Risk Management, Solvency, and Capital Requirements - leverage and provisioning

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EMGN

ACADEMY

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Tunis, Tunisia

ABOUT OUR BUSINESS AND COMPANY

AIS Artificial Intelligence Systems

Leading and pioneer company in Decision Support Systems in change processes applying Artificial Intelligence and Business Intelligence.

Innovation is one of the constants of AIS. Always at the forefront in the development of models and tools with advanced techniques on digital finance.

Collaborators of the Digital Cluster and members of the Advisory Council of the Observatory of Ethics of Artificial Intelligence of Catalonia.

Offices in Argentina, Chile, Colombia, Spain, Mexico and Portugal. Projects in more than 27 countries.

CREDIT GUARANTEE SCHEMES EXPERTISE

SPAIN: Client since 2002, we help to the Confederation of 18 CGS on Internal Rate Base modeling for evaluation of their guarantees, first as a core project for then adapting to the ones that need specifics.

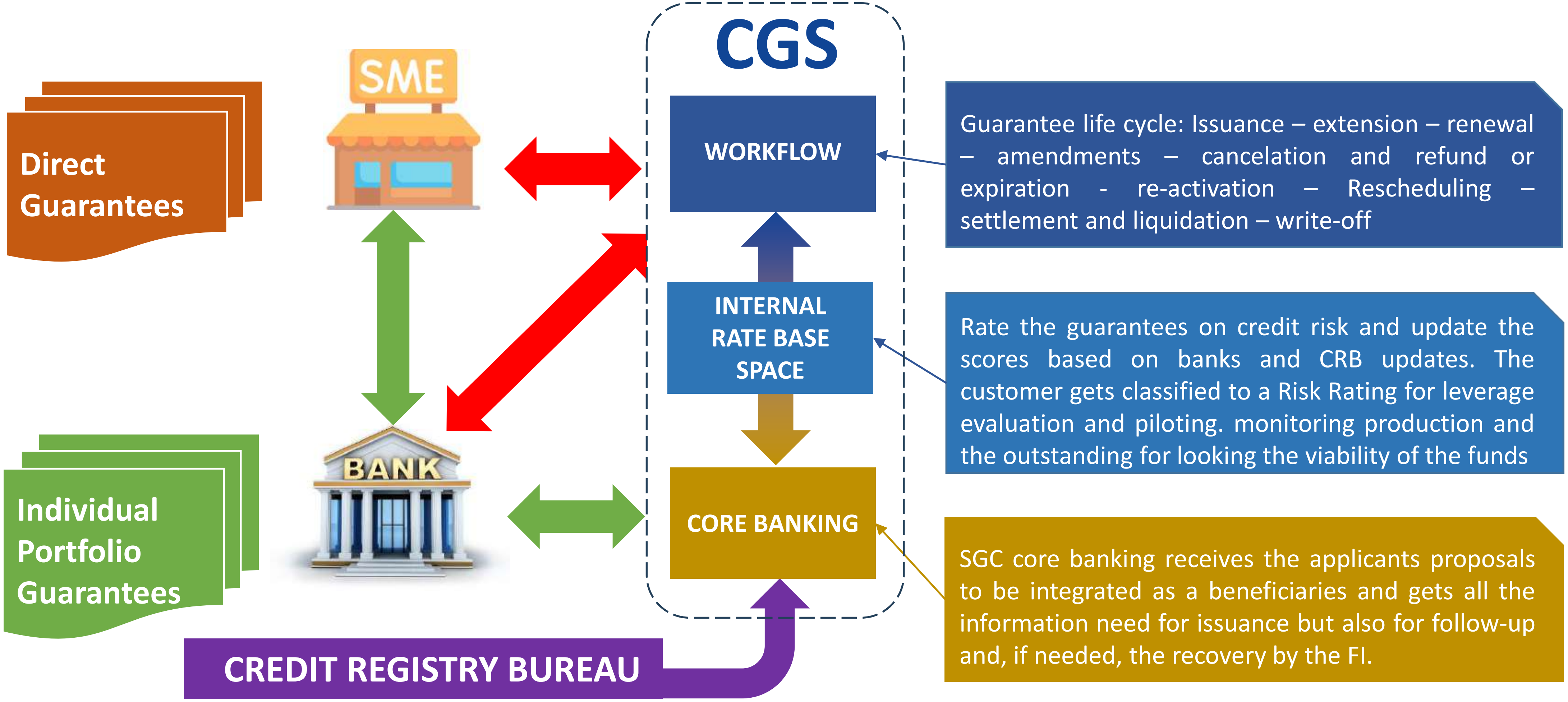
MOROCCO: Client since 2012, we develop their IRB models for risk evaluation (individuals, SMES and startups) and a portfolio decision making platform for their simulations based on stress testing and pricing. [World Bank & AfdB international tender]

IVORY COAST: Client since 2019, we develop their pricing guarantee mechanism for Project Finance assessment on African's countries including their specifics risks. [AfdB international tender]

CAPE VERDE: In 2022, we developed their digitization platform for improving procedure, reinforcing its issuance mechanism and obtaining more productivity working with their partners, the financial institutions. [World Bank international tender]

MENA: In 2022, we support EMGN members (Morocco, Tunisia, Algeria, Egypt, Lebanon and Jordan) to the assessment and recommendations for a framework for digitization. [GIZ international tender]

INTERNAL RATE BASE PLACE

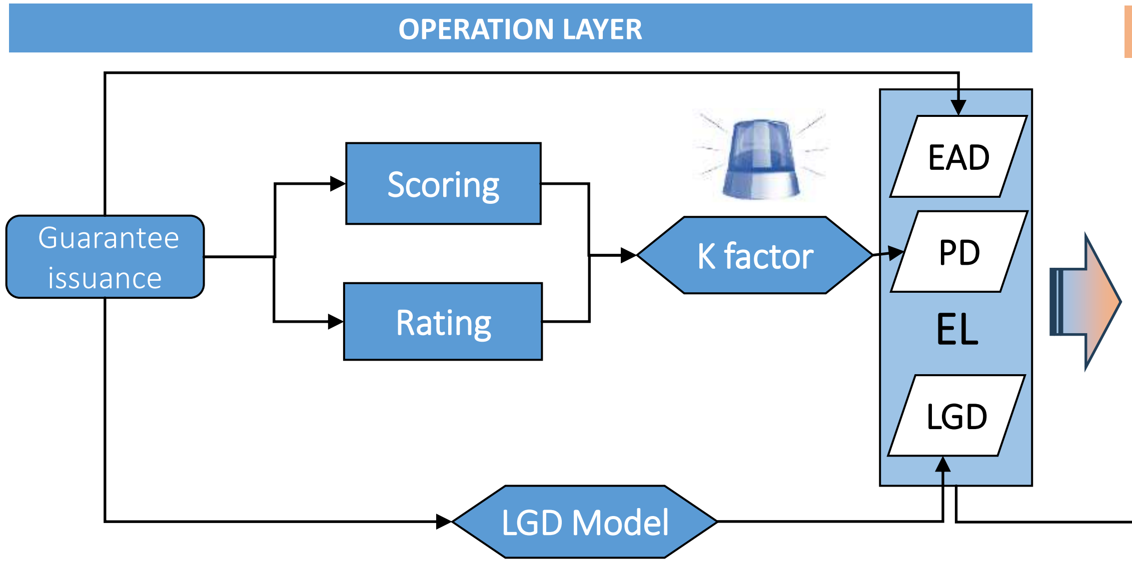


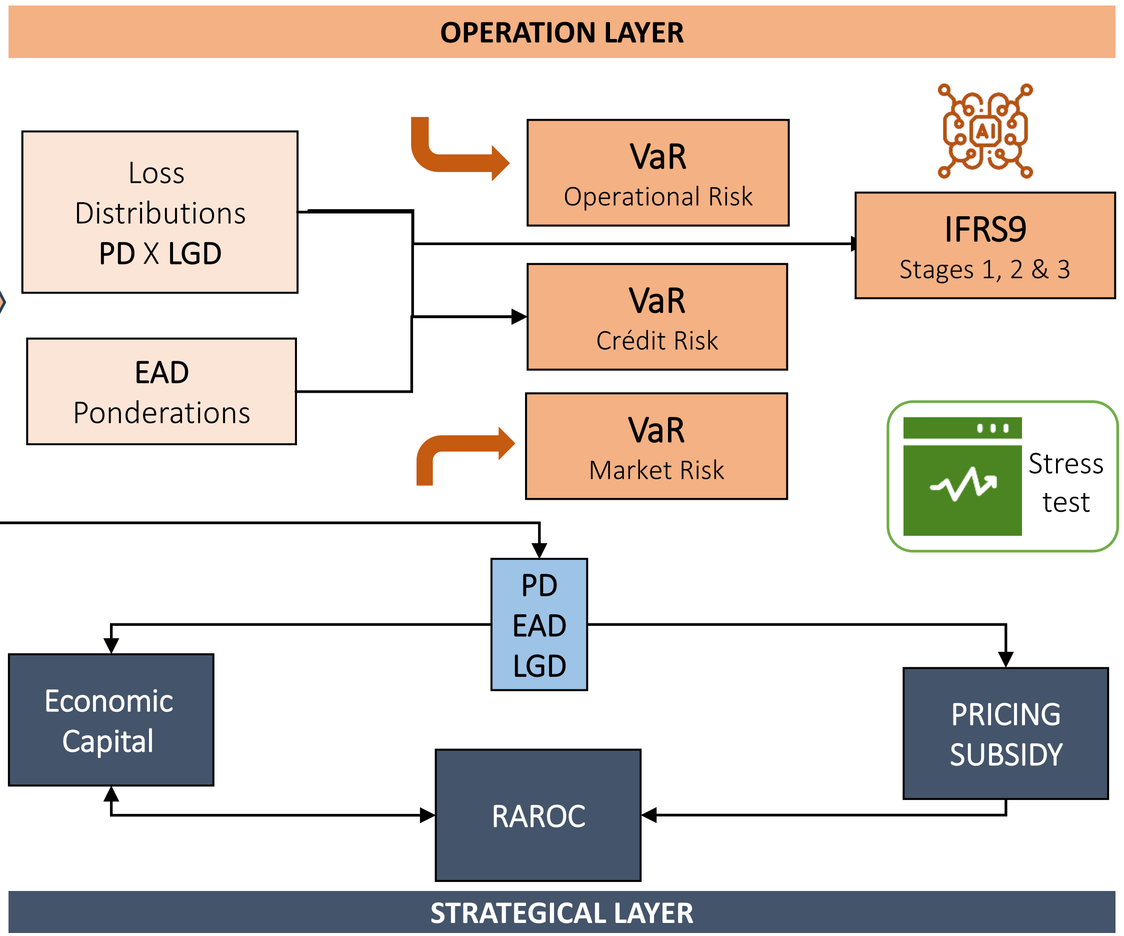
REGULATORY FRAMEWORK

Basel Committee on Banking Supervision

BANK FOR INTERNATIONAL SETTLEMENTS

Basel compliance (IRBA)





We build bricks from PD to Pricing models an offer the integrated vision through operation level to portfolio for piloting the activity with

AIS FinRisk

EXAMPLE OF RISK CARTOGRAPHY

Portfolio in CESGAR

- **Small Enterprise**
  - Rating
  - PD
  - LGD
  - EL
  - Follow-up
  - Guarantee limit
- **Medium Enterprises**
  - Rating
  - PD
  - LGD
  - EL
  - Follow-up
  - Guarantee limit
- **Start-ups**
  - Scoring Start-ups
  - Scoring guarantees
  - LGD
  - EL
- **Professionals**
  - Scoring Professionals
  - Scoring guarantees
  - LGD
  - EL

CESGAR

KEY PERFORMANCE & RISK INDICATORS

REGION/COUNTRY (median)	Productivity A Applications / Number of employees	Productivity B Portfolio / Number of employees	Market share Number of PME addressed / total of PME	Leverage K Factor Portfolio / Allocated equity *"4" is the scope*	Default Default/ Portfolio
Africa	8	0,1	0,3	1,7	17,1
Asia	33	0,6	2,7	3,2	1,9
Europe	17	6,2	0,9	3,8	2,9
MENA	22	2,3	2,2	4,4	3,8
Occidental hemisphere	164	3,4	3,4	3	2
Global	29	2,1	1,6	3,3	2,5
CCG for MSME	41	11,3	0,38	7,9	3,8

Source : Calice, P. (2016) Assessing Implementation of the Principles for Public Credit Guarantees for SMEs A Global Survey.

FINANCIAL AND ECONOMICAL ADDITIONALITY

The mission of the CGS is to work with operations that the financial system blocks, due to insufficiencies of the applicant, for improving the access conditions of SMEs. But, we should not support solvent clients or bankruptcy projects to maximize the impact and their additionality in order to better use limited resources of the Funds.

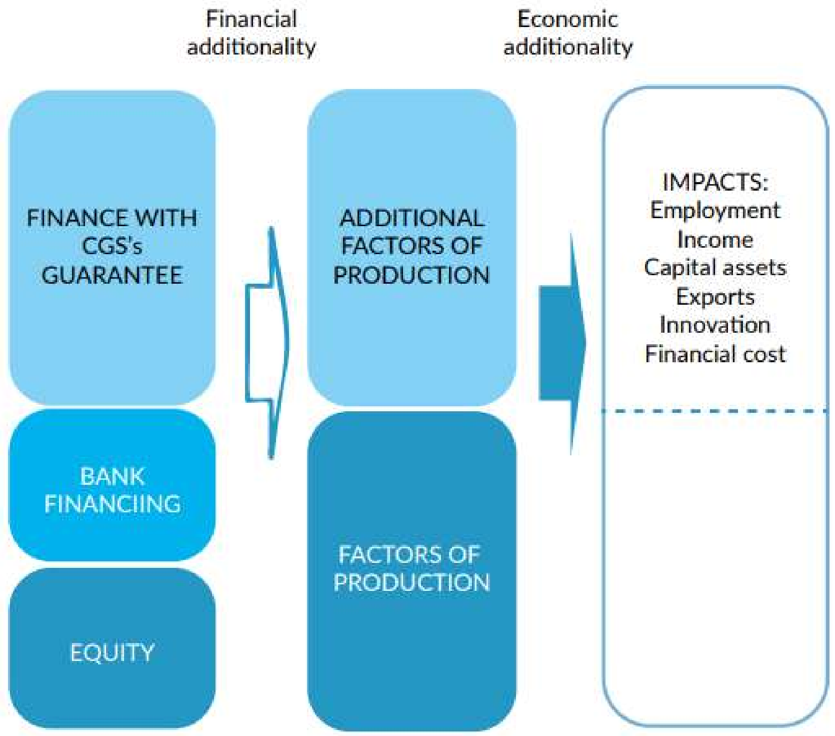
SCORING / RATING

AAA	0,0015%
AA+	0,0065%
AA	0,0125%
AA-	0,0200%
A+	0,0300%
A	0,0525%
A-	0,1000%
BBB+	0,1650%
BBB	0,2500%
BBB-	0,4000%
BB+	0,6250%
BB+	0,8750%
BB	1,0625%
BB	1,3125%
BB	1,5000%
BB-	1,7500%
BB-	1,9375%
BB-	2,2500%
BB-	2,5000%
BB-	2,7375%
B+	2,9250%
B+	3,2500%
B+	3,7500%
B+	4,2500%
B	5,1667%
B	7,0000%
B-	10,0000%
CCC, SD	18,5000%
D	62,5000%

Not efficient & moral hazard

MAXIMUM EFFICIENCY

To avoid or deny



Source: CONCEPTUAL FRAMEWORK PUBLIC CREDIT GUARANTEE SCHEMES (ALIDE)

AIS FINRISK COMPONENTS

Macro-economic ⟷ Bank Scenarios

Bank stress scenario

From an individual operation to portfolio consolidation, by product, segment, risk category, …

RISK:

Credit, ALM, Liquidity Interest Gaps, Treasury, others

Rolling Forecast

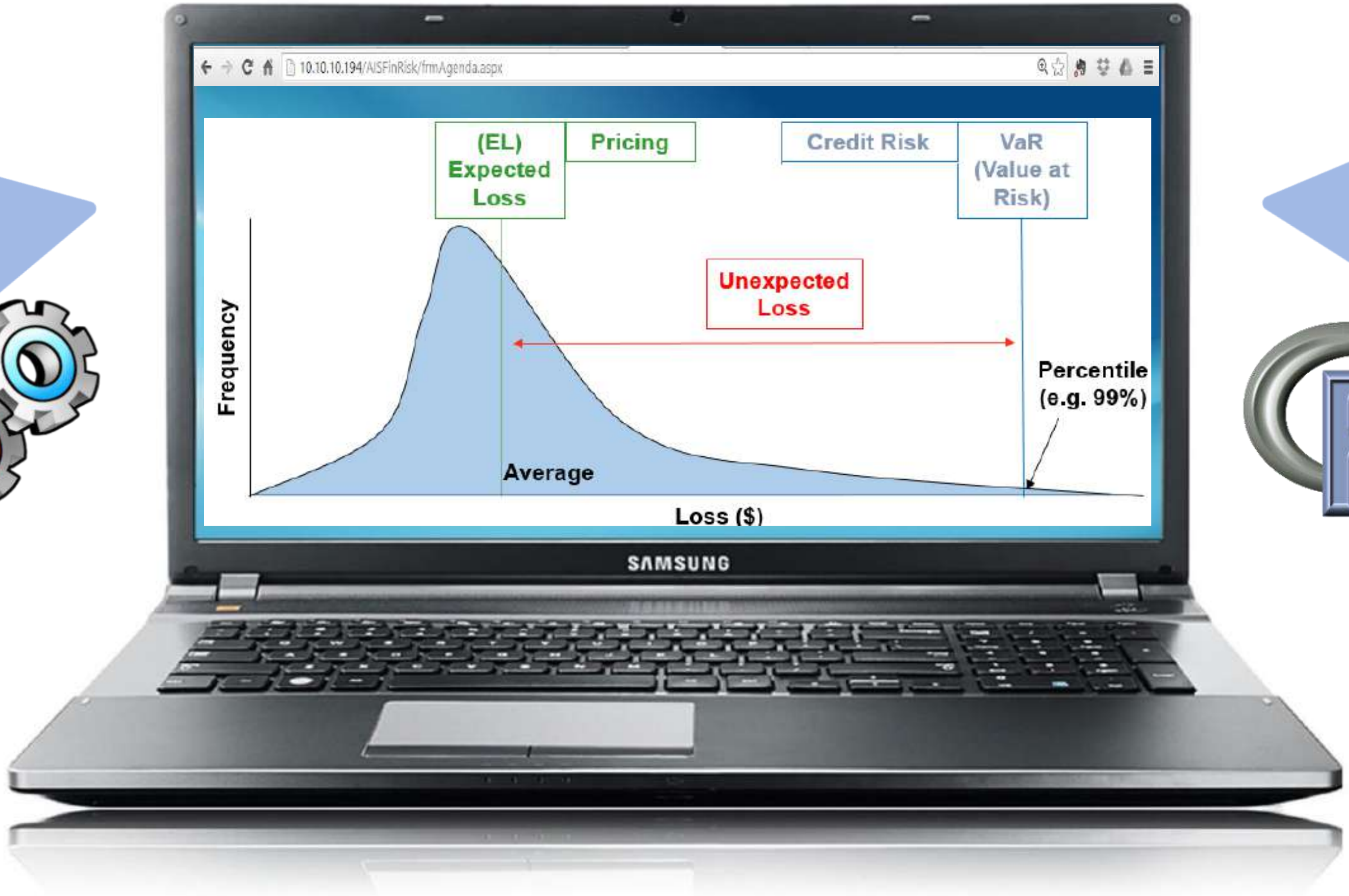
Threshold / State subsidy

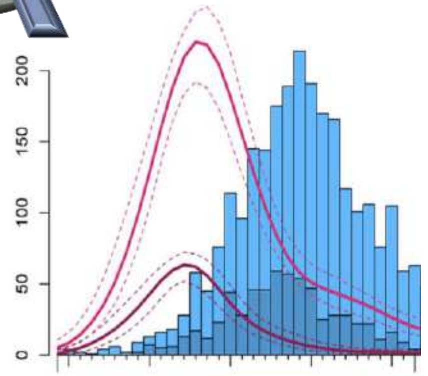
Restrictions, optimizing criteria, compliance…

INTEGRATION

- P&L - B&S
- Credit risk
- Market risk
- Operational risk
- PD, LGD, EL, UL, IFRS9 Regulatory capital…
- PRICING/K factor
- Bank value, VAR…
- Assets allocation

AIS FINRISK PLATFORM





Thank you

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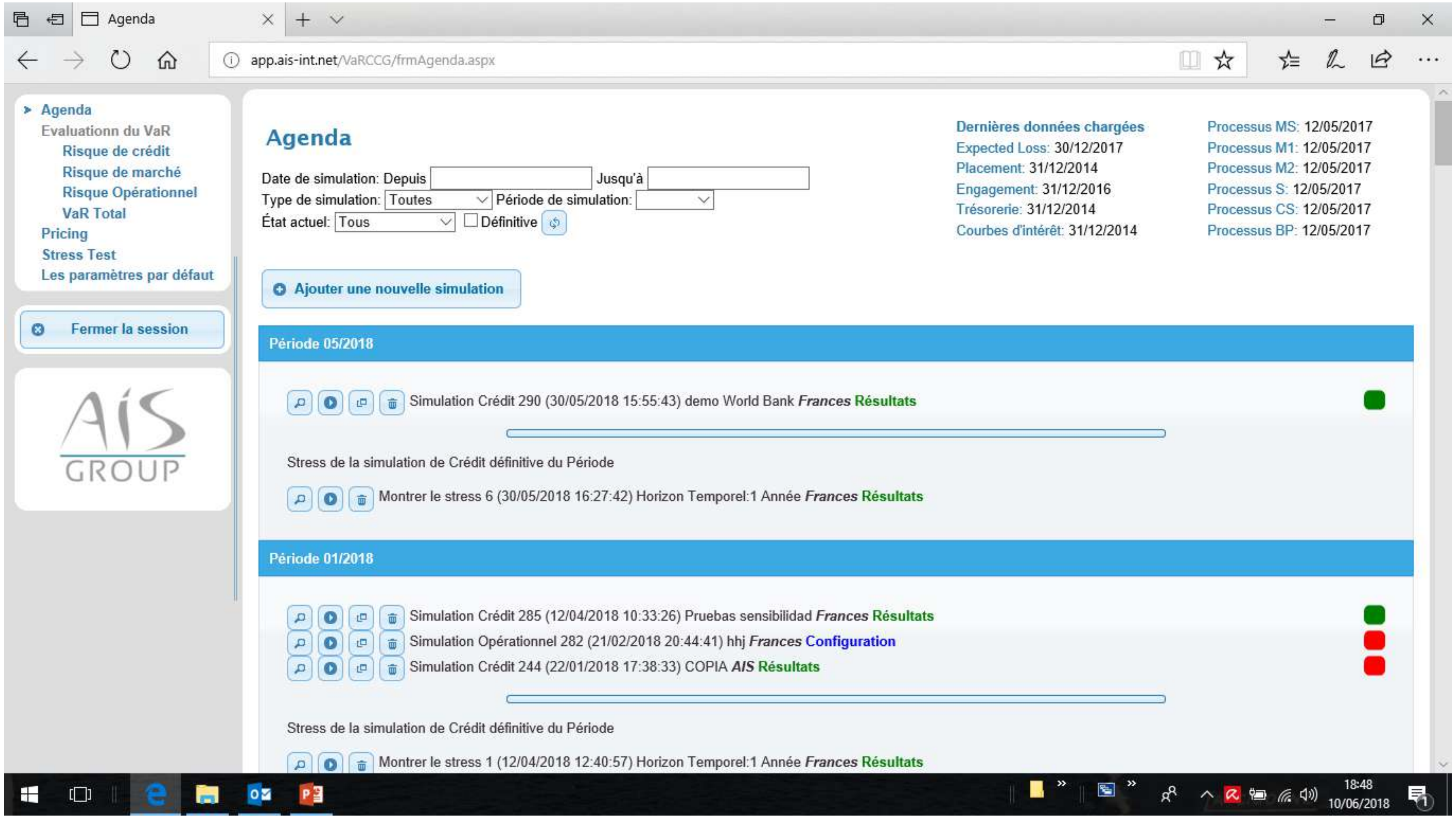
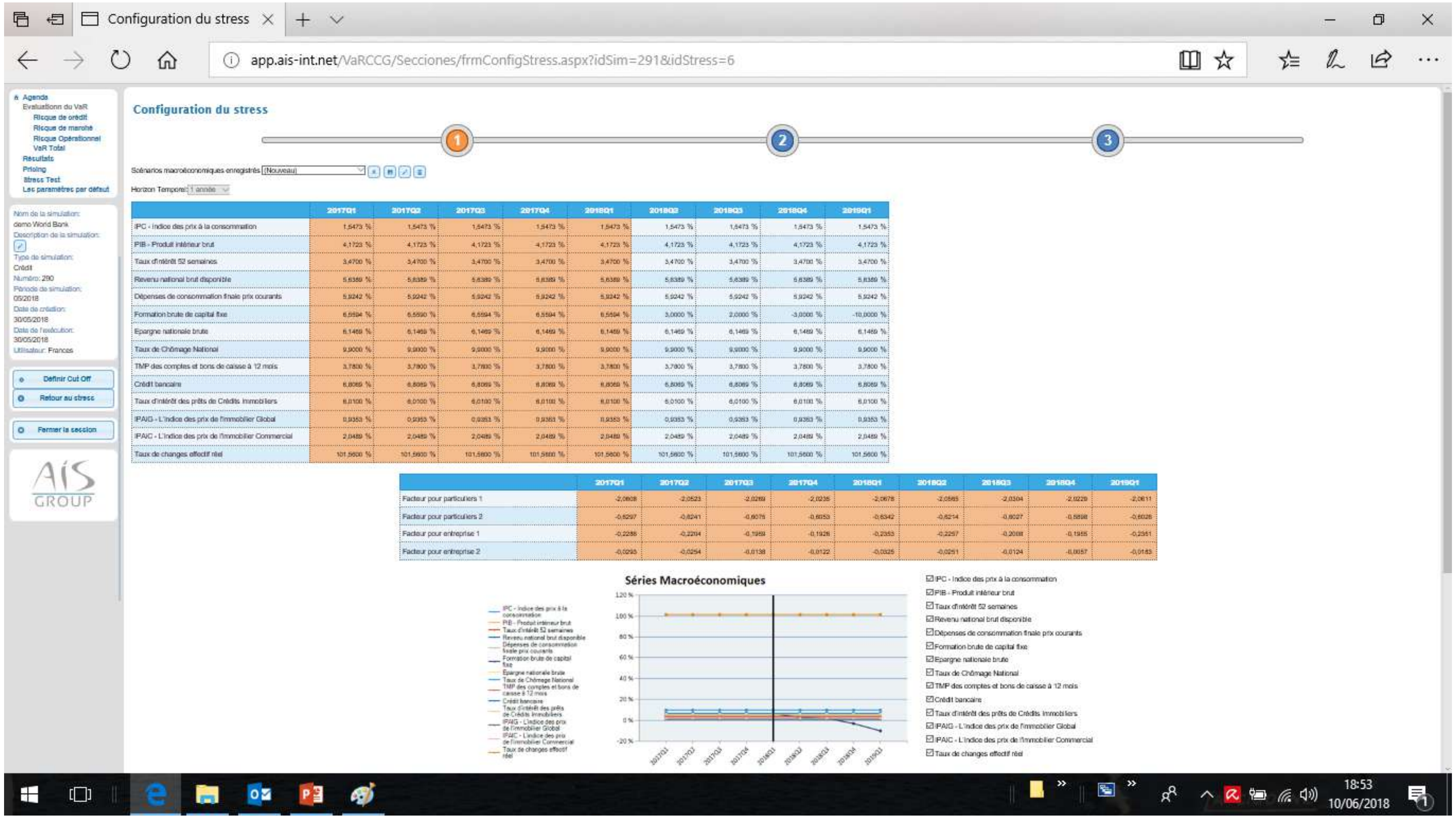
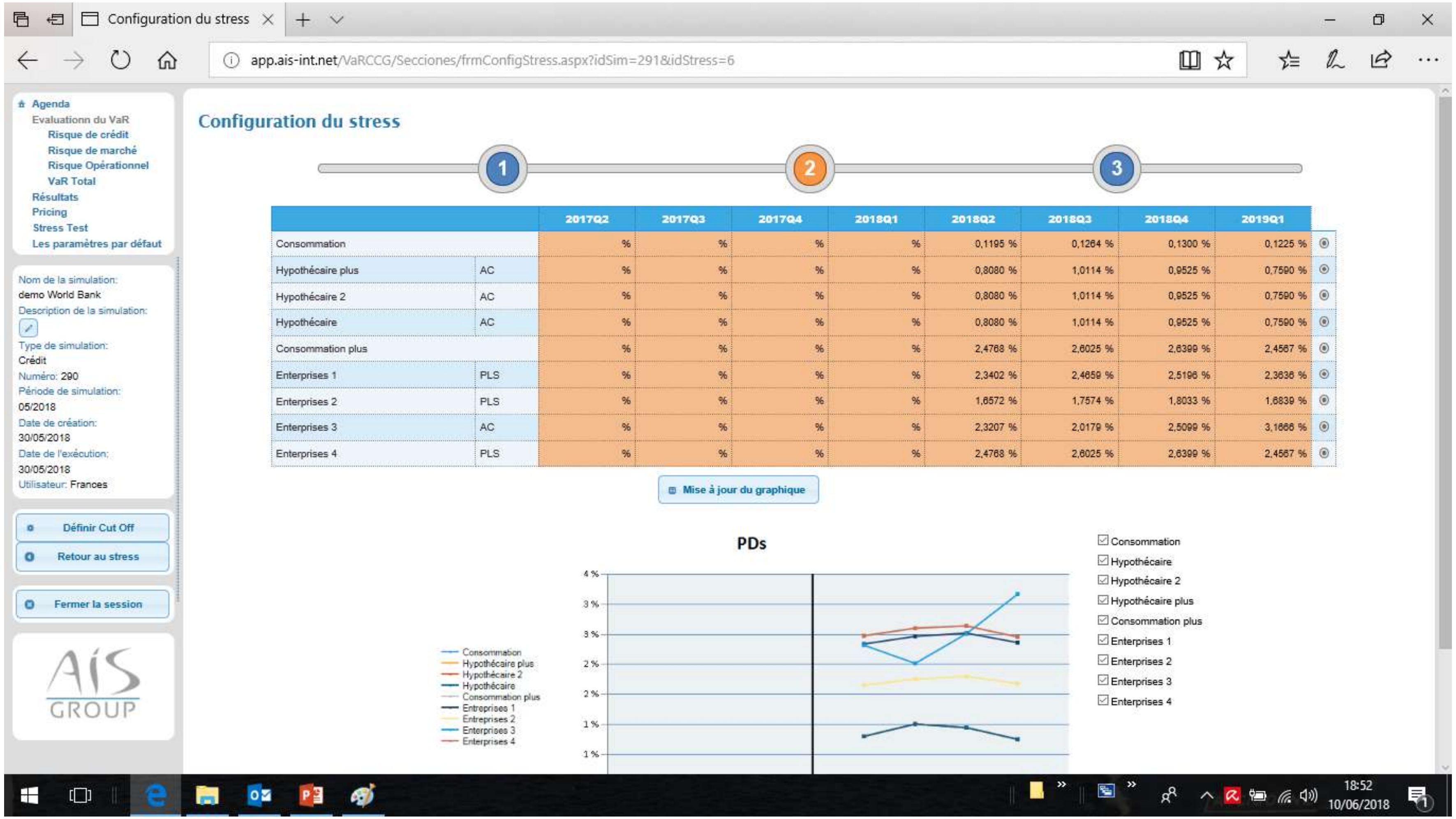
AGENDA AND SIMULATIONS PROPOSALS



MACRO-ECONOMIC SCENARIO MANAGEMENT

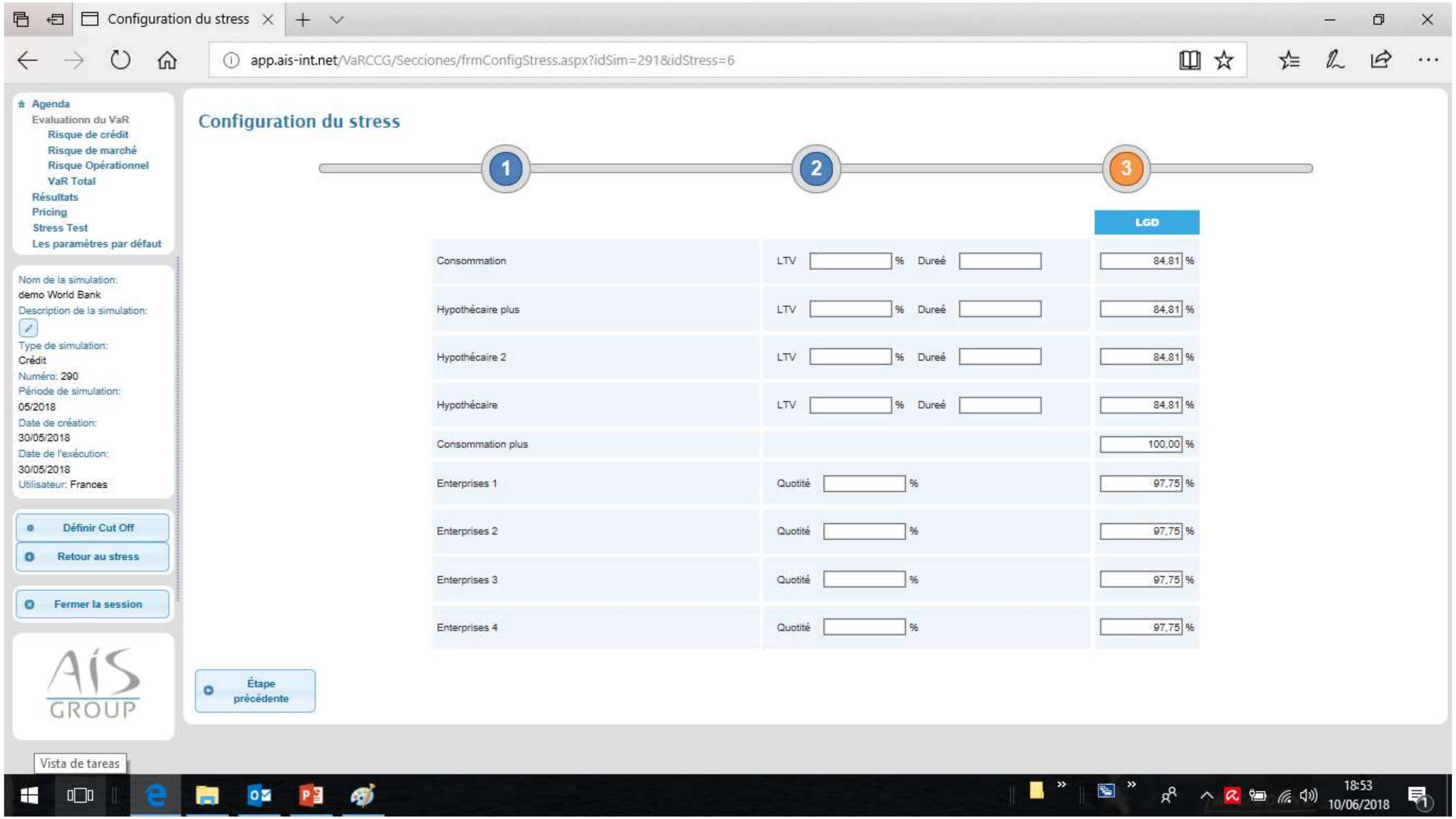


PROTFOLIO SCENARIO MANAGEMENT



		2017Q2	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4	2019Q1
Consommation		%	%	%	%	0,1195 %	0,1264 %	0,1300 %	0,1225 %
Hypothécaire plus	AC	%	%	%	%	0,8080 %	1,0114 %	0,9525 %	0,7590 %
Hypothécaire 2	AC	%	%	%	%	0,8080 %	1,0114 %	0,9525 %	0,7590 %
Hypothécaire	AC	%	%	%	%	0,8080 %	1,0114 %	0,9525 %	0,7590 %
Consommation plus		%	%	%	%	2,4768 %	2,6025 %	2,6399 %	2,4567 %
Enterprises 1	PLS	%	%	%	%	2,3402 %	2,4659 %	2,5196 %	2,3636 %
Enterprises 2	PLS	%	%	%	%	1,6572 %	1,7574 %	1,8033 %	1,6839 %
Enterprises 3	AC	%	%	%	%	2,3207 %	2,0179 %	2,5099 %	3,1666 %
Enterprises 4	PLS	%	%	%	%	2,4768 %	2,6025 %	2,6399 %	2,4567 %

STRESS TEST CONFIGURATION



STRESS TEST IMPACT ON BASE SCENARIO

Type	EAD	LGD	PD	Expected Loss	Value at Risk	Facteur K Crédit	% Stress
Base	7 300 451 306,00 MAD	95,22 %	5,19 %	360 760 102,52 MAD	821 593 141,47 MAD	9	
Stressé	7 300 451 306,00 MAD	97,73 %	5,92 %	422 151 930,23 MAD	1 002 730 211,27 MAD	7	122,05 %