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Assets – are you stressed enough?

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Content

- Background
- Issues with existing approach?
- How else you might approach modelling assets
- Practical examples

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Background

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Market Environment

- Traditionally Insurers have relied on predominantly vanilla corporate bond investments
- The recent and persisting low yield environment challenges insurance companies to expand their investment portfolio

Loans secured on
ground rents

Loans secured on
commercial real estate

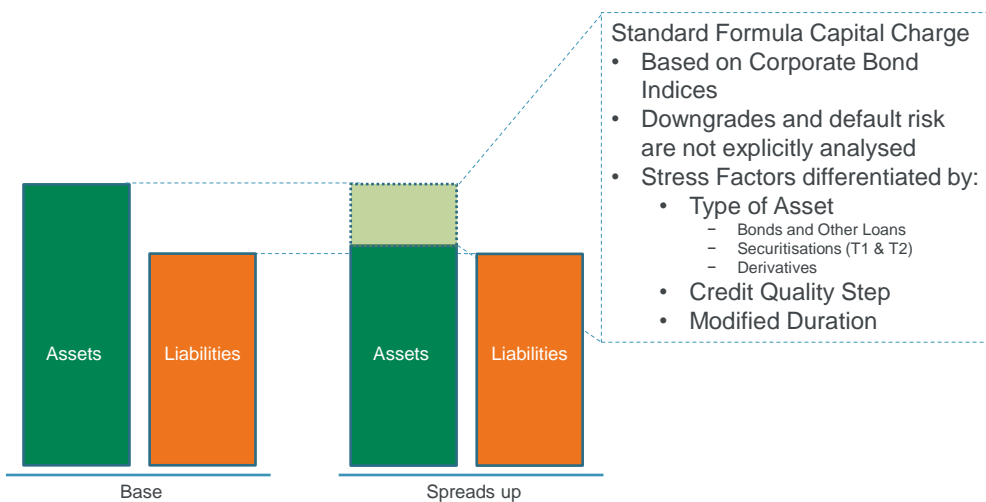
Secured social housing
bonds

Equity release
mortgages

Aircraft bonds

Infrastructure loans

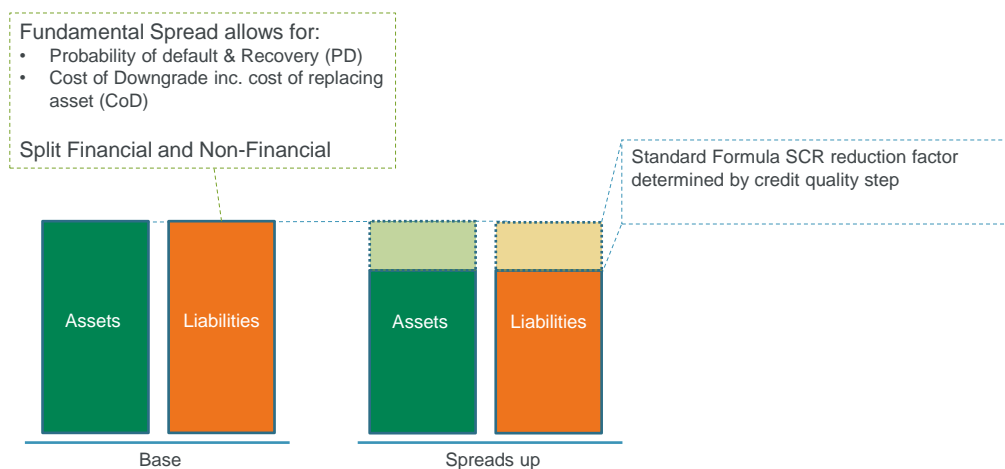
Non Matching Adjustment Portfolio



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Matching Adjustment Portfolio



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Issues with this approach

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Issues with this approach

- Heavily Grounded in Corporate Bond Stresses
- Limited Breakdown and Understanding of components of yield
- Categorisation of risk by rating buckets only:

$\text{High PD} \cdot \text{Low LGD} = \text{Low PD} \cdot \text{High LGD}$

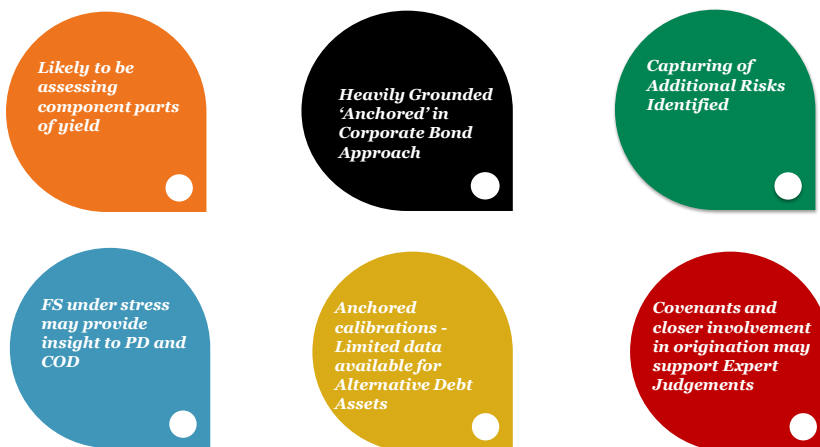
From a Capital Perspective?

From a Management Perspective?

- What about Managing the Matching Adjustment Portfolio and replacement of assets?

Does the capital result really provide an understanding of the risks associated with spread assets other than corporate bonds?

Internal Model



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Assets other than corporate bonds

Do you really understand your risk from a capital perspective of a bond other than corporate bond

- Collateralisation
- Liquidity management requirements
- Drivers of risk and defaults
- Ongoing management & ability to support Matching Adjustment Portfolio



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The different approaches available to life insurers

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Capital treatment – misperceptions

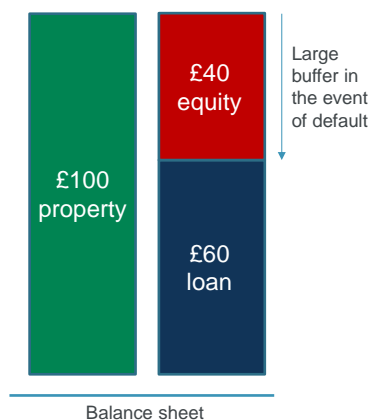
- Same rating means same risk ✘
 - Ratings map to expected loss or default probability
 - Ratings may not capture the volatility of expected losses or default probability
- From Solvency 1 liquidity premium to Solvency II MA, risk, and hence SCR, is unchanged ✘
 - On aggregate Credit SCR under MA need not be the same as ICA
 - MA materially constrains eligible assets and liabilities
 - The scope to take risk is greatly reduced by turnover limits and PRA tests
 - It could in fact be argued that capital under MA is lower

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CRE debt example

- Loan secured on commercial real estate
- Low loss given default
 - Large equity buffer
 - Typically 55-60% LTV for A-rating
 - Covenants: early intervention
- Bilateral loan: ability to restructure and covenant protection
- Amortising: risk and LTV improves over time



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CRE debt – default characteristics

- Probability of credit event higher than corporate bonds
 - Debt Service Coverage Ratio covenant (DSCR)
 - Loan to Value covenant (LTV)
 - Act early before losses are incurred
 - Bilateral loan: hard default can be avoided
- BUT** • Loss given default smaller than corporate bonds
 - High equity buffer
 - Secured by property which can be sold
 - Possibility to restructure bilateral loan rather than hard default



Possibly same expected losses (rating) as corporate bonds but very different risk profile

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Capital treatment – internal model

	Top – Down	Bottom – up
Price risk	<ul style="list-style-type: none"> Identify proxy index Value at: risk-free + proxy index spread + origination premium Fixed or time-varying origination premium 	<ul style="list-style-type: none"> Model underlying risk drivers Obtain risk-adjusted cash flows Value at risk-free + illiquidity discount spread Apply IM stresses for each risk category to obtain SCR
Inside MA	<ul style="list-style-type: none"> Explicit method: Stressed PD and COD Implicit method: Stressed MA offset ratio (change in MA / change in market value) 	<ul style="list-style-type: none"> Illiquidity not a risk: no illiquidity discount spread Apply IM stresses for each risk category to obtain SCR
Challenges	<ul style="list-style-type: none"> Basis risk between proxy indices and actual asset Hard to capture asset class idiosyncrasies 	<ul style="list-style-type: none"> Data intensive How to set certain assumptions (e.g. tenant default, lease renewal probability)

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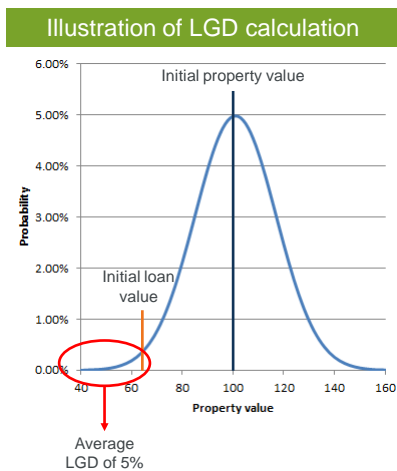
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Practical examples

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Bottom-up SCR methodology

- Determine PD
 - Net operating income versus loan interest
 - LTV and debt servicing covenants
 - Granularity of income modelling: individual tenants, leases, rental yields...
- Determine LGD
 - Property stress versus loan LTV
 - Granularity of property modelling: sector, geography, delapidation...



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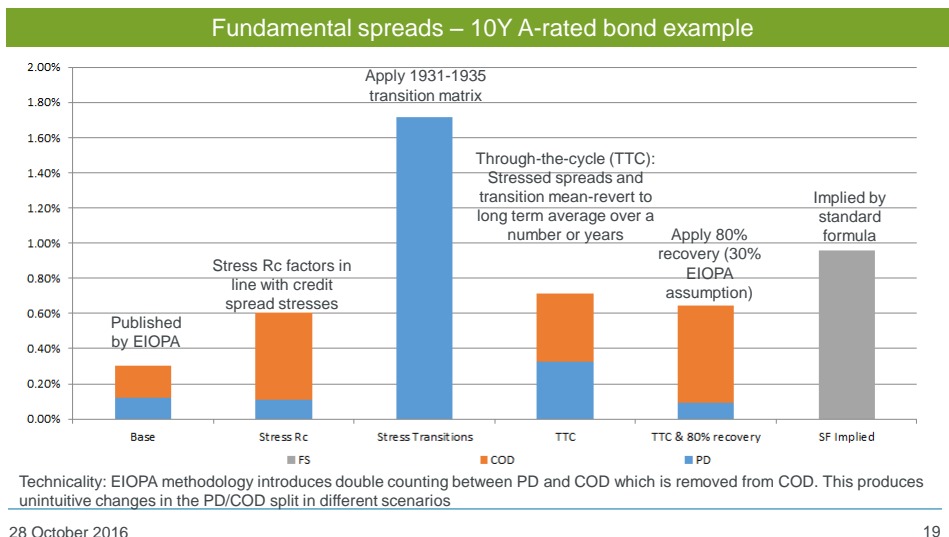
Top-down SCR methodology

- Stressed rating
 - Need bottom-up analysis to re-work stressed rating?
- Stress underlying FS components
 - Rc factor (CoD): stressed spread differentials
 - Transitions (CoD and PD): 2009, 2002 or 1930's stressed transitions and defaults?
 - Recovery rate (PD): reflect secured nature of the asset class

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Top-down SCR methodology



Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.