

Insurance: Credit Risk Management

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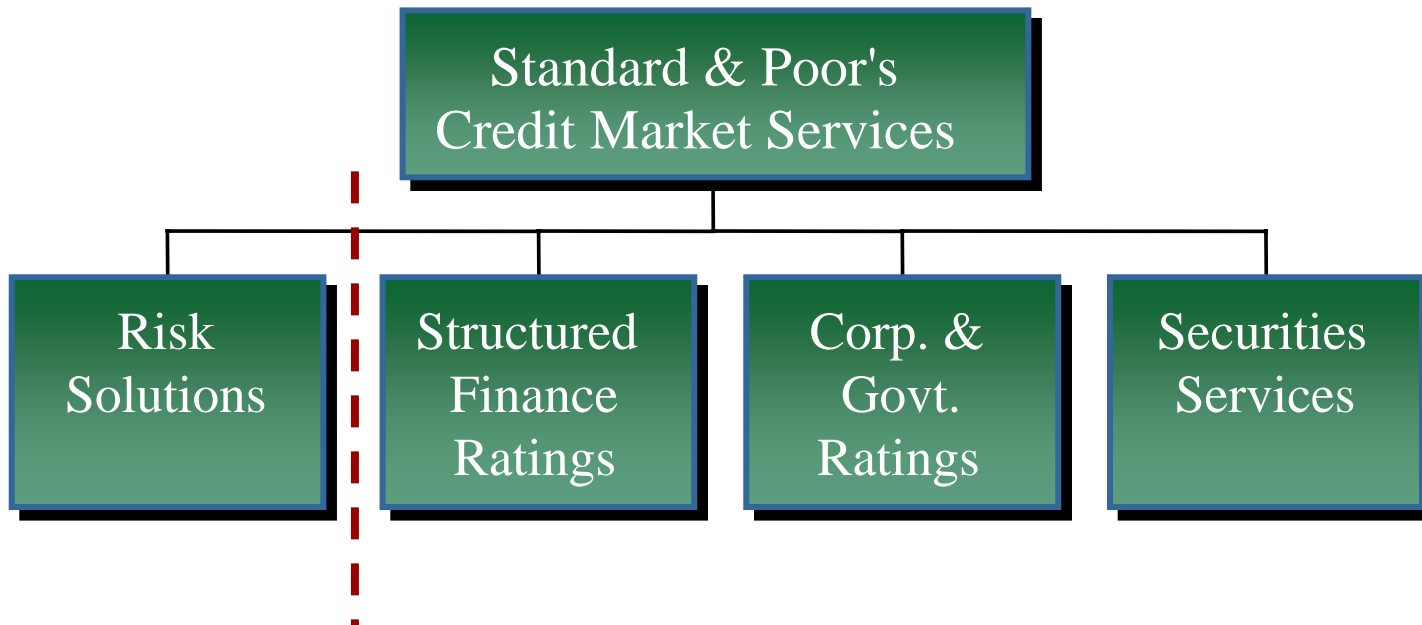
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Insurance: Credit Risk Management

- **Where does insurer credit risk come from?**
- **Credit ‘theory’ and the credit process.**
- **S&P RS approach to SME credit risk**
- **S&P RS approach to Large Corporates, FI and Public Sector credit risk.**

Where does Insurer credit risk come from? (1)

- **Retail clients and intermediaries**
- **Commercial clients and intermediaries**
- **Fixed income investments**
- **Commercial real estate investment**
- **Reinsurance recoverables**
- **Bank counterparties**

Where does Insurer credit risk come from? (2)

Life Insurers

Much of credit risk and the analysis need comes from the ‘asset side’.

- **Unrated fixed income**
- **‘Own view’ of rated fixed income**
- **Commercial real estate tenants**
- **Reinsurance recoverables (current or future).**

Also, via derivative based products (I,e. exposure to derivative counterparties).

Plus clients and distribution channels.

Where does credit risk come from? (3)

Non – Life insurers

Much is 'liability side' – some directly linked to credit risk, some indirectly.

- Credit, surety and guarantee
- 'DnO'
- Liability / casualty in general
- Client risk management quality

As well as

- Fixed income
- Commercial real estate
- Reinsurance recoverables

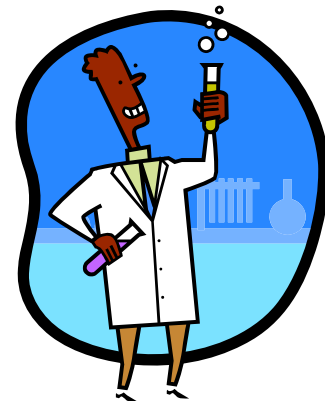
Plus client and distribution channels

Credit theory and the credit process (1)

Credit Risk = f (Probability of Default, Exposure at Default, Loss Given Default)

Not exactly rocket science –

- Probability Creditor can pay me on time and in full (PD)
- How much they owe me at the point they can't (EAD)
- If that happens how much of what they owe me should I expect back (and, in theory, over what period!) (LGD)



LGD is a very underdeveloped area compared to PD due to lack of data and the case specific nature of expected recovery in many cases.

Credit theory and the credit process (2)

Various techniques exist for calculating these things. In essence falling into three approaches:

- Market price based models (these assume markets are efficient).
Various approaches look at equity, bond or credit derivative pricing and work out what in theory that means the market must know about the default risk of the ‘name’ being traded.
- Experience based quantitative models
- Expert judgement models

The three approaches in practice overlap more than the dogmatic champions of each like to admit!

Credit theory and the credit process (3)

Much of the devil is in the executional detail



- Data
 - definitions
 - consistency of execution
 - firm wide integration / total exposure measurement
- Creditor records
 - unique identifiers
 - group structures
 - payment records
- Score/Rating System overrides
 - who made decision, why
 - control of double counting of scoring/model factors
- Qualitative factors
 - definition
 - consistent application
 - independence of methodology ‘builder’ from business unit.

S&P RS Approach to SME Credit Risk (1)

- **The SME credit scoring challenge is basically actuarial**
 - If you have the data there should be enough of a sample set to build a robust statistical model.
- **The data required is.....**
 - Input factors (financial, factual – non-financial and maybequalitative / behavioural?)
 - Default data
- **Sources**
 - Banks, credit insurers, public sector
- **Issues**
 - Data definitions (not least, definition of default)
 - Specificity of model versus sample size
 - Is past predictive of future?
 - Credit is cyclical, do we have full cycle data?

In other words.... SME credit is a lot like life insurance underwriting.

S&P RS Approach to SME Credit Risk (2)

- **Best performance we have found from a combination of...**
 - Build fundamentally experience based models using techniques such as MEU and logit regression.
- BUT
 - Select factors and segment models using expert credit analytical judgement.
- **In S&P RS experience strong performance for SME models requires not just country specific, but sector specific approaches.**
- **Current S&P RS European SME coverage**
 - UK
 - Germany
 - France
 - Spain
 - Italy
 - Greece
- **In addition to models for the above we have S&P calculated PD scores for 1.3 million European SMEs**

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S&P RS Approach to Low Data Sectors (1)

- **The Problem**

- Insufficient data to build a ‘quant model’

- **Why too little data?**

- Too few defaults (Western European public sector).
- Sector size too small, even if default quite common (airlines).
- Apparently large sector in practice too heterogeneous (project finance).
- Structural change in the sector (competition, regulation) makes past a poor proxy for the future.

- **Which sectors?**

- Large corporates (numerous sub-sectors)
- Financial institutions (several sub-sectors)
- Public Sector
- Specialised lending (leveraged finance, project finance)

S&P RS Approach to Low Data Sectors (2)

- **How does S&P address this?**

- Rating process uses qualitative factors to be forward looking (market position, financial flexibility etc.).
- Rating process uses ‘industry risk’ and ‘parent/state support’ concepts to create consistency across very different sectors.
- Result is consistency of ratings performance in default prediction globally, i.e. a BBB Thai bank should default with the same frequency as a BBB U.S. steel firm.

Critically, the above creates a default experience data set (the total rated universe large enough to model with.

S&P RS Approach to Low Data Sectors (3)

- **The ratings default data set allows the following approach for PD modelling in low data sectors.**
 - Build score cards that mimic the sector specific rating process
 - Define and assign weights to financial factors
 - Define and write 'rules' for analysis of qualitative factors
 - Map to ratings via statistical analysis

In practice creating sector specific score cards is a very practical option, but sector specificity and methodological alignment with the rating process is key....as this is the fundamental justification for using the rating default data set.

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