



Advice on implementation of expected loss models by non-financial corporates

Contents

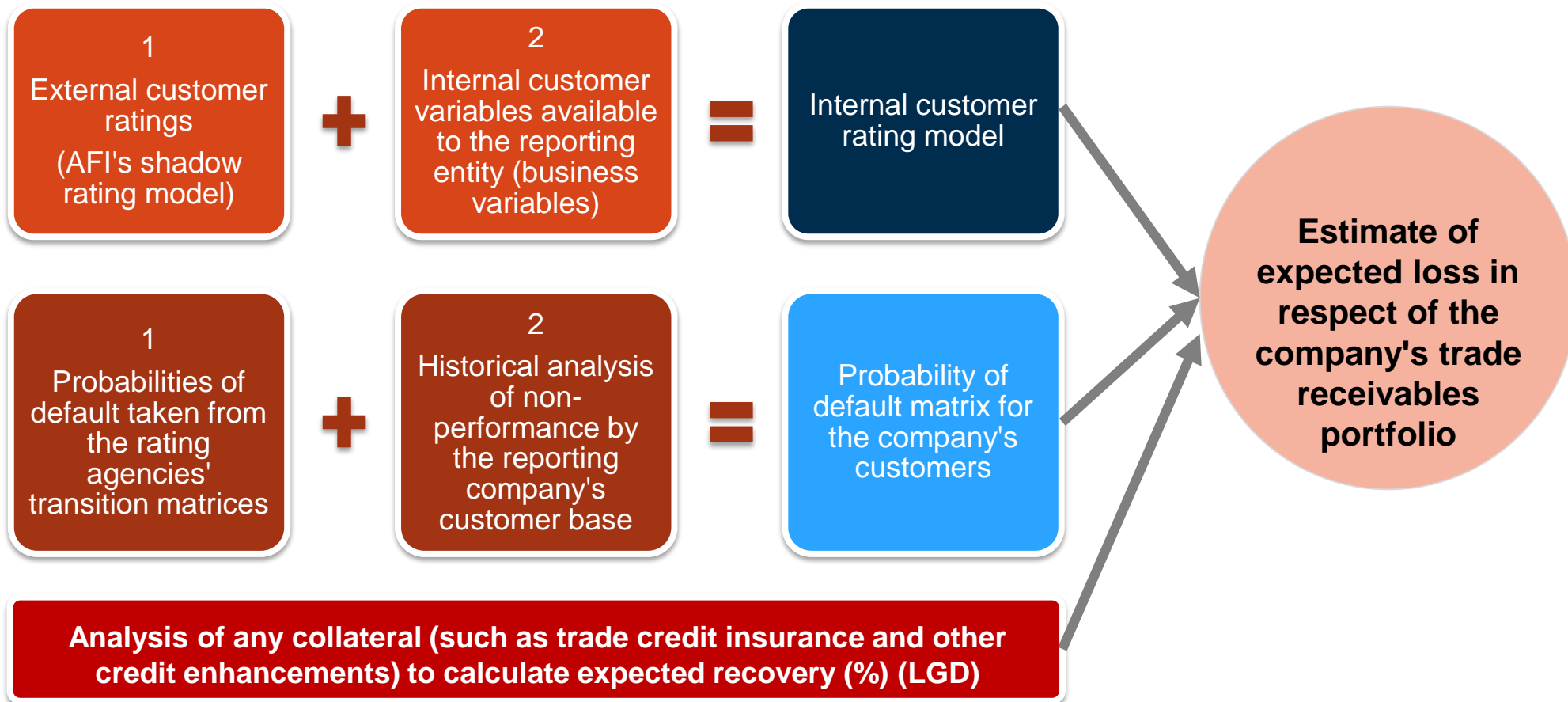
1. Developing expected loss impairment models for customer portfolios - methodology
2. Integration of the model into the collections management effort
3. Contact details

1 | **Developing expected loss impairment models for customer portfolios: methodology**

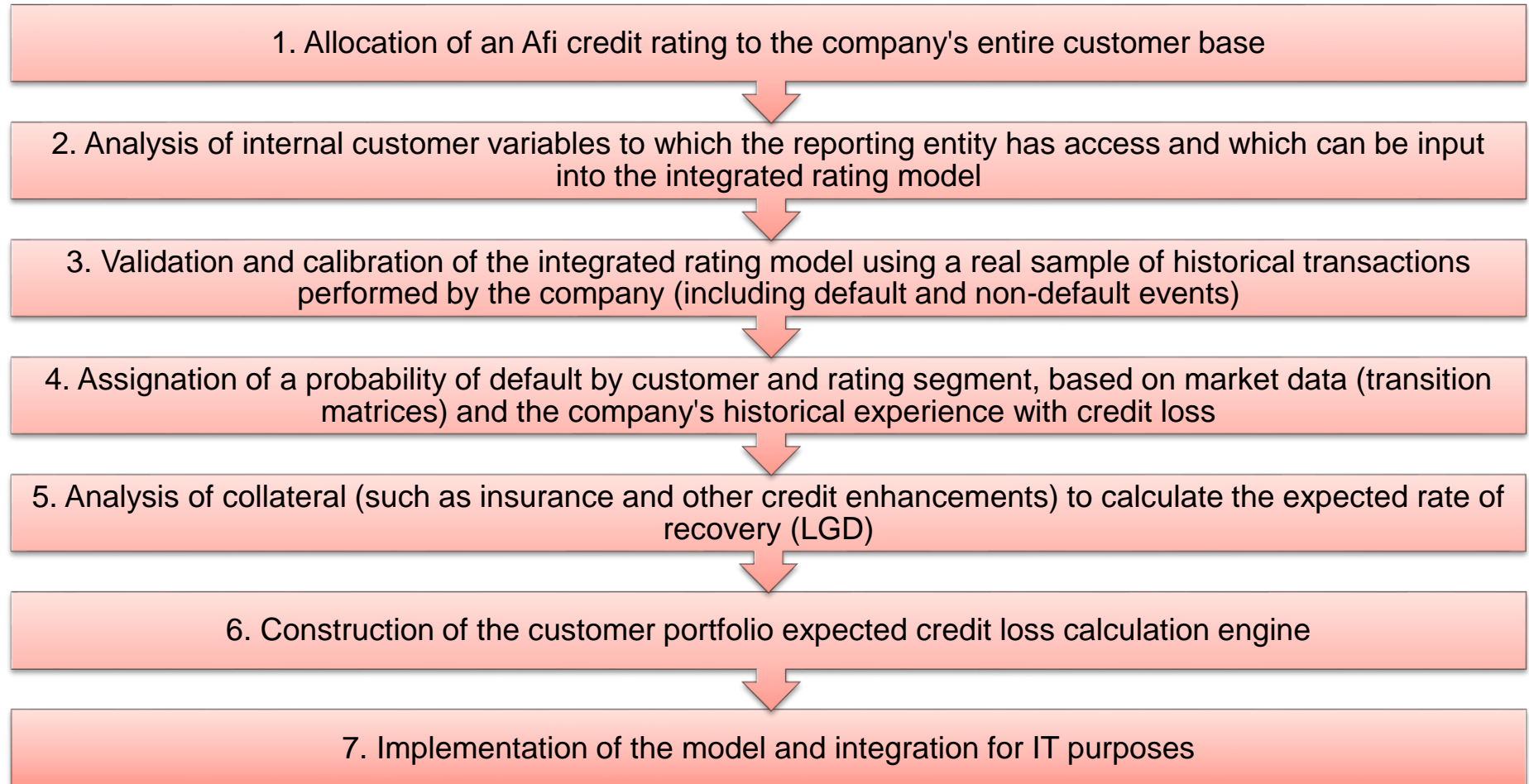
Project structure



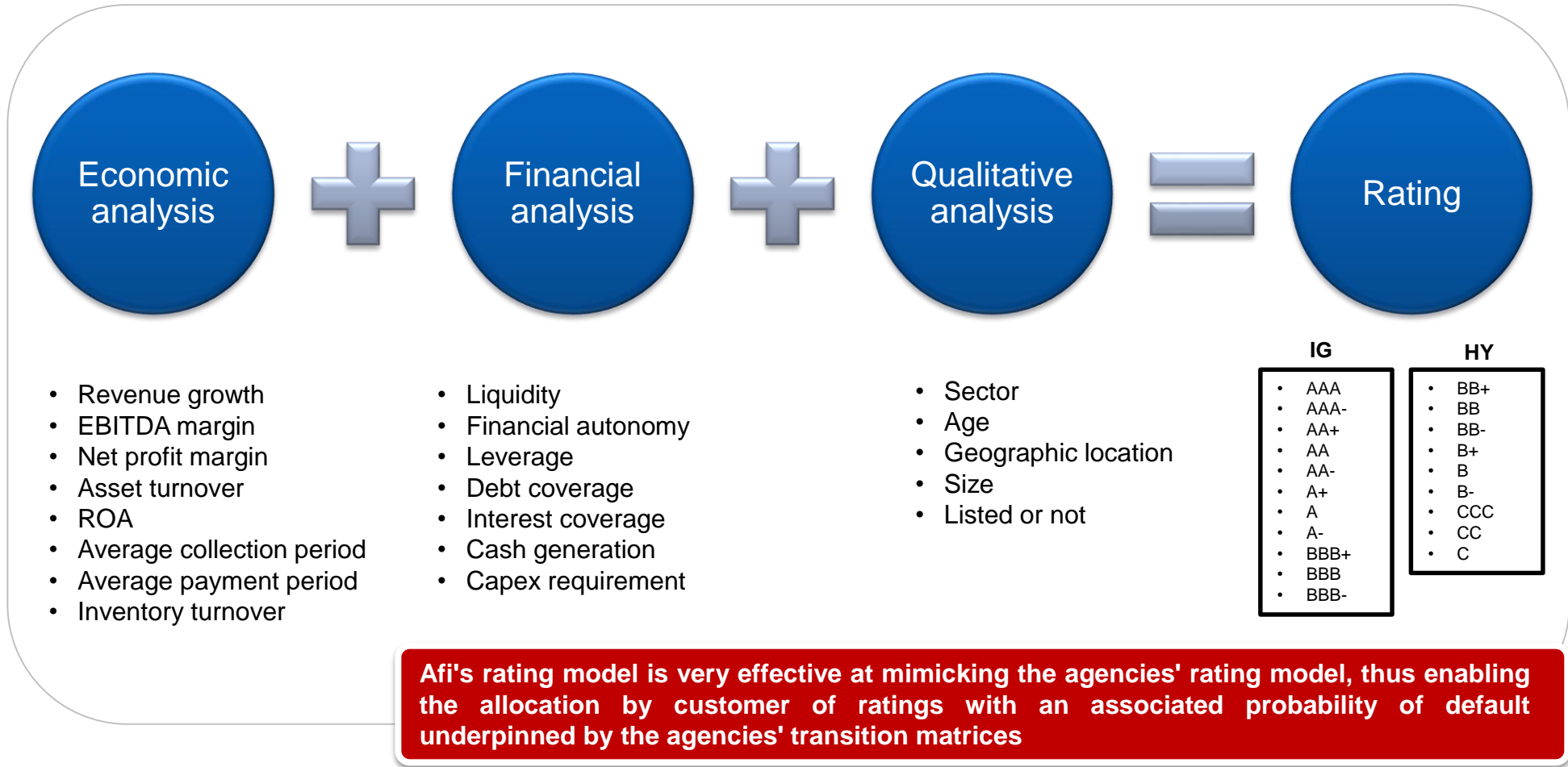
Expected loss impairment models for customer portfolios



Developing expected loss impairment models for customer portfolios: phases



Afi's shadow rating model is the basis for building the model to be developed at the reporting entity



1. Developing expected loss impairment models for customer portfolios: methodology

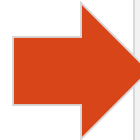
Afi's web-based rating model (corporates and town councils): www.afi.es/ratingempresas and www.afi.es/SCAL



Usuario

Contraseña

Seguir conectado



Companies included in the tool

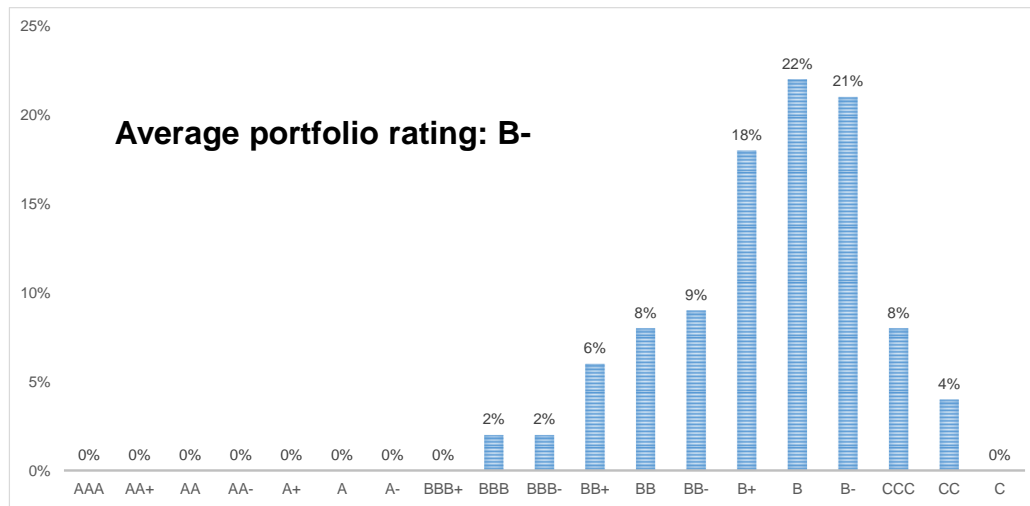
- **Unlisted companies:**
 - Automatic gateway to the Informa database (SABI-Companies Register)
- **Listed companies:**
 - IGMB, Eurostoxx 600, S&P 500, DAX, FTSE, CAC
- **It is possible to input the financial statements of any Spanish or foreign company.**
- **Public sector (SCAL):** Regional and local government



IT integration of Afi's shadow rating model enables automatic and swift calculation of ratings for the reporting entity's entire customer base

Model output: Portfolio probability of default

Customer portfolio distribution by rating



12m PD

| Rating | Afi model scores | | PD 1 año |
|--------|------------------|---------|----------|
| | Minimum | Maximum | |
| AAA | 86 | 100 | 0,00% |
| AA+ | 79 | 85 | 0,00% |
| AA | 76 | 78 | 0,00% |
| AA- | 71 | 75 | 0,00% |
| A+ | 65 | 70 | 0,01% |
| A | 59 | 64 | 0,01% |
| A- | 53 | 58 | 0,04% |
| BBB+ | 47 | 52 | 0,05% |
| BBB | 44 | 46 | 0,08% |
| BBB- | 39 | 43 | 0,23% |
| BB+ | 36 | 38 | 0,31% |
| BB | 33 | 35 | 0,38% |
| BB- | 29 | 32 | 1,32% |
| B+ | 24 | 28 | 1,41% |
| B | 20 | 23 | 2,65% |
| B- | 16 | 19 | 9,86% |
| CCC | 12 | 15 | 13,96% |
| CC | 6 | 11 | 24,82% |
| C | 0 | 5 | 60,82% |

(*) These are not the real Afi model scores

Average portfolio PD: 5.19%

Model output: Expected portfolio credit loss

Calculation of expected loss in respect of the trade receivables portfolio

| | Balance | Probability of default | LGD | Expected Loss |
|--------------|----------------|------------------------|------|---------------|
| BBB | 30,0 | 0,08% | 100% | 0,0 |
| BBB- | 30,0 | 0,23% | 100% | 0,1 |
| BB+ | 90,0 | 0,31% | 100% | 0,3 |
| BB | 120,0 | 0,38% | 100% | 0,5 |
| BB- | 135,0 | 1,32% | 100% | 1,8 |
| B+ | 270,0 | 1,41% | 70% | 2,7 |
| B | 330,0 | 2,65% | 70% | 6,1 |
| B- | 315,0 | 9,86% | 70% | 21,7 |
| CCC | 120,0 | 13,96% | 70% | 11,7 |
| CC | 60,0 | 24,82% | 70% | 10,4 |
| C | 0,0 | 60,82% | 70% | 0,0 |
| Total | 1.500,0 | 5,19% | | 55,3 |

(Amounts in millions €)

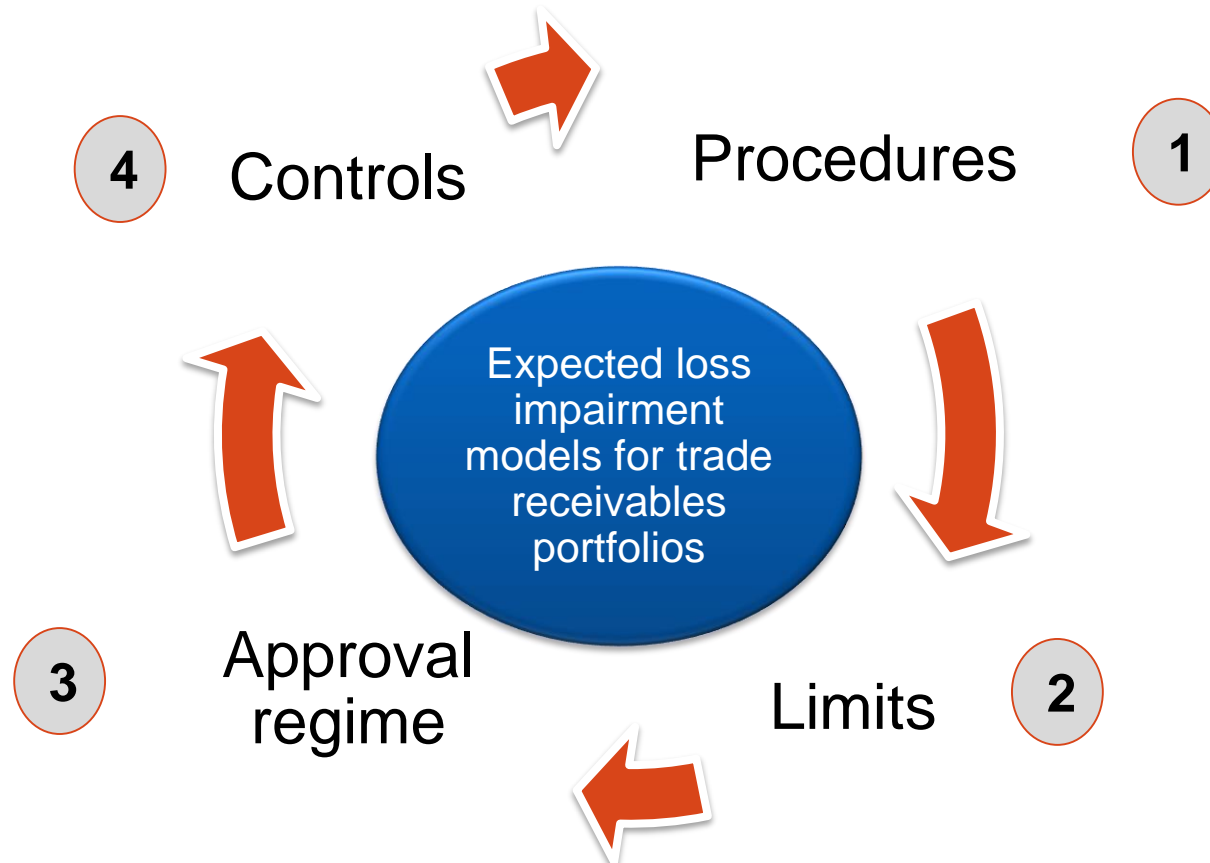
Expected Loss/Balance 3,69%

Annual impairment loss provision applicable to the trade receivables balance

2 | Integration of the model into the collections management effort

Integration of the model into the collections management effort

- In addition to using the model to calculate expected credit loss for impairment loss recognition purposes, the model can be used as a fundamental component of the company's collections management effort:





1

Procedures

Definition of the rating model's scope for application

Calculation of expected loss: determination of provisions or impairment losses for accounting purposes

New customer analysis

Ongoing monitoring of existing customers: alert configuration

Tool for setting payment terms

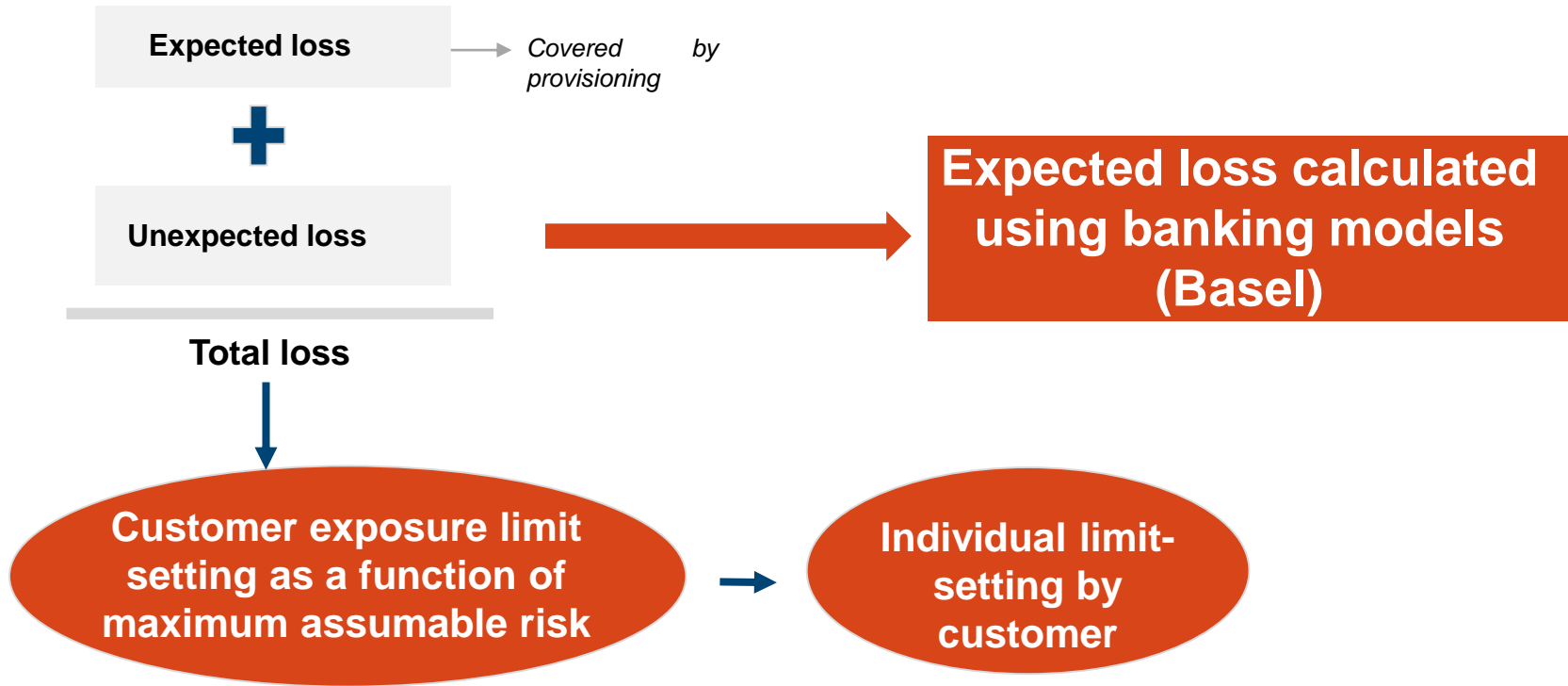
The ability to tailor hedging policies using credit insurance: confinement of hedging to customers with lower credit ratings

2

Limits

Establishment of customer exposure limits:

application of the capital-at-risk models used by the banks

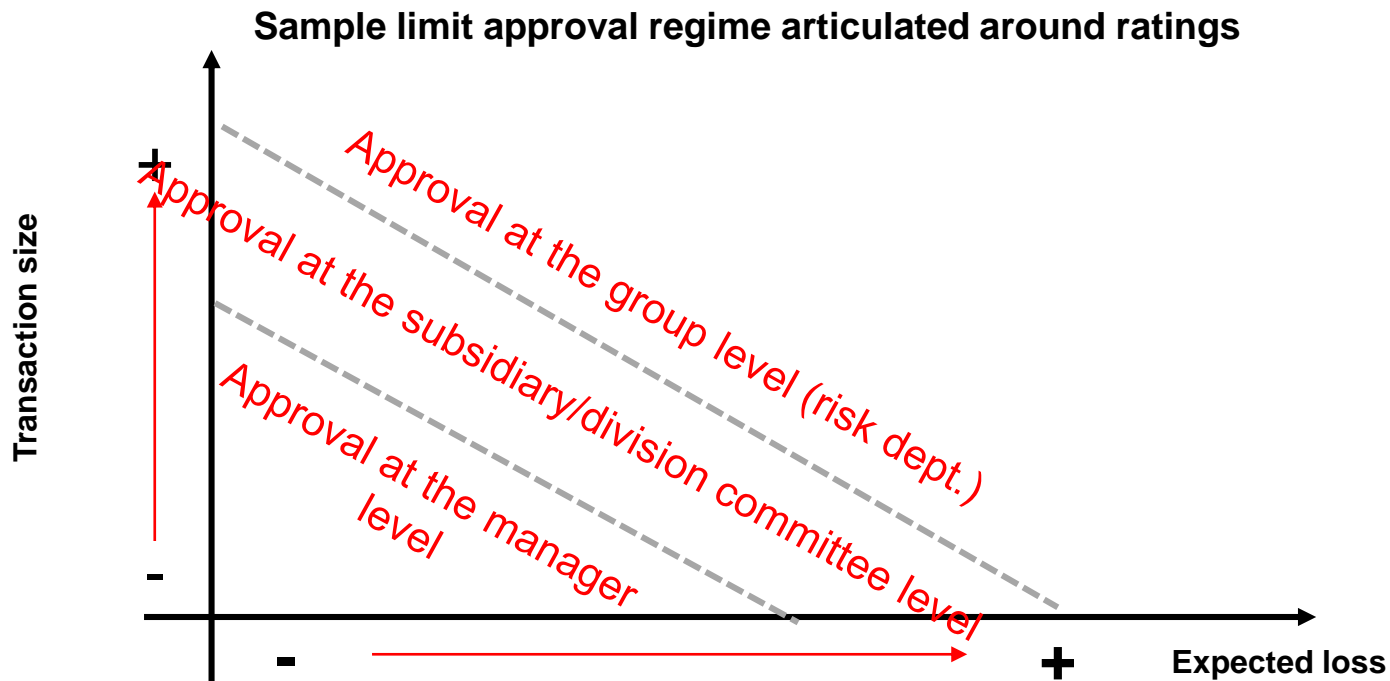


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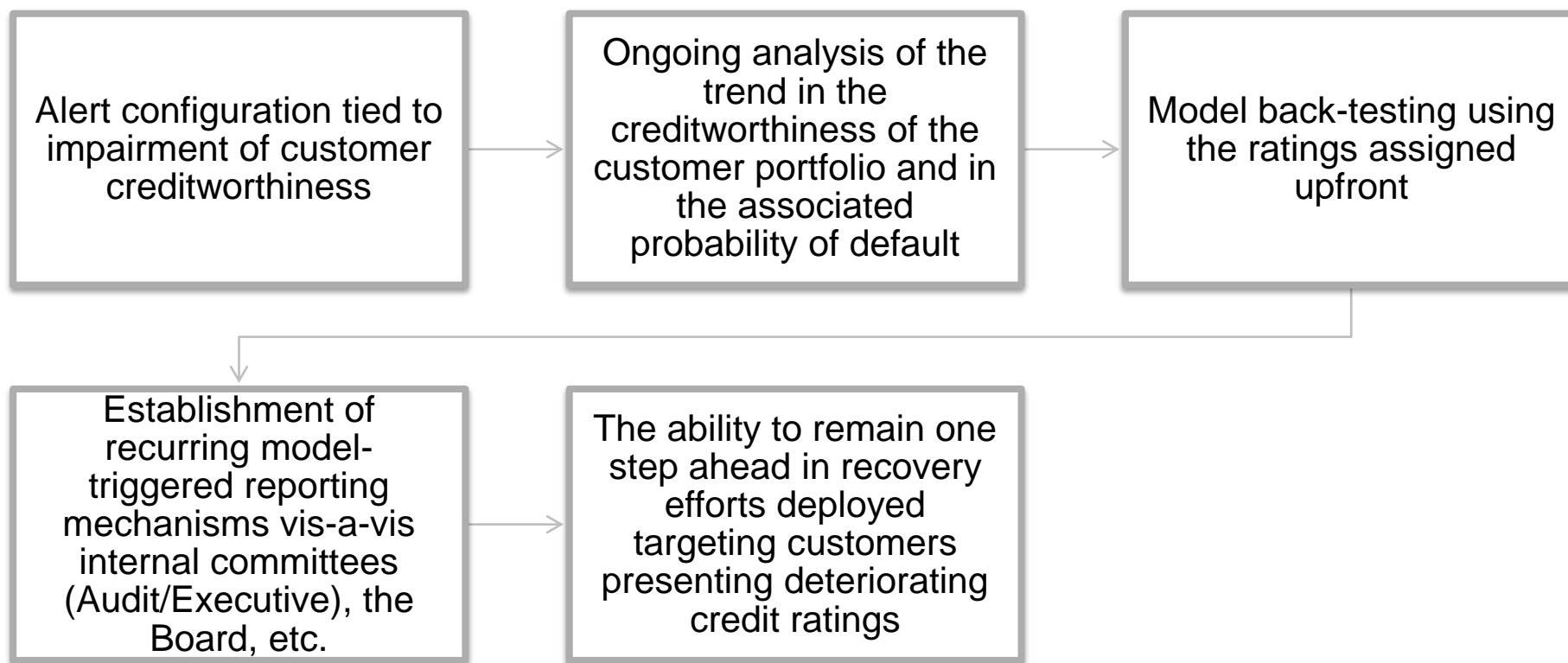
Limit approval

Ratings-based approval model

Definition of the parties responsible for approving transactions depending on the size of the business transaction and the counterparty risk analysis results: rating, expected loss, unexpected loss and total capital-at-risk.



The rating model as a tool for monitoring and controlling credit risk



3 | Contact details



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