Institute and Faculty of Actuaries

Are life insurance companies turning into rating agents?

Stefan Augustin, Nicola Kenyon and Scott McNeill

26 October 2016

Institute and Faculty of Actuaries

Content

- Background
- Why credit ratings matter to life insurers
- Industry events over the past 18 months
- Industry best practice
- Rating agent vs Life insurer
- Case study

Institute and Faculty of Actuaries

Background

26 October 2016

What is a credit rating?

Credit rating: An assessment of the creditworthiness of a borrower in general terms or with respect to a particular debt or financial obligation

Credit rating	Default probability*	Recovery rates	Expected Loss
AAA	0.000%**	N/A	0.000%
AA	0.068%	37%	0.043%
A	0.091%	32%	0.062%
BBB	0.256%	42%	0.148%
BB	1.177%	46%	0.636%

Source: Moody's annual default study 2014, recovery rates 1982-2014

* The AAA recovery rates are based on five observations, three of which are Icelandic banks that have an average recovery rate of 3.33%.

What does a credit rating mean?

Description	Moody's	S&P	Fitch	Example
Prime	Aaa	AAA	AAA	European Investment Bank
High grade	Aa2	AA	AA	Walmart
Upper medium grade	A2	A	A	Thames Water
Lower medium grade	Baa2	BBB	BBB	McDonald's
Speculative	Ba2	BB	BB	

The lower the credit rating the higher the likelihood of default.

Institute and Faculty of Actuaries

Why credit ratings matter to life insurers?

26 October 2016

Solvency II

Asset risk

Understand the risks of the assets on balance sheet, and remain within **risk appetite**.

SCR

Calculation of **spread risk** and **counterparty risk** capital charges based on the credit ratings and duration.
Unrated* assets can bear onerous capital charges.

MA

Insurers approved for “Matching adjustment” need to calculate the “Fundamental spread” by rating bucket and duration.
Unrated assets need to be internally rated in the MA portfolio.

Credit rating	Spread risk capital charge	EIOPA FS
AAA	4.5%	0.05%
A	7.0%	0.12%
BBB	12.5%	0.31%
B	37.5%	1.89%

*Not rated by an external rating agent

Why buy unrated assets?

Why would a bond not get a rating for an investor?

Cost - Rating agencies can charge 5bp of the total bond offering, subject to high minimums, as well as annual monitoring fees

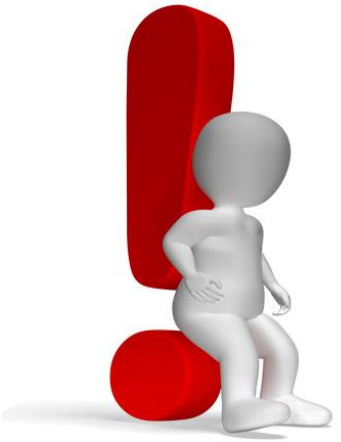
Time - It can be very time consuming

Expertise – Complex assets across multiple methodologies

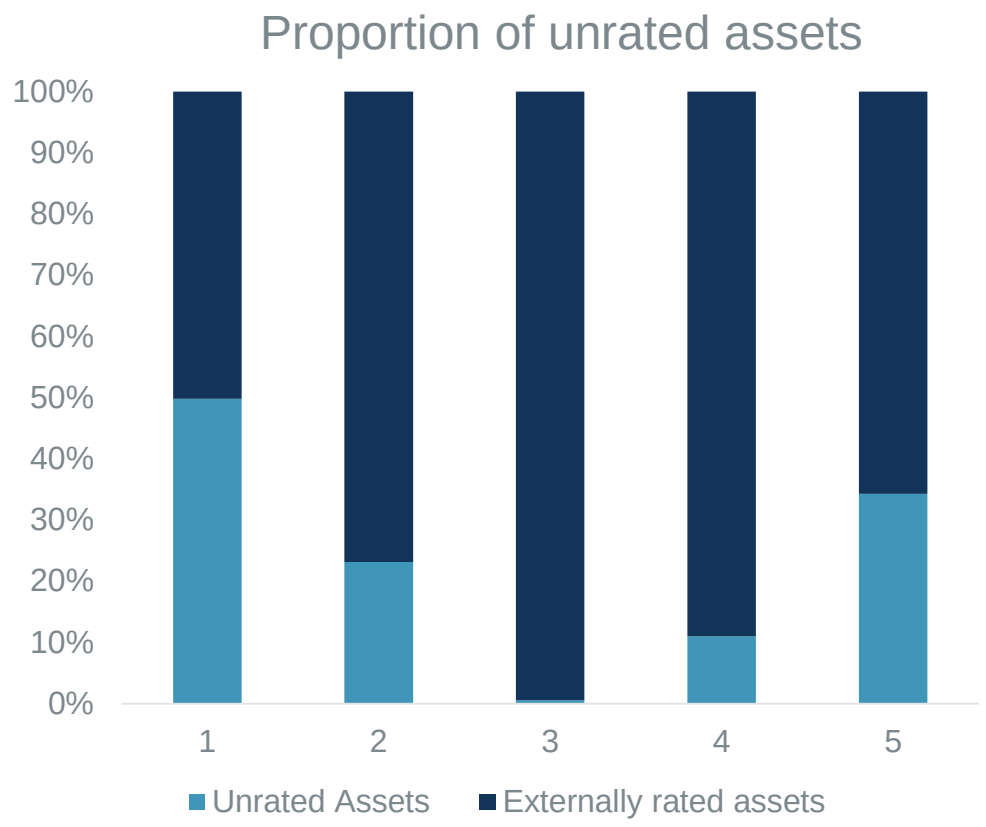
Why would insurers want an unrated bond?

Insurers can have the capacity to get **more information** in private deals…

… seek long **illiquid alternative assets** which can offer **higher spread**



Market insight - Unrated holdings



Asset classes which might contain unrated assets

- Secured funding trades
- Commercial real estate
- Infrastructure
- Negative basis packages
- Equity Release Mortgages
- Ground rents
- Non profit organisations
- Social Housing
- Universities
- Corporates

Pic 5

Institute and Faculty of Actuaries

Industry events over the past 18 months

26 October 2016

PRA

"As communicated in our 19 December 2014 Directors' letter, the PRA expects firms that currently hold, or who intend to hold, unrated assets within MA portfolios to have in place suitable policies, processes, practices and documentation to demonstrate the appropriateness of their internal ratings."

Firms generally provided insufficient information in this area.

*Where firms have internally rated assets within the MA portfolio**, the PRA will require proportionate independent assurance, potentially involving third-party review, on the rating process**."*

How do you assign a rating?

Fundamental Analysis

Fundamental analysts attempt to study everything that can affect the security's value, including macroeconomic factors and company-specific factors.

Business profile

- Size of the issuer
- Sales channels
- Geographical Distribution
- Regulatory framework

Quantitative metrics

Credit Metrics	2014	2013	2012
Total Debt/EBITDA	3.5x	3.2x	3.3x
Free oper cashflow/debt	4.9%	6.9%	4.3%
FFO/Debt	20.5%	21.7%	20.9%
EBITDA interest coverage	6.6	5.4	5.4
Net Debt/EBITDA	2.12x	1.86x	2.53x

How do you assign a rating?

Cash-flow projection

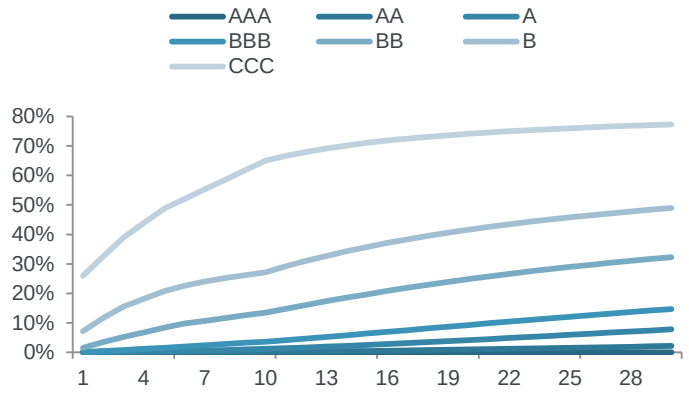
- Project asset cash-flows and stress them under adverse scenarios
- The more adverse experience the asset can withstand, the higher credit rating can be assigned

How do you assign a rating?

Expected Loss Ratings

Expected loss ratings follow a two-step approach: determining the default probability of an instrument and its expected recovery rate. Ratings address the timely payment of interest and ultimate payment of principal likelihood.

Default Probability Rating → ***Expected Loss Rating***



- $Expected\ Loss = Default\ Probabillity \times (1 - Recovery\ Rate)$
- A minimum recovery rate of 40% is required to translate a default probability rating to an expected loss rating
- Any additional recoveries beyond the minimum threshold may uplift the final expected loss rating

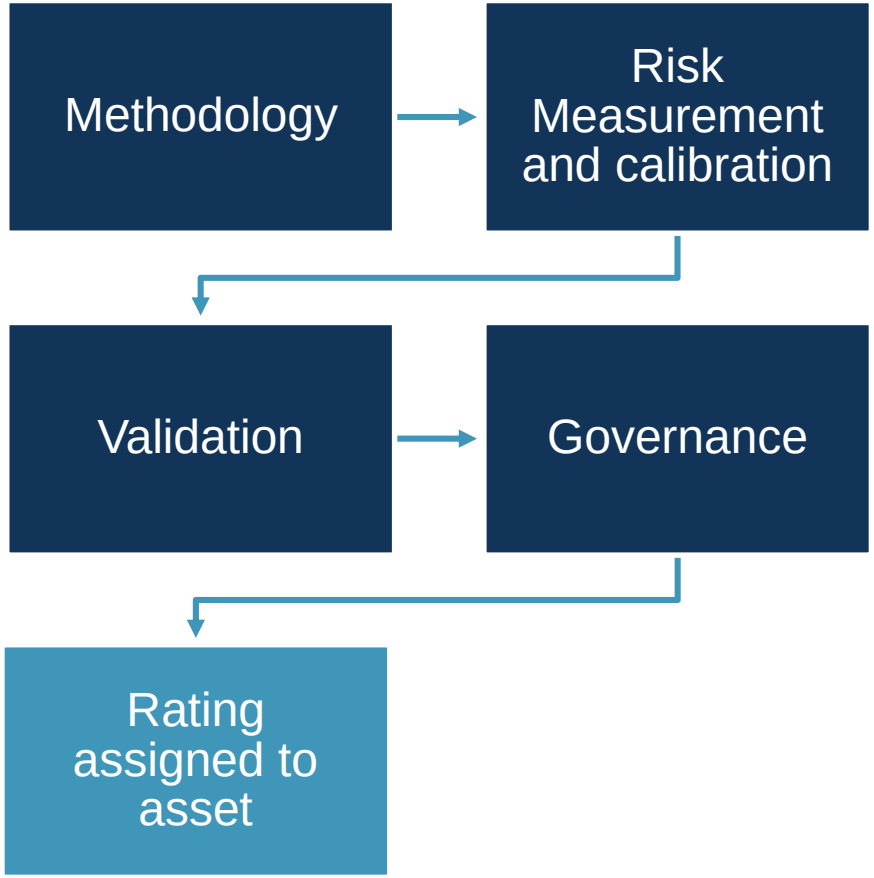
How do you assign a rating?

Case Study

- A 10-year GBP100M loan facility to a bank rated e.g.(A1/A/A+).
- The facility is secured with GBP100M notional of Spanish government bonds.
- Senior unsecured claim against the borrower,

Default Probability	***Recovery Rate***	***Expected Loss Rating***
The default probability is the "A" cumulative default probability over 10 years In a default scenario, the underlying securities are assumed to be sold at a distressed value	Based on a time series analysis, the largest jump risk is inferred for each confidence level or target rating A senior unsecured recovery is assumed	The minimum expected loss rating is "A" The proceeds from the sale of the government bonds are added to the expected recovery rate and may uplift the final rating

Industry best practice



Firms use **expertise** of the underlying assets to derive a **quantitative and qualitative** methodology to differentiate assets by credit risk.

Calibration involves

- Data
- Backtesting
- Sensitivity testing

Firms should have appropriate validation over the methodology derived and the ratings assigned to individual assets

Institute and Faculty of Actuaries

Rating agents vs life insurers

26 October 2016

Similarities and differences

	Rating Agents	Life insurers
Experience	Since 1900s	10+ years
Credit or market Risk	Credit risk only	Both
Method transparency	Opaque	Transparent
Expertise	All staff are experts	Few staff are experts
Complexity	Complex	Simpler
Flexibility	Can't change method easily	Easy to change method
Governance	Committee	Committee
Granularity	Split by asset type	Split by asset type
Documentation	Detailed	Detailed
Prudence	Prudent	Prudent
Expert judgement usage	High	High
Market coverage	95% global market	Minimal
Conflicts of interest	Yes	Yes

Institute and Faculty of Actuaries

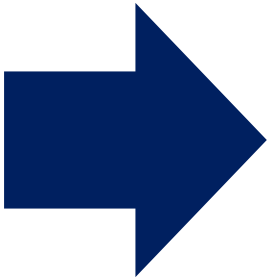
Case study

26 October 2016

Internal Credit Ratings – CRE Case Study

The rating approach follows a three-step analysis:

1	Default Probability
2	Loss Given Default
3	Structural features and legal analysis



Expected Loss Internal Credit Rating

We design transaction specific simulation models to compute the instrument expected loss:

Default Probability		Loss Given Default		
Term Default Probability	**Refinancing Default Risk**	**Property Value Simulation**	**Property Price Haircut**	**Additional Considerations**
▪ Tenant credit quality and rating ▪ Transaction specific covenants (LTV, DSCR or profitability based events of default)	▪ Initial LTV ▪ Lease expiry profile ▪ Property attractiveness and market quality ▪ Exit debt yield ▪ Amortization profile ▪ Sponsor quality and incentive	▪ Initial property market value analysis ▪ Volatility or property value uncertainty ▪ Long term property value growth	▪ Tenant correlation with a distressed CRE market or underlying property ▪ Property value haircut in a tenant default scenario	▪ Operational risk ▪ Jurisdiction risks (foreclosure period length and costs) ▪ Accrued Interest ▪ Transaction specific mechanisms

$$Default\ Probability = \frac{\sum Term\ Default\ Events + \sum Refinancing\ Default\ Events}{\sum Model\ runs}$$

$$Simplified\ Loss\ Ratio = \frac{Accrued\ Interests + Intial\ Loan\ Amount - Recovered\ Amounts - Amortized\ Amounts}{Accrued\ Interests + Initial\ Loan\ Amount}$$

Internal Credit Ratings Surveillance – CRE Case Study

Monitoring of CRE assets is based on the various inputs that are relevant for the initial ICR process. Additionally, surveillance will be customised in order to incorporate any deal specific features that will also need to be monitored, which will be done at least annually.

Inputs to Monitor

- Tenant rating
- Property price indices for relevant property market
- Property long term growth
- Property valuation reports
- Covenant compliance (LTVs, DSCRs)
- Financial statements of tenant
- Market indicators such as cash and CDS spreads of tenant/peers
- Annual due diligence of loan servicer

For CRE transactions the tenant typically undertakes to provide information, such as audited financial statements, management accounts, property level information, covenant compliance certificates and any further relevant information that may be requires in order to monitor the ICR assigned to the transaction and the credit quality of the underlying tenant

LTV/DSCR covenant tests based on the information received from the tenant and confirm to the deal/credit teams that no breach has occurred

The Credit team will review the other factors and inputs highlighted above in order to monitor the overall credit quality of the transaction at least annually

The Credit team will convene a meeting of the Credit Committee should transaction ratings need to be revised and then advise the Risk Committee of the revised ICR

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.