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“It was the best of times, it was the worst of times”

(Efficient frontiers : fine in theory but fundamentally not optimal)

Daniel Blamont
Dick Rae

24 May 2016

"It was the best of times, it was the worst of times,

it was the age of wisdom, it was the age of foolishness,

it was the epoch of belief, it was the epoch of incredulity,

it was the season of Light, it was the season of Darkness,

it was the spring of hope, it was the winter of despair,

we had everything before us, we had nothing before us,

we were all going direct to Heaven, we were all going direct the other way,

in short, the period was so far like the present period, ….."

Source : Tale of two Cities (1859), Charles Dickens

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"It was the best of times, it was the worst of times,

it was the age of market consistency, it was the age of matching adjustment,

it was the epoch of swap discounting, it was the epoch of fundamental spread,

it was the season of internal model, it was the season of standard formulae,

it was the spring of capital allocation, it was the winter of asset allocation,

we had everything before us, we had nothing before us,

we were all going direct to transitionals, we were all going direct the other way

in short, the period was so far like the present period, ….."

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It was the best of times, it was the worst of times

- Asset strategy is evolving and driven by more than regulatory changes.
- Optimal asset allocation is an ideal.
- Efficient frontiers are fine in theory but are not optimal once you allow for fundamental and practical considerations.
- A collaborative and evolutionary approach is essential where
  - asset owners recognise that portfolio objectives differ with liabilities
  - asset managers adapt to the specific needs of each client.

it was the age of wisdom,
it was the age of foolishness,

We look at bringing theoretical and practical asset allocation together

- Multi asset allocation
  - The theory and how asset managers do it
- How insurers do it in practice
  - A matching adjustment case study
- Adapting to the specific needs of insurers
  - An emerging market debt example

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Multi asset allocation

The theory and how asset managers do it

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Multi asset allocation

We look at bringing theoretical and practical asset allocation together for a portfolio of

Developed Market Equity	(DE)
Emerging Market Equity	(EE)
10 year US Treasuries	(UST)
10 year German Bunds	(DT)
Investment Grade Credit	(IGC)
High Yield Credit	(HYC)
Emerging Market Debt	(EMD)
Inflation linked US Treasuries	(TIPS)
Inflation linked German Bunds	(D IL)
Cash	

- *It was the age of "mean SCR" optimisation*
- *It was the age of "mean variance" optimisation*

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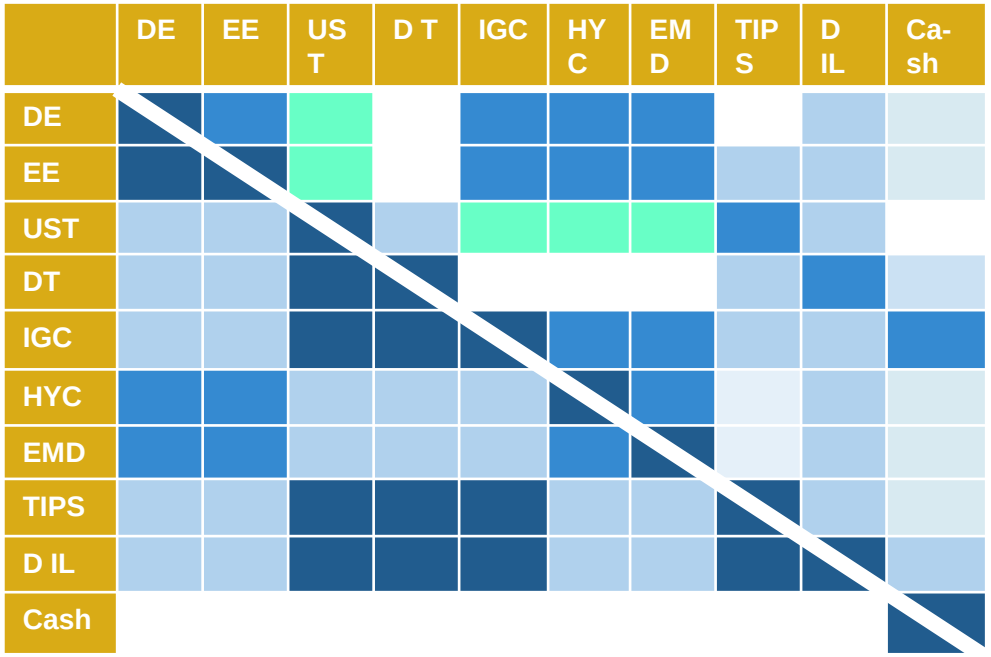
Multi asset allocation

It was the epoch 99.5% VaR, it was the epoch of 1 standard deviation VaR,

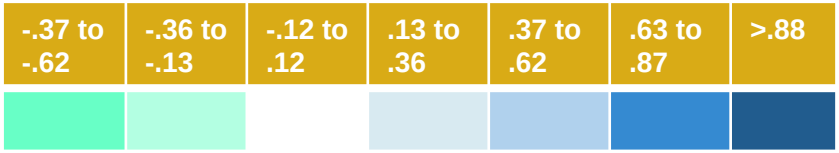
I was the season of Solvency II correlations, it was the season of market correlations

Example market correlations used by asset manager



Solvency II standard formula correlations

Key



Source : EIOPA, BMO Global Asset Management

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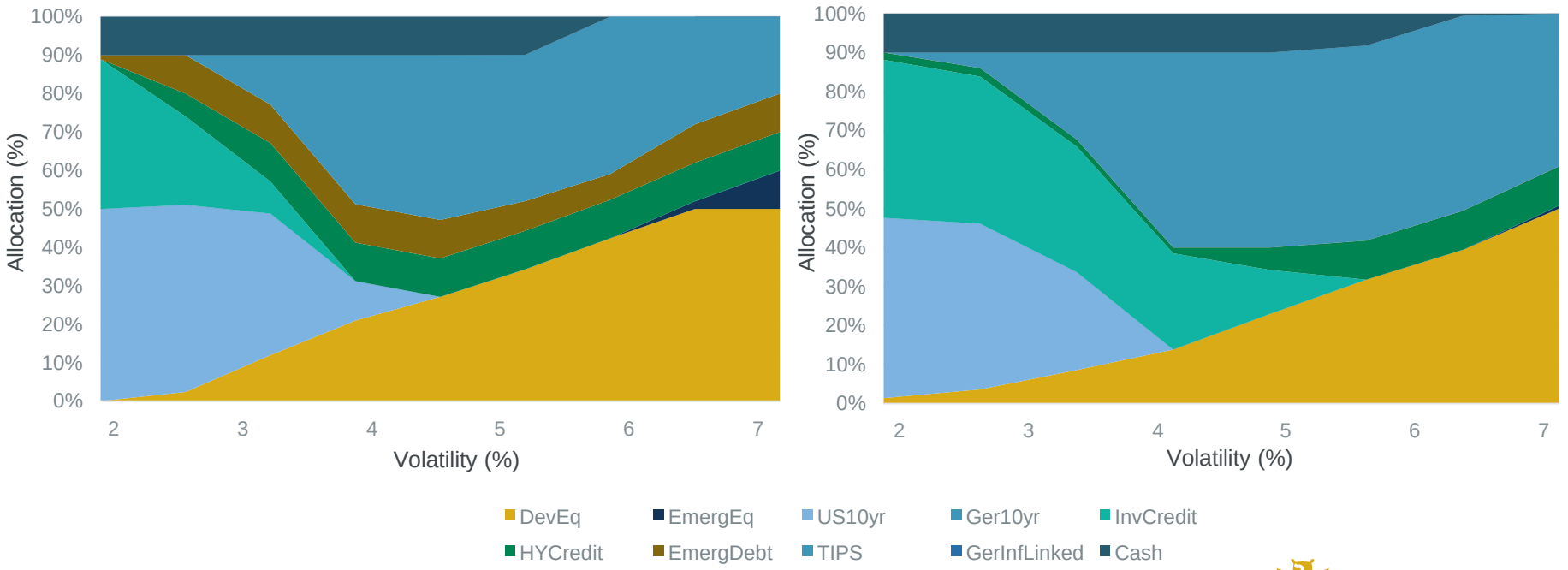
Multi asset allocation

Asset manager
"Mean variance"

Solvency II optimisation
"Mean SCR"



- Source : BMO Global Asset Management, for illustrative purposes only

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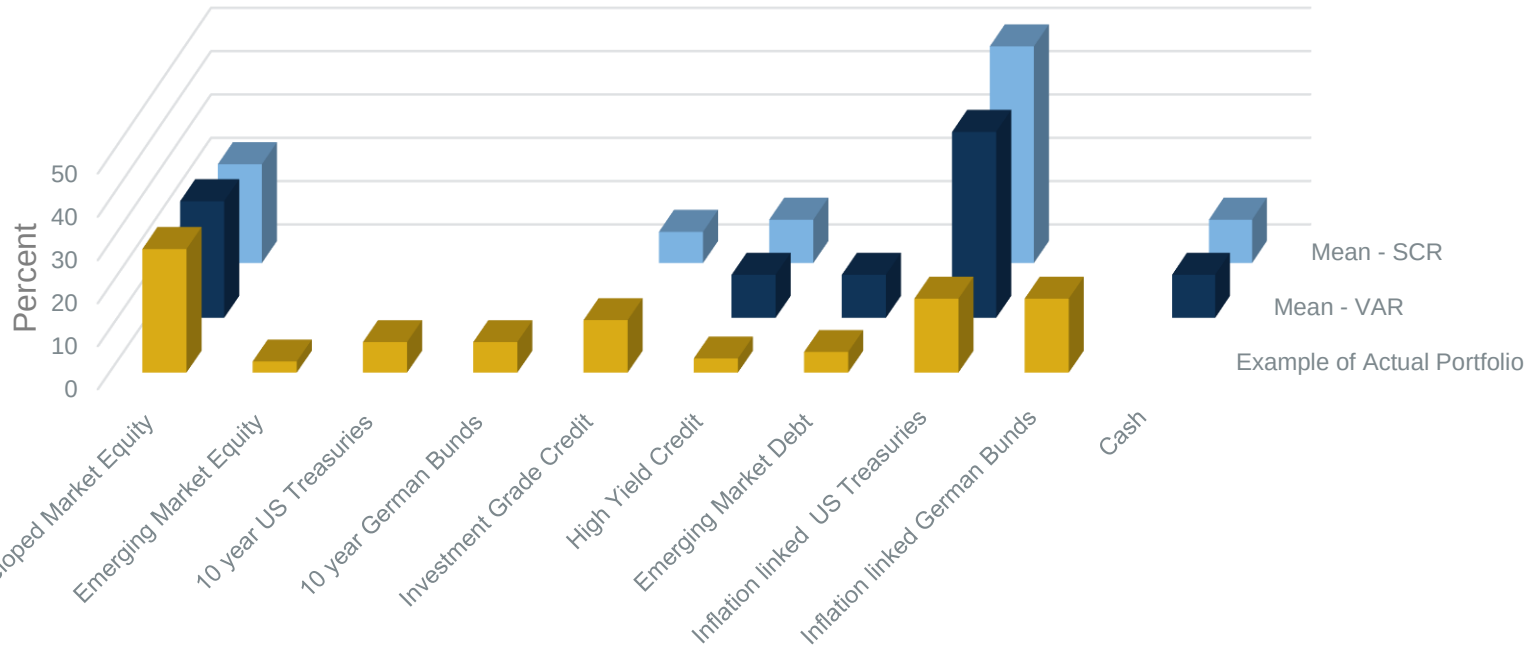
Multi asset allocation



- Source : BMO Global Asset Management, for illustrative purposes only

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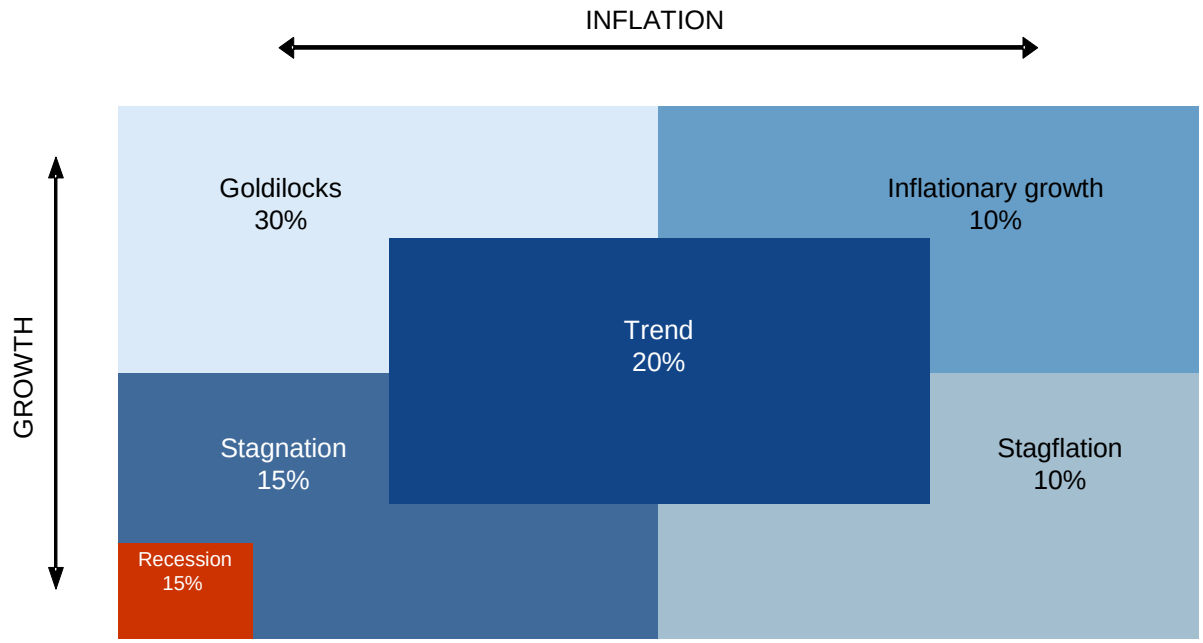
Multi asset allocation

Asset managers will have regard to a range of scenarios

- An “ORSA” approach



- Source : BMO Global Asset Management

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How insurers do it in practice

A matching adjustment case study

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How insurers do it in practice

Top-down optimisation

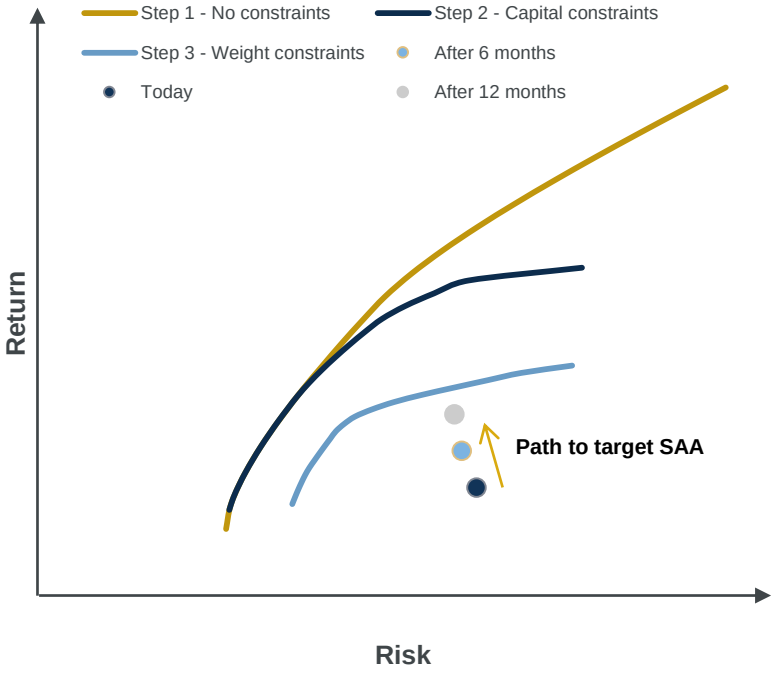
- Strategic asset allocation across broad asset classes, including weight and capital constraints
- Solvency II impacts
  - less capital efficient asset classes e.g. credit
  - Other assets excluded e.g. growth assets in MA or some securitisations

Bottom-up optimisation

- Implementing the asset class
- Solvency II impacts
  - Eligibility criteria
  - Reporting and look-through requirements
  - SCR categorisation
  - Capital efficiency

Greater and better communication needed between asset owner and asset manager

Efficient frontier: Path to target SAA



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How insurers do it in practice

How do we manage credit in the matching adjustment funds?

Active model

- Index benchmark-based
- Targets right objectives?
- Inappropriate for annuity assets

New model

- No index benchmark
- “Buy and maintain”
- Minimise defaults and downgrades

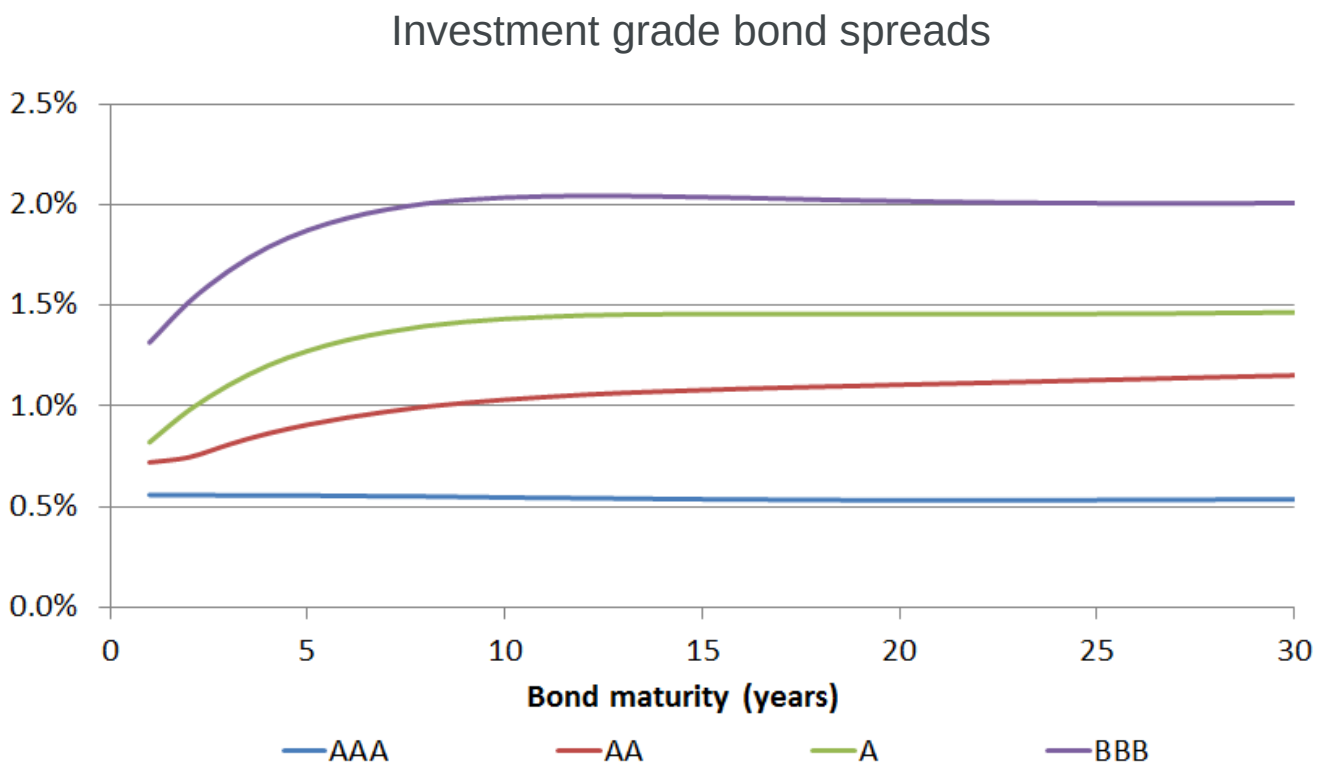
Passive model

- Buy & hold or buy & forget?
- One-off allocation exercises
- May not pre-empt corporate actions

Meeting strategic objectives

- Rate matching
- Economic/regulatory risk
- S2 capital ratio, MA

How insurers do it in practice



Source: Bank of America Merrill Lynch 31-Dec-15

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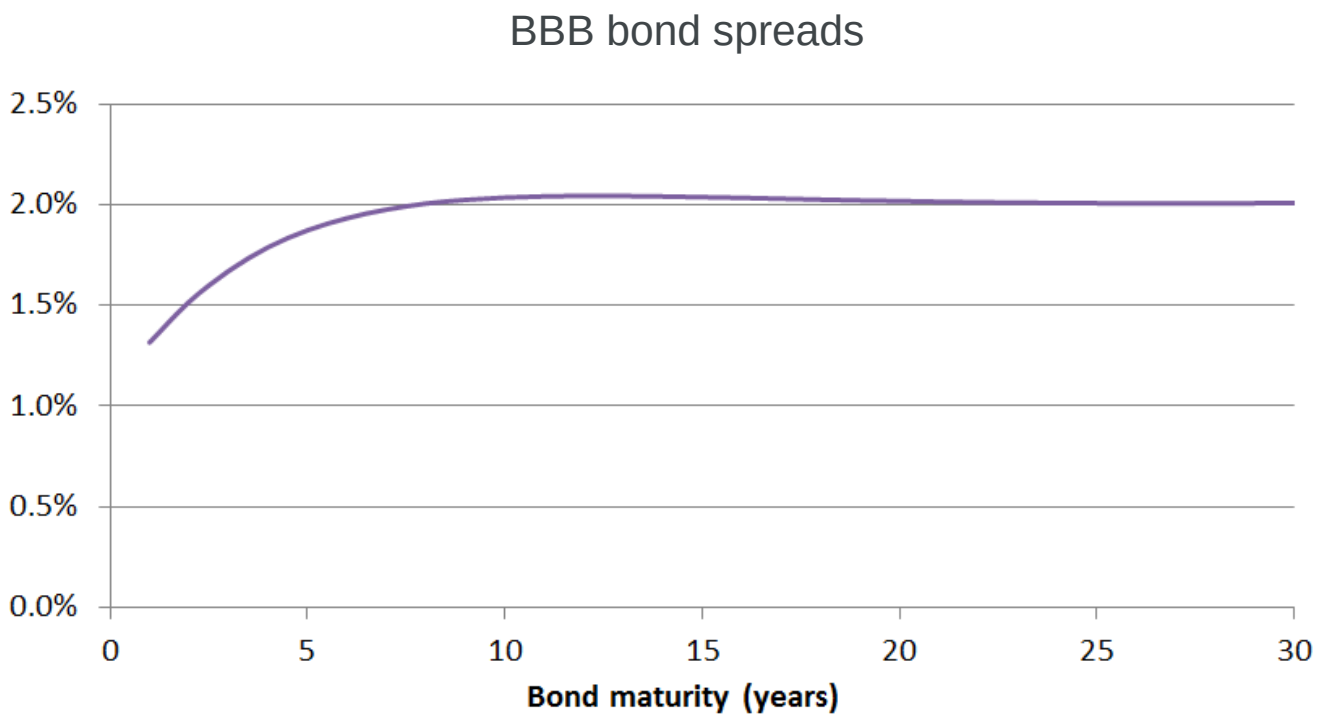
How insurers do it in practice



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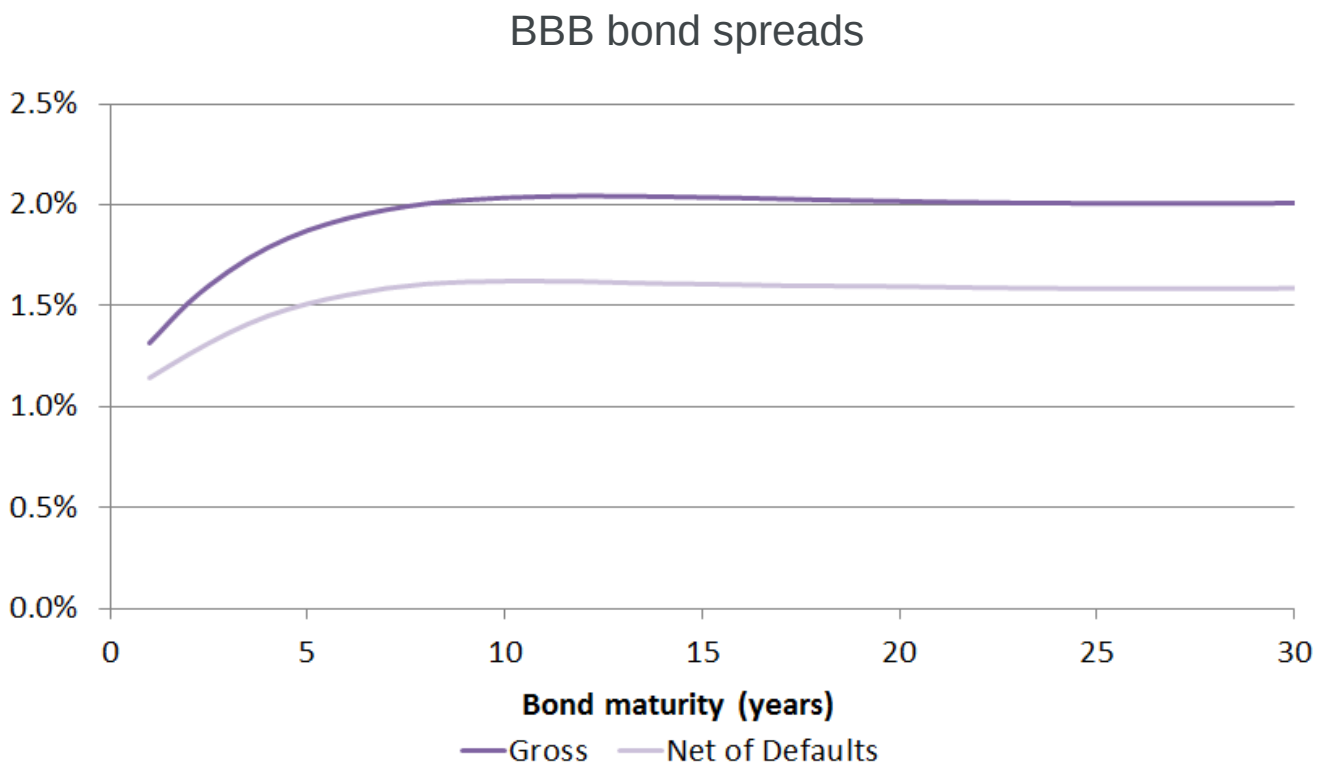
How insurers do it in practice

A matching adjustment case study



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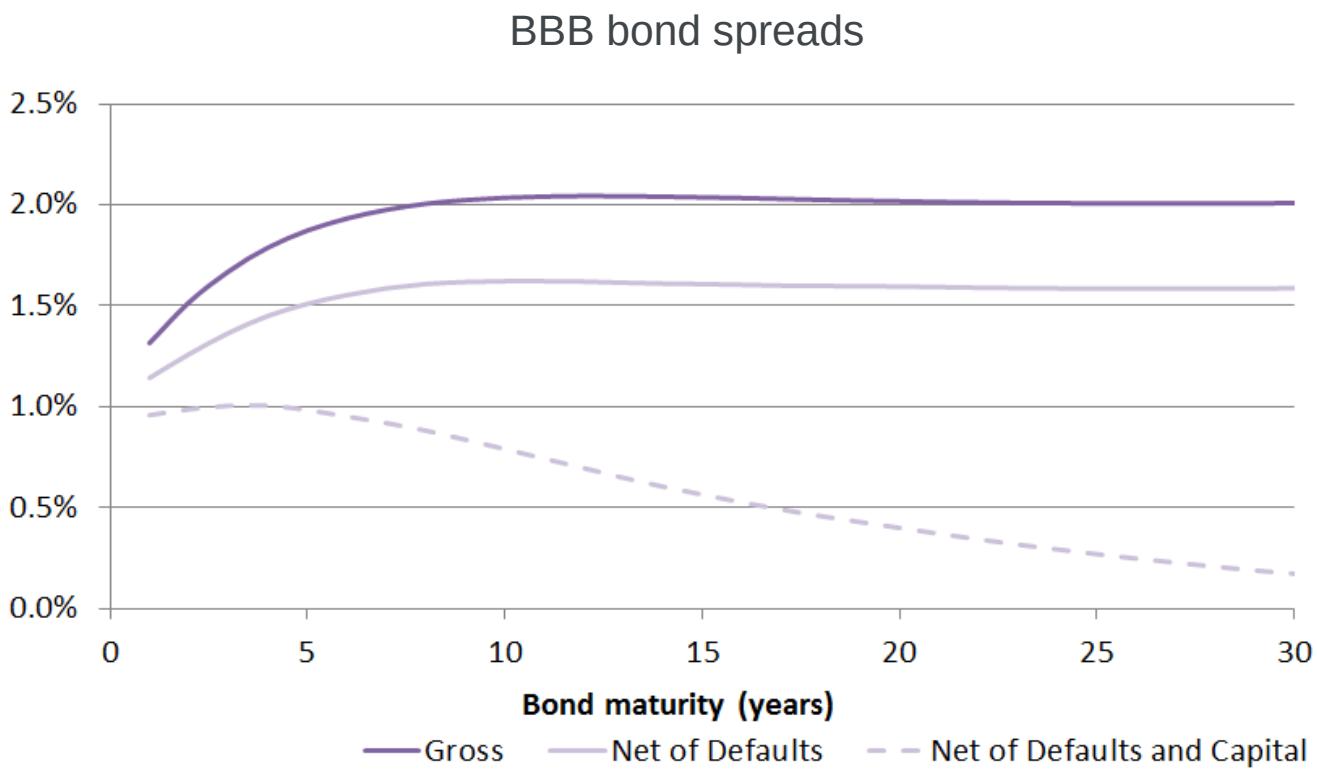
How insurers do it in practice

A matching adjustment case study



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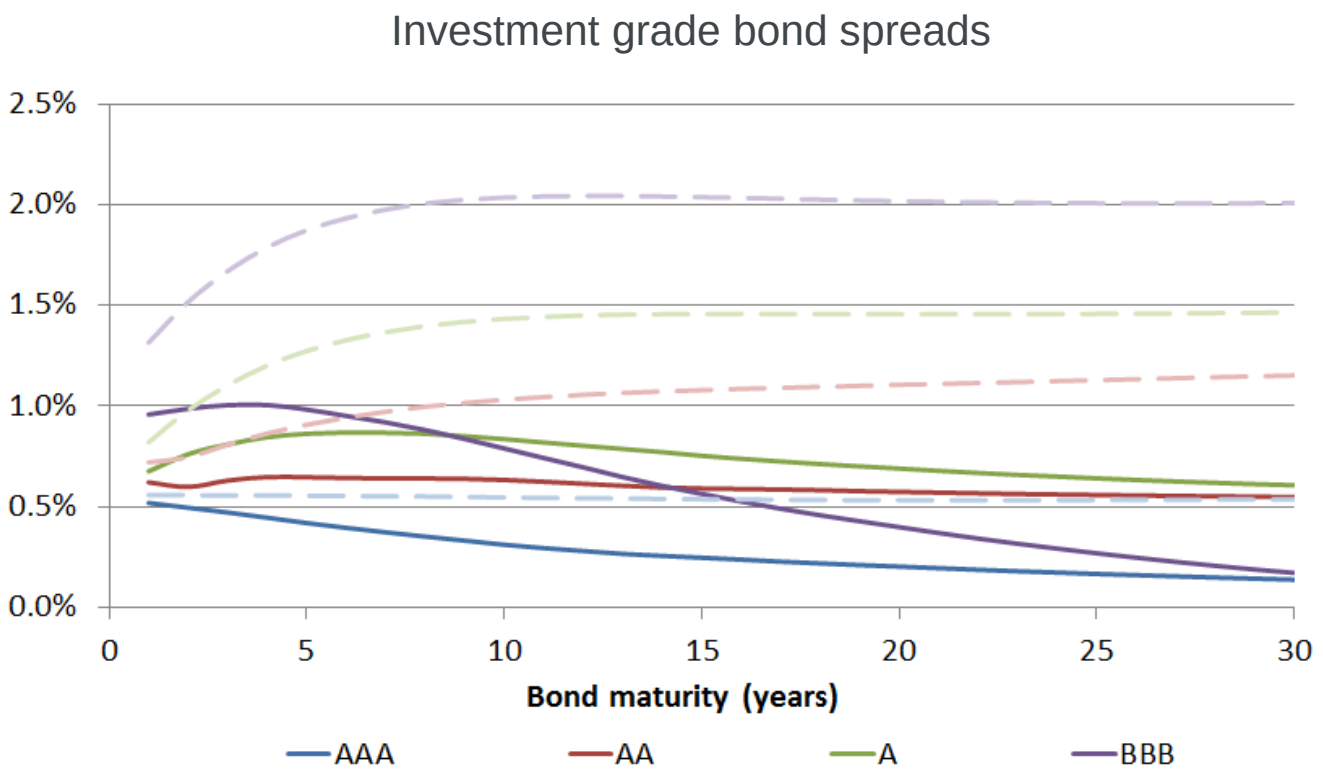
How insurers do it in practice



Source: Bank of America Merrill Lynch 31-Dec-15

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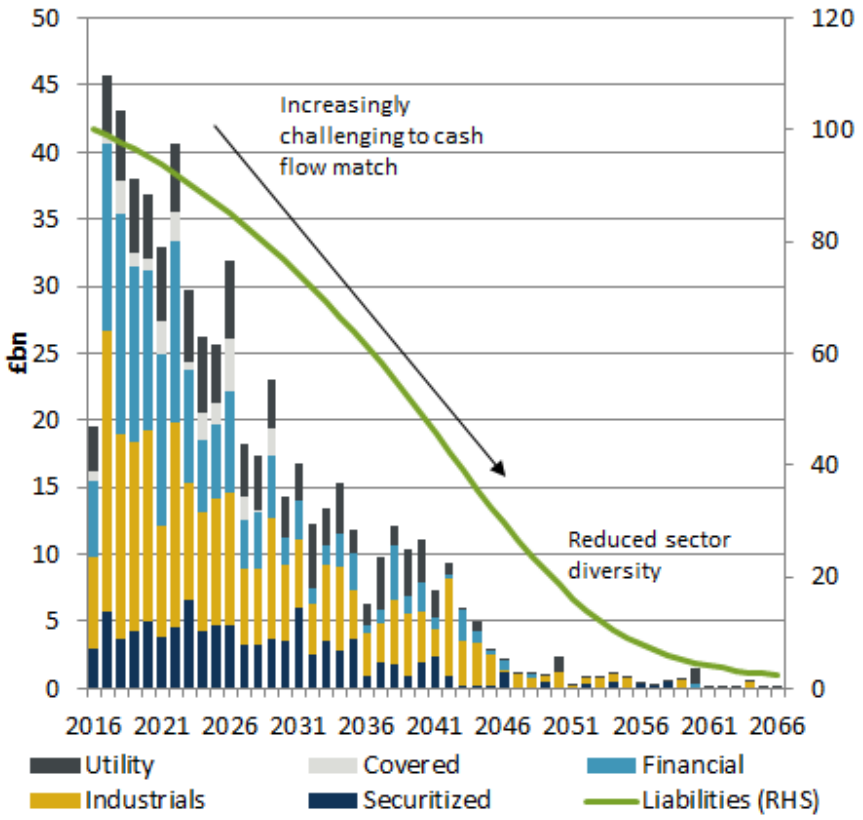
How insurers do it in practice

Investment strategy

- Combine top-down preferences based on MA and SCR with asset manager single name expertise to build better portfolios
  - Portfolio underpinned by fundamentals
  - Manager is aware of balance sheet implications of asset allocation decisions
  - Return seeking portfolio not constrained by cash-flow matching: matching achieved via Gilts and derivative overlays
- Range of variants
  - Internal versus standard capital model
  - Break-even/target cost of capital
  - Forward versus historic cost of default
  - Adjusted spread versus adjusted return on capital
- It is possible to design mandates that align the asset manager's targets to the objectives of the asset owner

How insurers do it in practice

Credit market ill-suited to back annuities



Cash flow matching strategy

- Investment in return-seeking assets is not constrained by cash-flow matching requirements
- Fairly good matching achieved by investing in a range of physical assets
  - Short-medium term: corporates
  - Medium term: CRE loans
  - Long term: ERM, infrastructure, leases
- Each asset class can be managed independently, each with its specialist asset manager
- Matching completed via Gilts, quasi-sovereigns and derivative overlays

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How insurers do it in practice

Measuring success

- NOT about total return
- And certainly NOT about outperforming an bond-index benchmark
- Liabilities are the effective benchmark: excess return over the risk free benchmark is the most relevant return measure in the short term
- Given buy-to-hold nature of the portfolio, long-term measures of manager performance are:
  - Defaults
  - Downgrades (increased capital)
  - Downgrades to High Yield (cap on MA)
- Success for the insurer should also translate into
  - Improved MA
  - Reduced SCR
  - Or improved capital resources (MA minus SCR)
- **Again: greater and better communication needed between asset owner and asset manager**

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Adapting to the needs of insurers

An emerging market debt example

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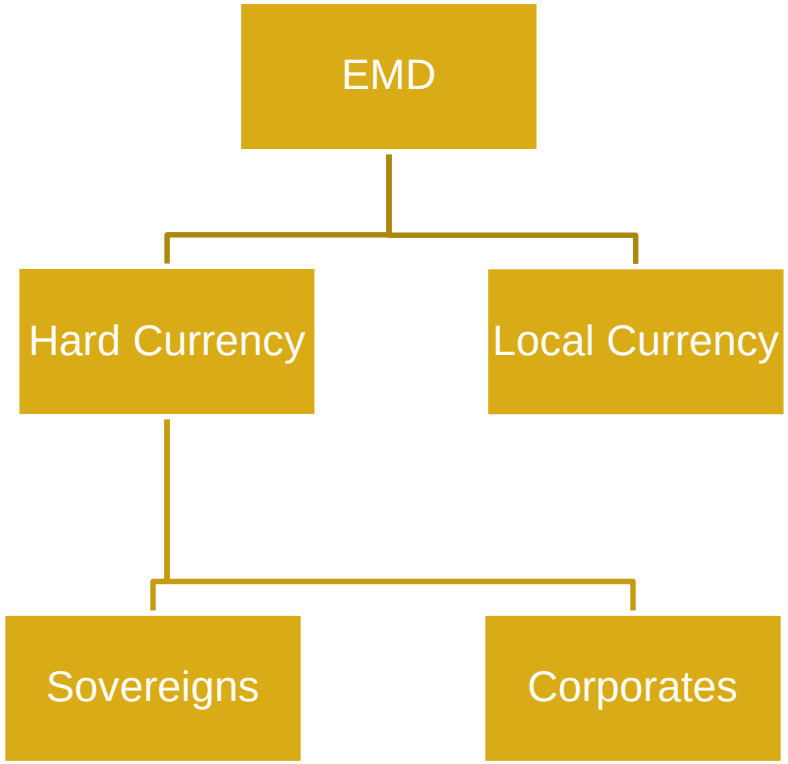
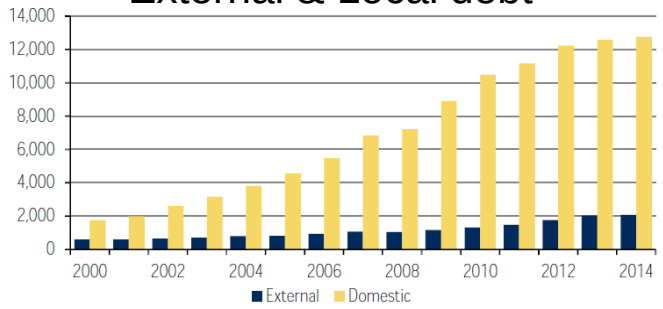
Adapting to the needs of insurers

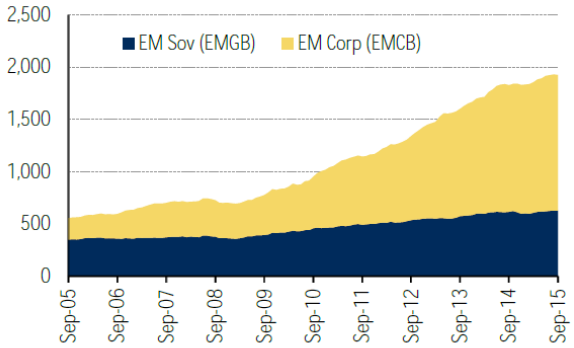
An overview of Emerging Markets Debt



External & Local debt



Sovereign & Corporate HC



Sources: BofA Merill Lynch Global Research

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Adapting to the needs of insurers

Practical optimisation over theoretical optimisation

- Issuers about to be downgraded
  - higher yielding than rating peers
- Issuers with no credit rating
  - Solvency penalty can be too low
- EU government issuers risk free under Solvency II standard formula
  - Economic optimisation vs standard formula optimisation

Listening to client needs

- Accounting considerations
  - Preference for buy and maintain
- Risk management considerations
  - Limit duration / active management

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Adapting to the needs of insurers

SCR standard formula

- Spread risk factor of 0% applies to exposures to EU Member States

Members of the European Union		
Austria	Germany	Netherlands
Belgium	Greece	Poland
Bulgaria	Hungary	Portugal
Croatia	Ireland	Romania
Republic of Cyprus	Italy	Slovakia
Czech Republic	Latvia	Slovenia
Denmark	Lithuania	Spain
Estonia	Luxembourg	Sweden
Finland	Malta	UK
France		

Sources : www.gov.uk and J.P.Morgan

Adapting to the needs of insurers

SCR standard formula

- Spread risk factor of 0% applies to exposures to EU Member States

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Croatia*	Ireland	**Romania***
Republic of Cyprus,	Italy	**Slovakia***
Czech Republic	**Latvia***	Slovenia
Denmark	**Lithuania***	Spain
Estonia	Luxembourg	Sweden
Finland	Malta	UK
France		

*Constituents of J.P.Morgan Emerging Markets Bond Index Global Diversified

Sources : www.gov.uk and J.P.Morgan

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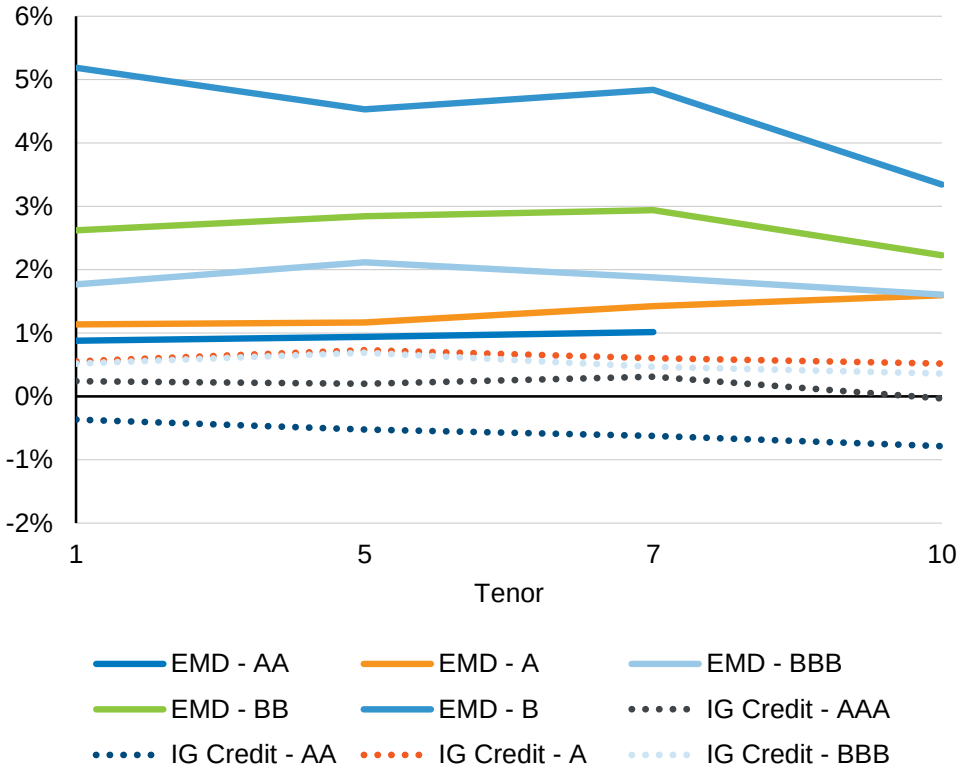
Adapting to the needs of insurers

Assumptions:

- Solvency II standard formula SCR,
- EU EMD not risk free,
- 6% cost of capital, 50% diversification benefit



Source: BMO Global Asset Management as at 25/02/2016

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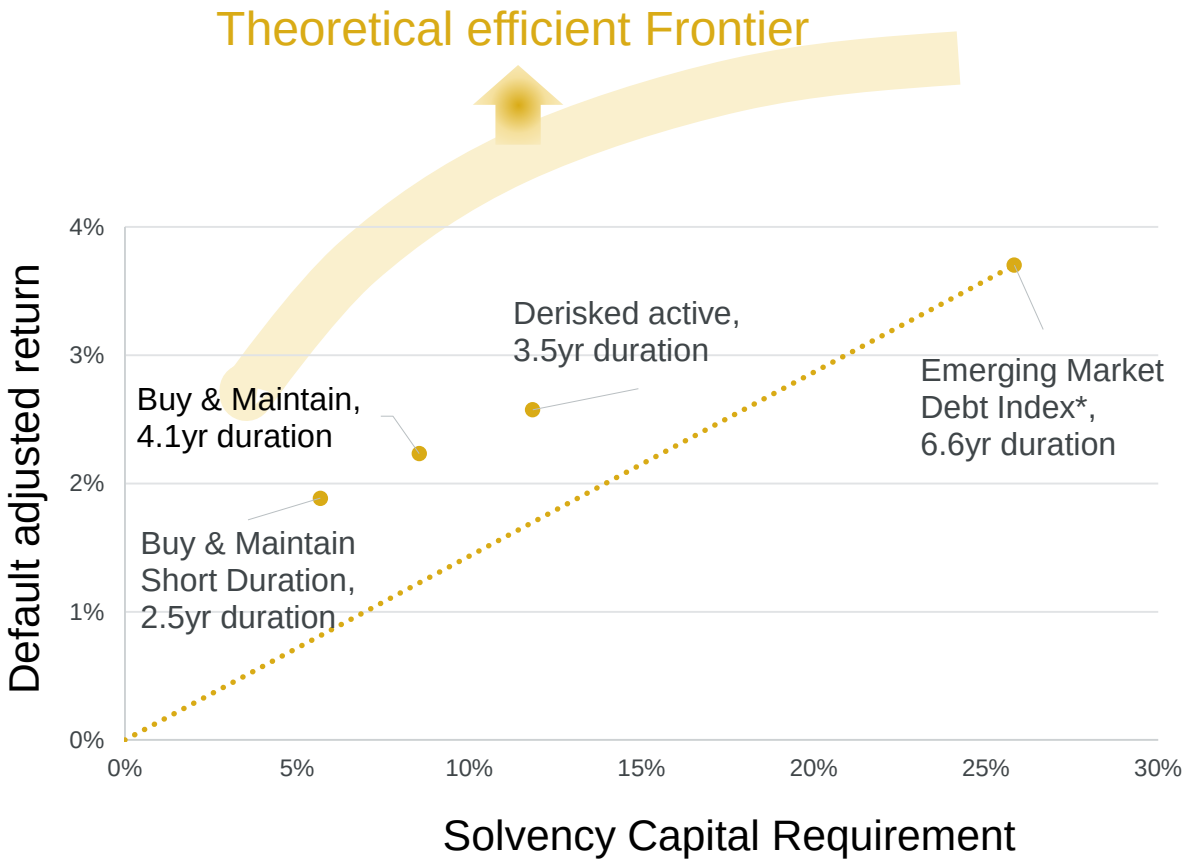
Adapting to the needs of insurers



Index : J.P. Morgan EMBI Global Diversified Index
Source : BMO Global Asset Management as at 25/02/2016

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Questions

Comments

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