and that this is the biting constraint.

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	12%	12%	24%	27%	26%	100.0%
MV assets £m	837	837	1,674	1,953	1,820	**7,120**
Credit spread = A - B	0.74%	1.10%	2.06%	5.10%	6.72%	3.82%
Fundamental spread	0.09%	0.30%	0.48%	0.80%	5.14%	1.69%
Matching premium = C - G	0.65%	0.80%	1.58%	4.30%	1.58%	2.12%
Present value of liabilities discounted at swaps + matching adjustment						7,770
Assets - Liabilities						-650

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	12%	12%	23%	54%	0%	100.0%
MV assets £m	837	837	1,674	3,906	-	**7,253**
Credit spread = A - B	0.74%	1.10%	2.06%	5.10%	6.72%	3.43%
Fundamental spread	0.09%	0.30%	0.48%	0.80%	5.14%	0.59%
Matching premium = C - G	0.65%	0.80%	1.58%	4.30%	1.58%	2.84%
Present value of liabilities discounted at swaps + matching adjustment						7,203
Assets - Liabilities						50

In practice there would be a small increase in LTA spreads slightly reducing MA

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Key issues with October 2011 draft text: Implications for Growth and Pensioners

- BBB matching adjustment no higher than AA or A (relaxed under LTGA)
- BBB restricted to 30%
- Bonds migrating to below BBB have no matching adjustment

  ⇒ Liability value over prudent and highly volatile over time

  ⇒ **Don't hold BBB bonds (or even A-)**
- Overly restrictive asset eligibility

Implications:

- Fire sale of BBB and A- rated bonds and asset bubbles in AAA and AA
- No demand for assets that are not straight forward bonds

Consequences:

- Further economic decline through lack of investment
- Pensioners retiring with even poorer pension annuity rates

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Latest position

- Recognition that growth and consumer implications need consideration

> *"I would be grateful to EIOPA for examining whether the calibration and design of capital requirements for investments in certain assets under the envisaged Solvency II regime necessitates any adjustment or reduction under the current economic conditions, without jeopardising the prudential nature of the regime"*
>
> Jonathan Faull (European Commission) letter to Gabriel Bernardino (EIOPA) on 26th September 2012
>
> Source: http://ec.europa.eu/internal_market/insurance/docs/solvency/20120926-letter-faull_en.pdf

- Impact assessment on Long Term Guarantee package should enable an informed decision avoiding undesirable consequences

Alternative matching adjustment

A proposed way forward

- Broad concept of the matching adjustment is good:
  - Separately managed, but not strictly ring-fenced, portfolio of assets and liabilities
  - Liability cashflows discounted using asset returns less allowance for risk
- Some aspects need small refinements:
  - Asset portfolio cashflows considered (not individual asset cashflows)
  - Risks, including materiality of risk, considered at portfolio level
  - 75% floor very high compared with historic default levels: use a lower number eg 50%
- “One size fits all” detailed prescription replaced by a principle based approach:
  - Each (re)insurer should specify an investment strategy, market risk appetite and approach to managing market risks.
  - Appropriate risk based capital should be held against every risk informed by market data.
  - A proven track record of executing investment strategy and risk management approach will give confidence to all stakeholders that a return above risk free can be achieved.

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Alternative matching adjustment

Example investment strategies

- Example 1:
  - Well diversified, fixed income tradeable/liquid assets maintaining an overall portfolio rating of at least A with no more than 10% assets below BBB.
  - If downgrades cause either rating limit to be breached then the portfolio will be rebalanced over the medium term – assume asset sale prices are mean reverted.
  - Risk allowance covers default and cost of rebalancing book after downgrade

- Example 2:
  - Broadly fixed income portfolio of illiquid assets. Asset purchases on average AA rating.
  - No asset sales assumed; capital will need to increase in the event of downgrades
  - Risk allowance covers default, cost of raising more capital following downgrade and any variability in non-fixed asset cashflows.

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Alternative matching adjustment

Illustrative calculations based on Example 1 investment strategy

Base unstressed illustrative numbers

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	10.0%	10.0%	20.0%	30.0%	30.0%	100.0%
MV assets £m	794	794	1,589	2,383	2,383	**7,943**
C Credit spread = A - B	**0.74%**	**1.10%**	**2.06%**	**2.55%**	**3.36%**	**2.37%**
D Allowance for default and migration	0.07%	0.02%	0.04%	0.11%	0.45%	0.18%
E 50% average spread	0.02%	0.20%	0.32%	0.53%	0.67%	0.45%
F Fundamental spread = higher of D or E	**0.07%**	**0.20%**	**0.32%**	**0.53%**	**0.67%**	**0.45%**
Matching premium = C - F	**0.68%**	**0.90%**	**1.74%**	**2.02%**	**2.69%**	**1.92%**

Present value of liabilities discounted at swaps + matching adjustment **7,943**

Assets - Liabilities **0**

Credit spreads doubled for A and BBB; unchanged for AAA and AA

	Sovereigns and Supras	AAA	AA	A	BBB	Weighted Average
% assets in rating category	12%	12%	24%	27%	26%	100.0%
MV assets £m	794	794	1,589	1,854	1,727	**6,758**
Credit spread = A - B	**0.74%**	**1.10%**	**2.06%**	**5.10%**	**6.72%**	**3.82%**
Fundamental spread = higher of D or E	**0.07%**	**0.20%**	**0.32%**	**0.53%**	**0.67%**	**0.42%**
Matching premium = C - F	**0.68%**	**0.90%**	**1.74%**	**4.56%**	**6.05%**	**3.39%**

Present value of liabilities discounted at swaps + matching adjustment **6,816**

Assets - Liabilities **-58**

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Alternative matching adjustment
Good for Growth and Pensioners

- Different companies able to take different asset strategy approaches from the full range of assets in the market
  - Supports investment for growth in wider economy not just large companies with the very best credit rating
  - Avoids artificial asset bubbles
  - Delivers better returns for customers as risk return trade off optimised over a much wider range of assets
  - Asset innovation enabled
- Appropriate capital levels to safeguard policyholder protection while over prudence avoided
  - Better value for money pension annuity rates

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LTGA & Conclusion

- Variable credit rate adj in RFR
- May not be fully reflected in MA

- Asset eligibility changed
- Close matching requirement

- Extended MA concept introduced
- Widens product coverage

- Ring fenced fund arises
- Appears to remove diversification

"There is still an urgent need to clarify and expand the wording on the Matching Premium"

Otto Thoresen
Director General
ABI
1 March 2012

"...remove arbitrary restrictions..."

"... no restriction on BBB, but measures to avoid 'chasing the premium'..."

UK insurers

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Questions or comments?

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