

Enterprise Risk Management and Economic Capital at ING

A practical approach

Jose Rodicio, ASA, CFA, FRM
Deputy Chief Insurance Risk Officer
ING Latin America

Atlanta Actuarial Club
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Agenda

1- Enterprise Risk Management in ING

2- Economic Capital in ING

3- ERM and EC in ING: Practical Cases

4- Summary and Conclusions

5- Q&A

Enterprise Risk Management –a definition

ERM is an all-encompassing term for the firm-wide process of :

identifying,
measuring,
monitoring,
controlling and
mitigating
RISK.

Consistently
across **ALL** of
the significant
risks of the
Enterprise

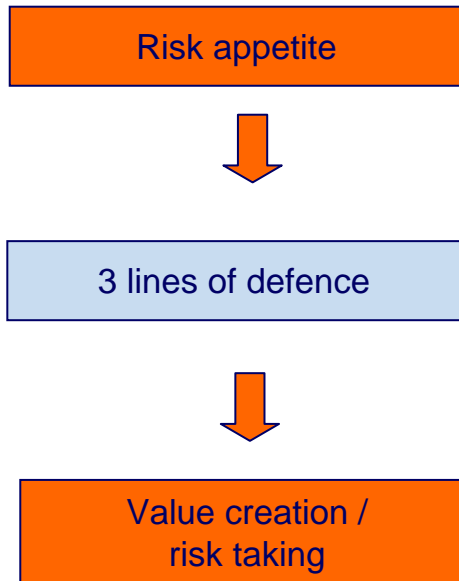
Will reflect **Risk**
measures (e.g. Economic
Capital) for decision
making: e.g.

- Product design and pricing,
- Strat. investment selection
- Financial perf. evaluation.

*The product of a fully-realized ERM Program is the **optimization of enterprise risk adjusted return,** according to strategy and objectives*

ING's ERM governance ensures the risk appetite is cascaded through the Group with goal of creating value by taking risks

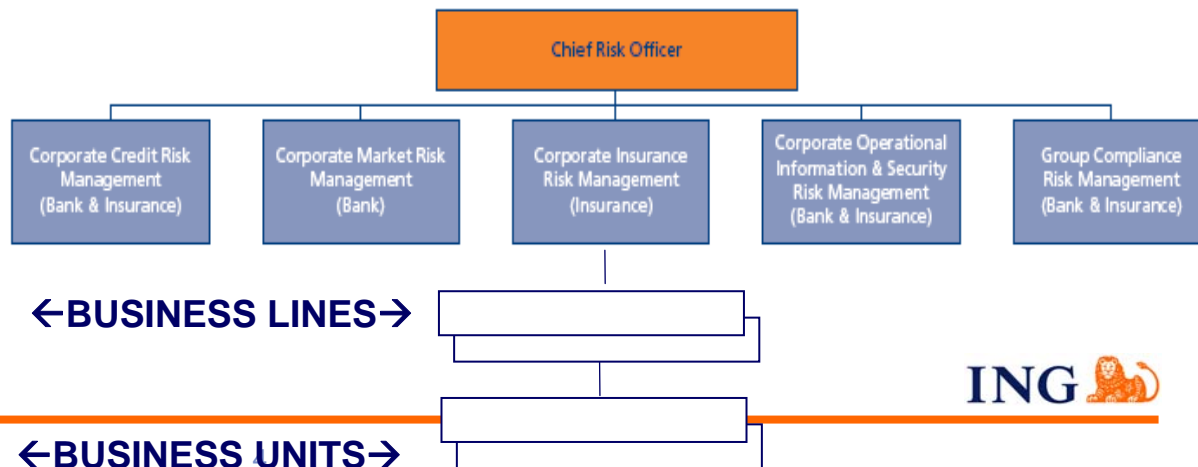
Risk strategy
Governance
Execution



←CORPORATE→
OFFICE

ING's risk governance framework

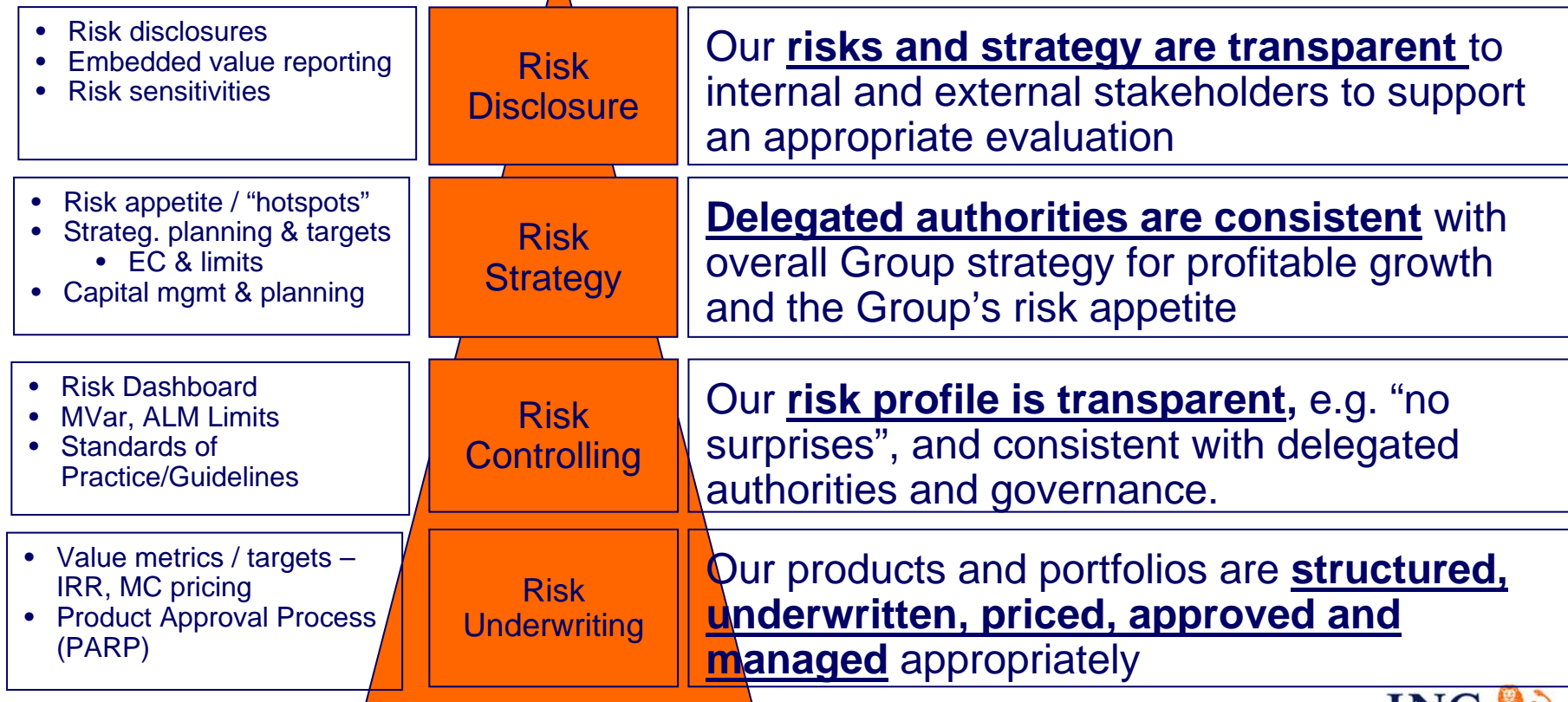
1st line of defence Business lines	2nd line of defence Risk Management	3rd line of defence Internal audit
<ul style="list-style-type: none"> • Business line managers have primary responsibility for day to day risk management.. • ..and bear the consequences of losses 	<ul style="list-style-type: none"> • Formulate high-level policies, limits, risk appetite • Provide oversight, challenge/support to optimise the risk/reward trade-off 	<ul style="list-style-type: none"> • Assurance of the overall effectiveness of internal controls • Financial, operational, compliance and risk management



Risk management has a clearly defined mission and is embedded throughout ING

Mission: Build competitive advantage by integrating risk management in our daily business activities & strategic planning

Examples



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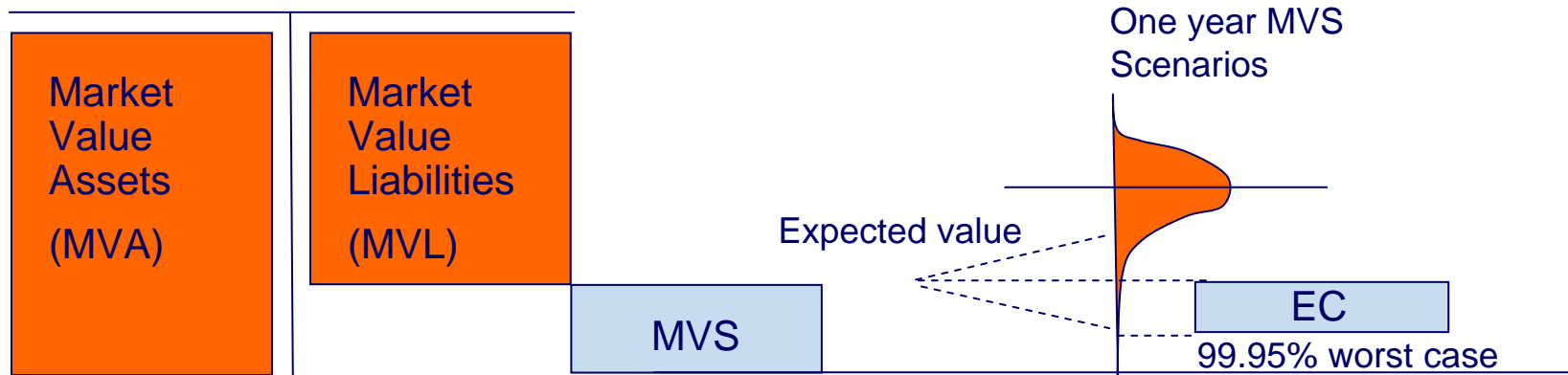
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ING Economic Capital Framework is aligned with Solvency II –internal risk models

Economic Capital in ING is defined as the loss to ING Insurance's Market Value Surplus (MVS) at a 99.95% confidence interval within a one-year horizon



- **Assets, Liabilities, and Surplus at Market Value**
- **EC = Change in Market Value Surplus** under 1 in 2000 scenario (AA rated company)
- Or...

Sum of Individual Capital Required per risk

- ✓ Credit and Transfer Risk
- ✓ Market Risk
- ✓ Business Risk
- ✓ Operational Risk
- ✓ Insurance (Life and Non-life) Risk

less Diversification Effects



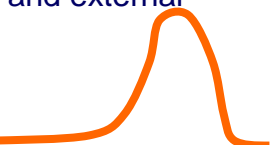


- ✓ Total combined risk capital < sum of individual risk capitals
- ✓ Diversification exists across risk types and business units

Five risk categories which impact Market Value Surplus and Economic Capital

Across risk classes

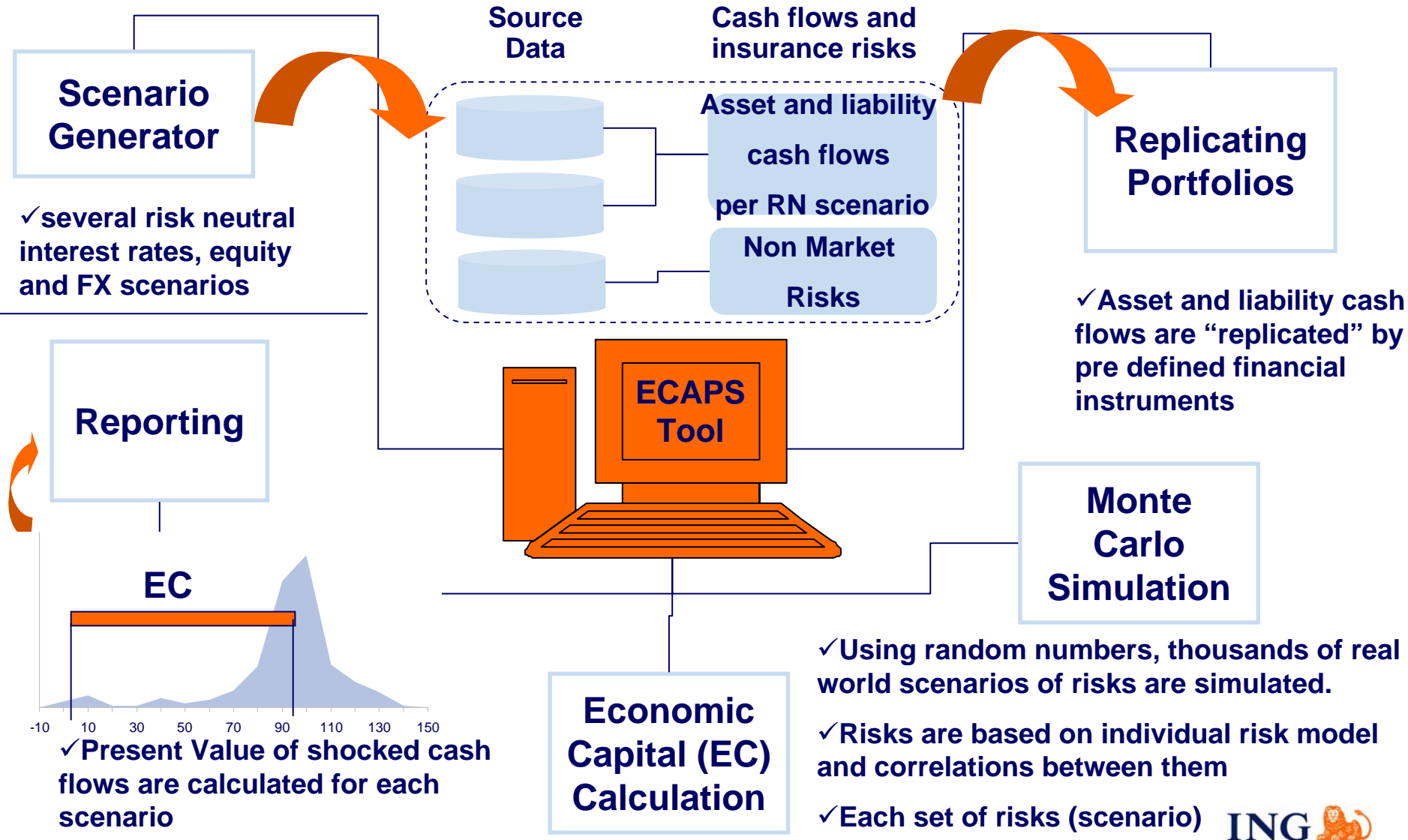
- Best-in-class **aggregation** model
- Conservative **correlation** assumptions

Risk Aggregation

Financial risk	Credit & transfer risk	Insurance risk	Operational risk	Business risk
<p>Impact to Market Value of assets and liabilities (including options) from:</p> <ul style="list-style-type: none"> • Interest rates • Equity prices • Real estate • Credit spreads • Implied vols • Currency rates 	<p>Impact to Market Value of assets from:</p> <ul style="list-style-type: none"> -Changes in credit quality and defaults -Reinsurance receivables quality -The recovery risk in case of default is - repatriation risk (Transfer risk) 	<p>Deviations from best estimate claims (frequency, severity, timing)</p> <ul style="list-style-type: none"> • Mortality • Morbidity • Longevity risk • P&C • CAT 	<p>Unexpected operational internal and external events such as processing errors, fraud, systems failures, litigation, regulatory or compliance breaches, etc.</p>	<p>Deviations from best estimates on business expenses, lapses / persistency and future premium re-rating.</p>
<p>Monte Carlo simulation</p> 	<p>MKMV portfolio manager, submitted for Basel II advanced</p> 	<p>Actuarial models for each risk, in-house and external</p> 	<p>Internal and external data / model, submitted for Basel II advanced</p> 	<p>Internal models</p> 



ING uses an integrated system (ECAPs) to aggregate and calculate EC across the globe



ING is used to shock cash flows.

Enhanced Risk Reporting allows quick understanding of risk, trends and sensitivities

Economic Capital

EC (99.95%)	2008 Q3					2008 Q2				
	EC Total	Market Risk EC	Credit Risk EC	Insurance Risk EC	Non-financial Risk EC	EC Total	Market Risk EC	Credit Risk EC	Insurance Risk EC	Non-financial Risk EC
Bu1	4,262	2,554	103	1,110	496	4,389	2,685	119	1,136	449
Bu2	4,158	2,259	409	404	1,085	3,794	2,047	388	359	999
...										
Total	14,690	9,714	761	2,024	2,191	13,805	9,013	845	1,940	2,008

Equity + Real Estate Positions

EQ Position	Down 10% Q3	Down 10% Q2	Up 10% Q3	Up 10% Q2
Bu1	-348	-304	335	296
Bu2	-819	-826	706	626
...				
Total	-2,505	-2,530	2,379	2,302

Interest Rate Positions

IR Position	Prl -100bps Q3	Prl -100bps Q2	Prl +100 bps Q3	Prl +100 bps Q2
Bu1	-2,207	-2,410	909	1,039
Bu2	-384	-122	76	-309
...				
Total	-4,553	-4,301	2,258	1,611

Credit Spread Positions

10 bps increase	AAA	AA	A	BBB	BB	B	Others	Total
Bu1	-10	-22	-13	-3	-1	0	-6	-54
Bu2	-42	-6	-88	-52	-8	0	0	-196
...								
Total	-148	-39	-147	-64	-8	0	-27	-435

Foreign Exchange Positions : Down 5% Scenario*

FX Position	USD	TWD	CAD	PLN	Others	Total
Bu1	-44	-165	0	0	-165	-375
Bu2	-249	0	-73	0	-68	-388
...						
Total	-198	108	-73	-59	-263	-484

* Numbers are an example and do not represent any current ING position



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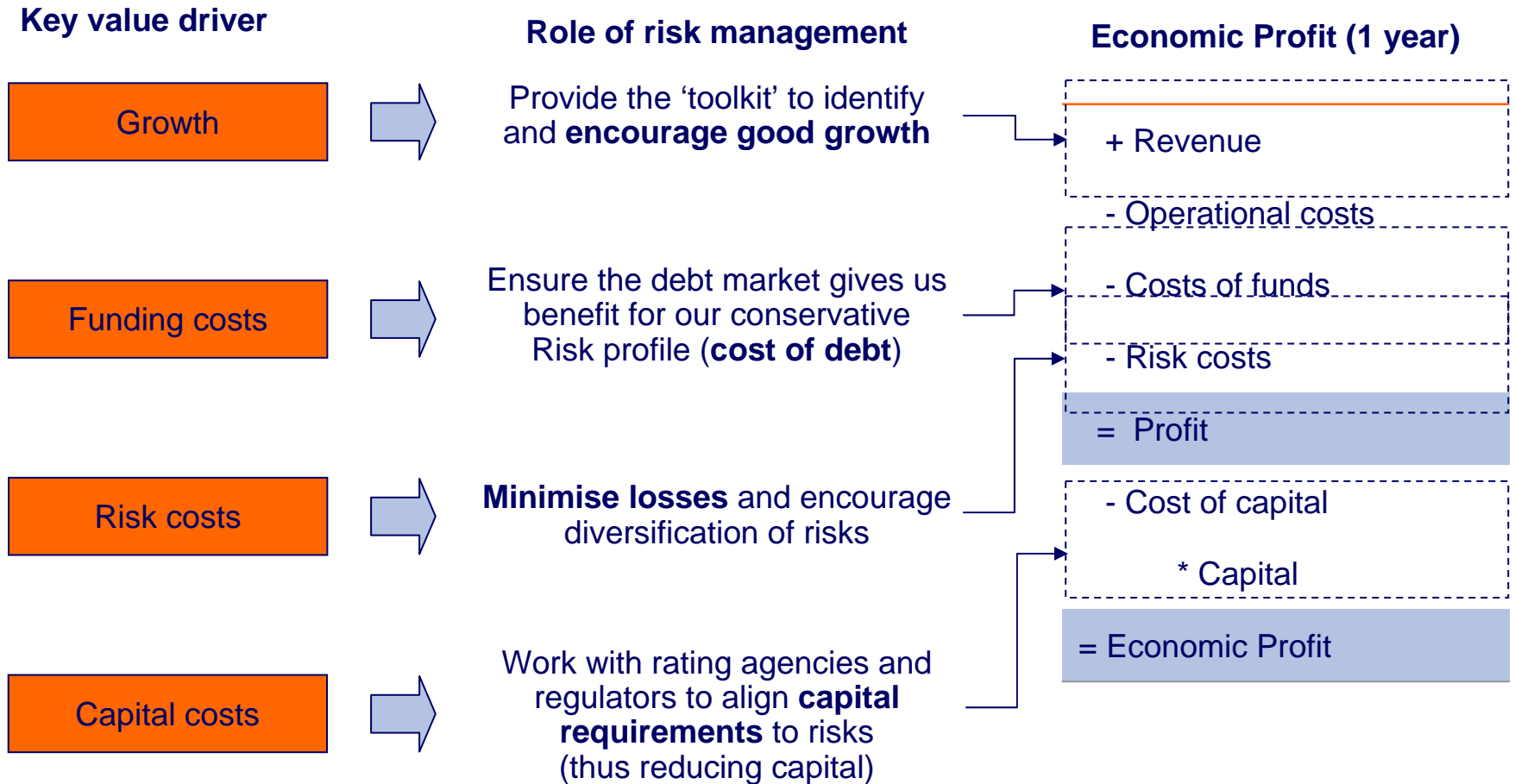
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Risk Management supports key value drivers

Example 1



The Risk Dashboard provides an overview of risks in the Group

Role of the Risk Dashboard

- This is a powerful management tool which:
 - Aids in **identifying 'hotspots'** in terms of risks
 - Ensures **management focus** on material issues
 - Allows **risk vs. return trade-offs** to be made
 - Provides **comparable risk measures**
 - le: 1 unit of equity risk to 1 unit of Insurance Risk

Practical use of the Risk Dashboard

- Monitoring the adherence of risk taking to the **risk appetite**
- Risk issues factored in the **strategic planning process**
- Risk increasingly supporting strategic **decision making**.

Earnings at Risk (EaR)
 Potential annual IFRS earnings reduction
 1-in-10 event

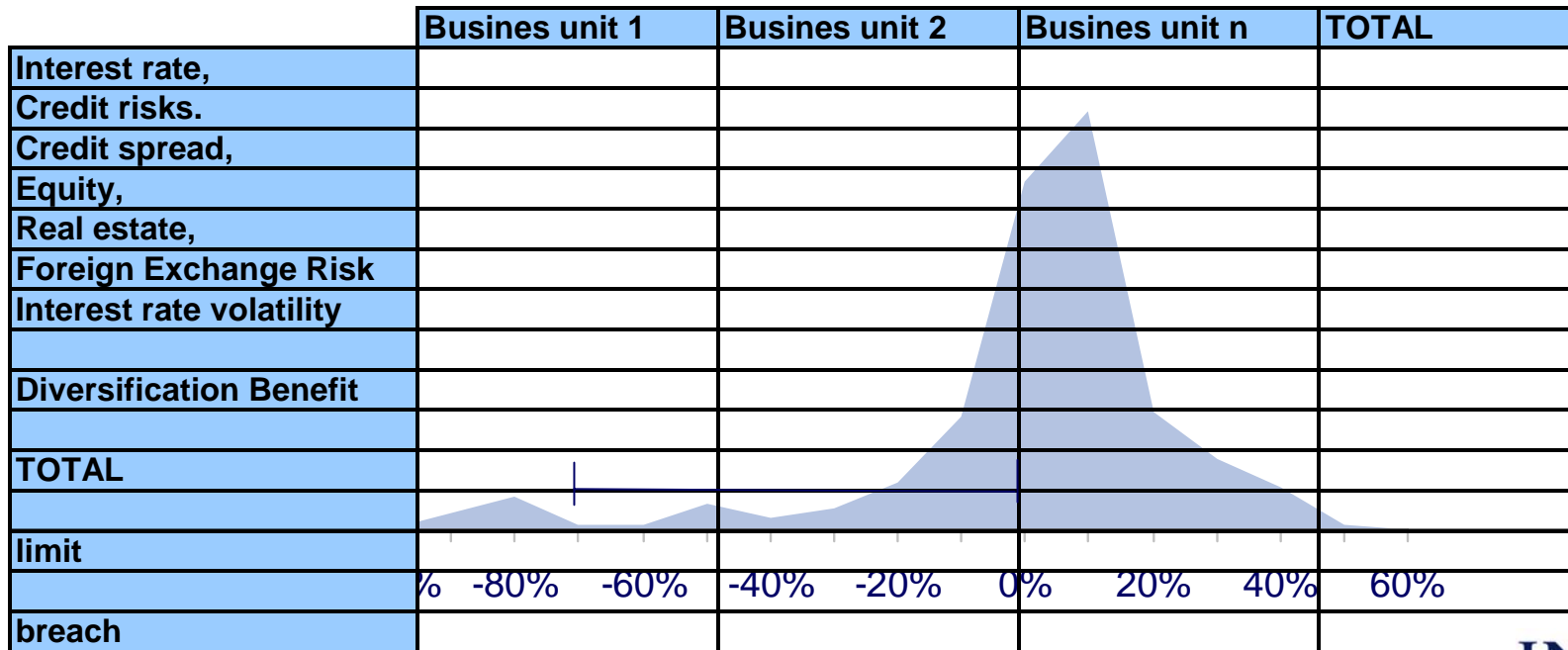
Capital at Risk (CaR)
 Potential value (capital) reduction
 1-in-10 event

		Busines unit 1	Busines unit 2	Busines unit n	TOTAL
	mortality risk				
Insurance risks	morbidity risk				
	P&C risk				
	interest rate risk				
	equity risk				
market risks	real estate risk				
	FX open position risk				
	FX translation risk				
	operational risks				
	credit risks				
	TOTAL				



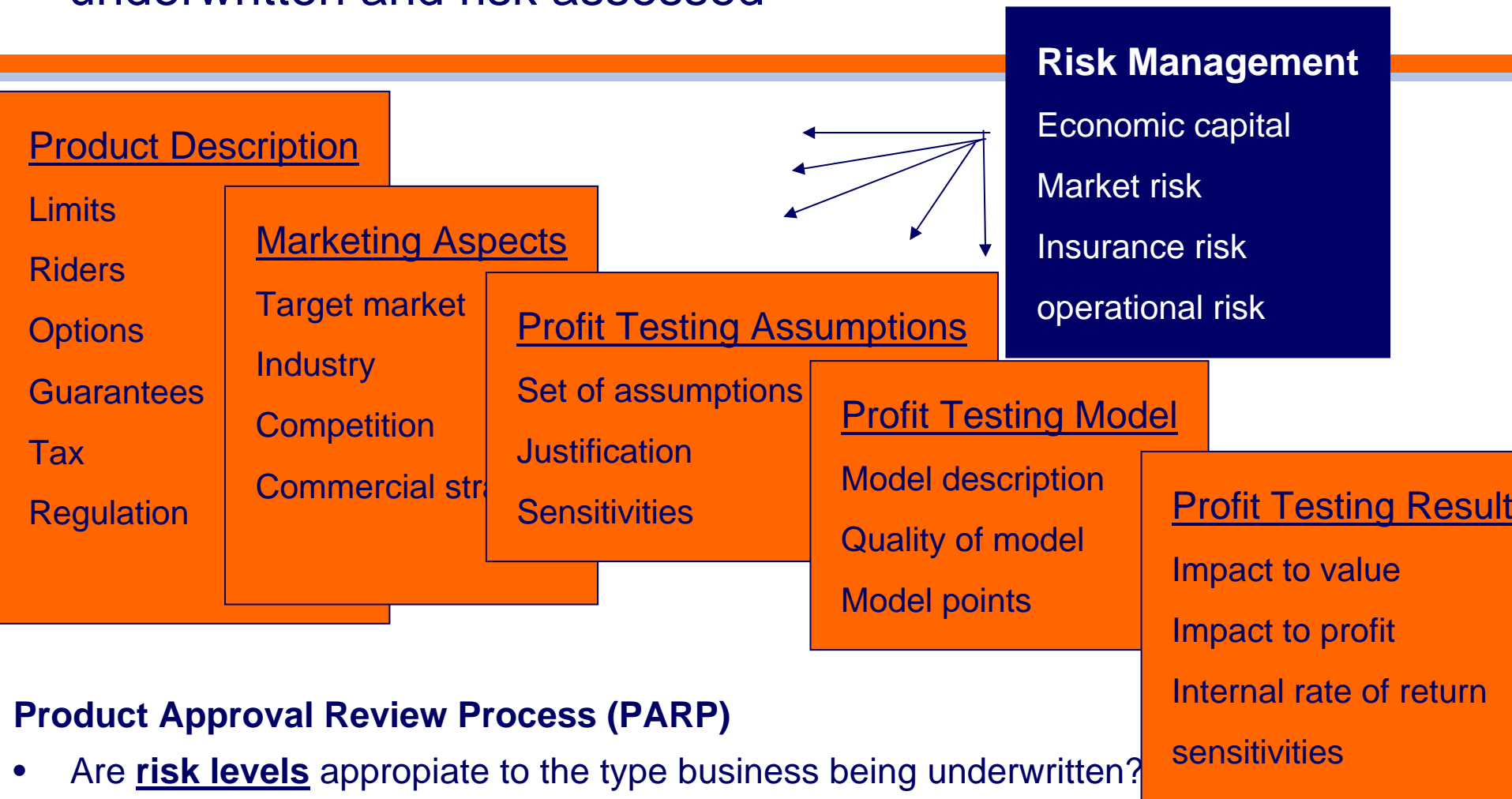
ERM controls ING market risks by managing the Market Value at Risk (MVaR)

- ✓ MVaR limits per region are dictated by the Group **based on Available Financial Resources.**
- ✓ MVaR is **calculated, managed and monitored** by countries' risk and investment analysts.
- ✓ Optimal investment **asset allocation/security selection**: BUs to decide within MVaR limits.
- ✓ MVaR is discussed in **ALM committees**, including breaches and actions to optimize it.
- ✓ Major actions to control MVaR consist in **better ALM, equity/credit risk management.**
- ✓ Making **risks (risk-return) comparable** throughout risks by creating a 'level playing field'



ERM ensures that new products affecting priced and underwritten and risk assessed

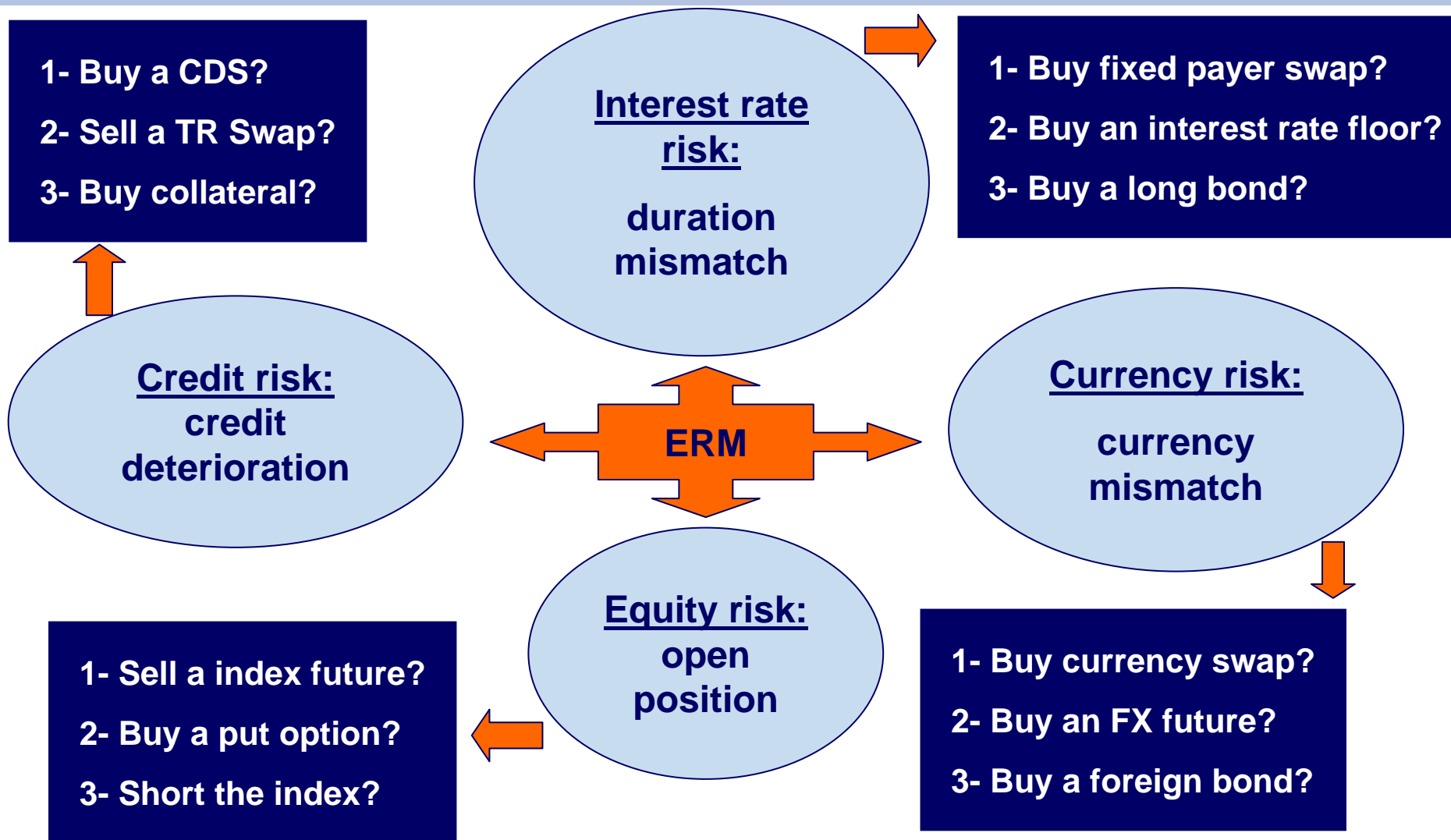
Example 4



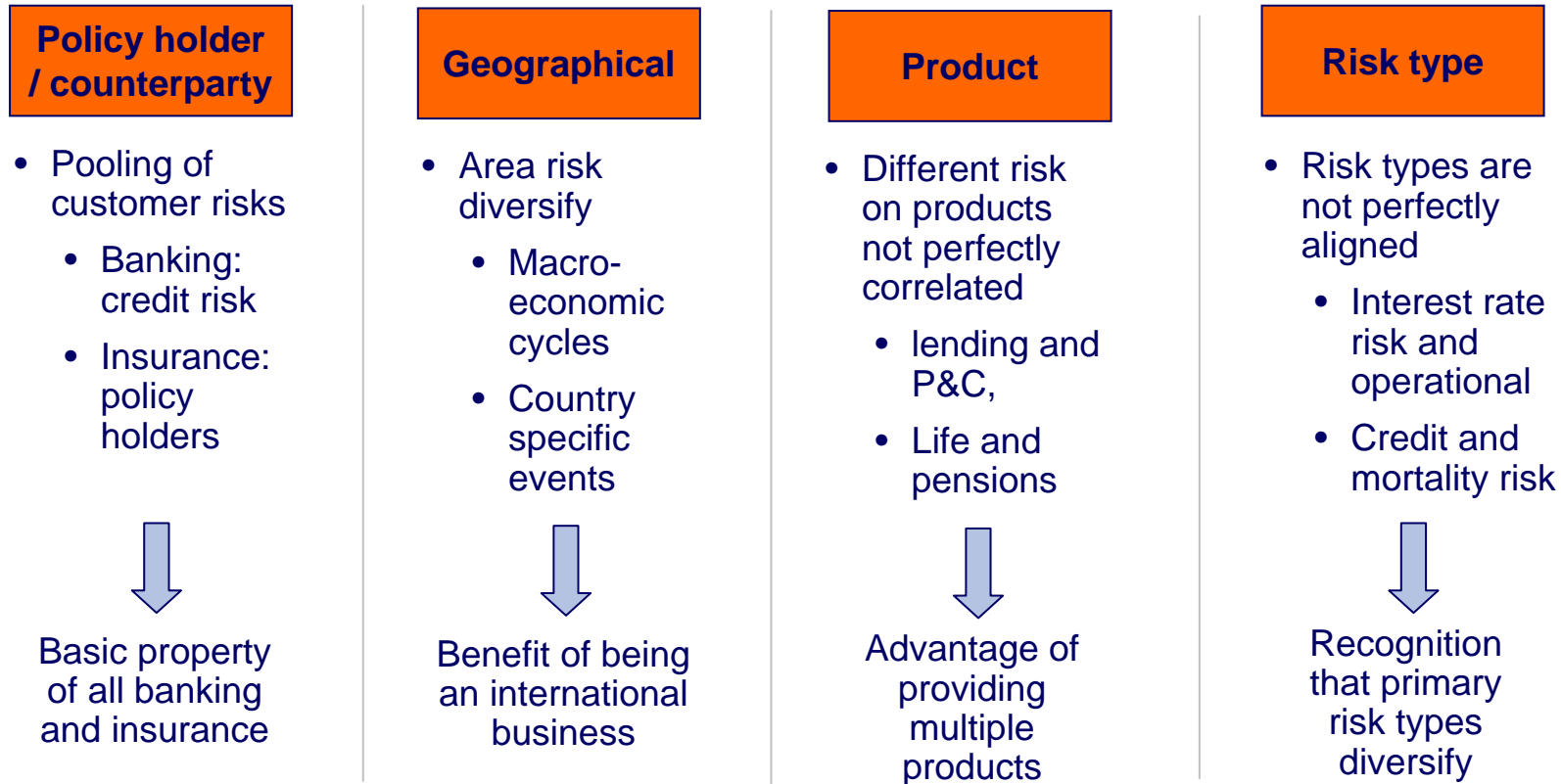
Product Approval Review Process (PARP)

- Are **risk levels** appropriate to the type business being underwritten?
- Are **expected returns** reasonable for the level of risks?
- Are major **open positions** to market risks priced for hedges?
- Are **all risks contemplated** and appropriately analyzed?

ERM manage actively markets risks with derivatives instruments that are more efficient according to its needs



ING benefits from different diversification types and ERM further optimize such benefits



All these forms of diversification contribute to lower risk and capital requirements

ERM helps identify such and maximize the diversification opportunity

ERM also manages Operational Risk—key is the identification of risks, but then the assessment of them

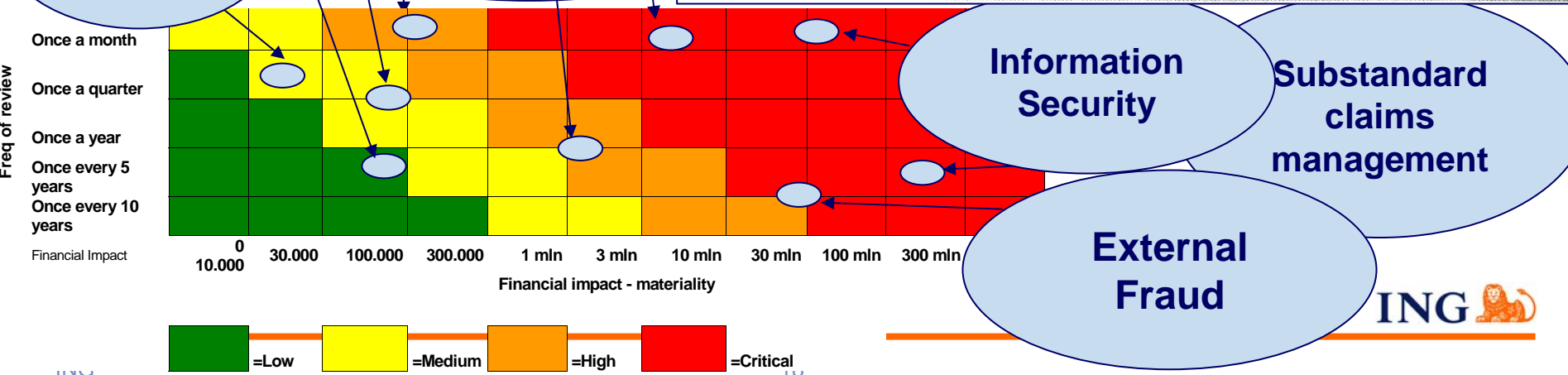
Example 7

Identification

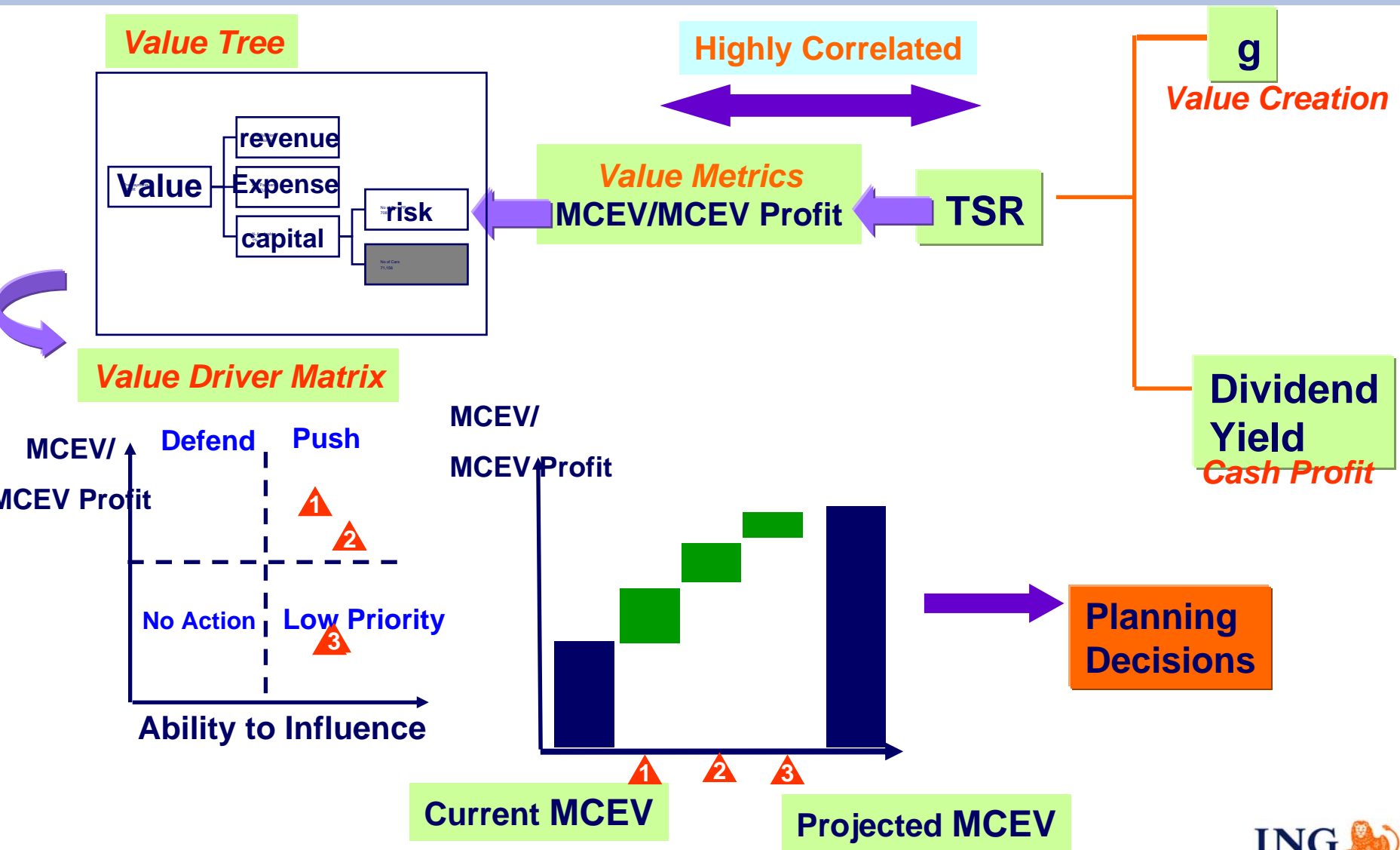


Calculation

Components	Principles
External incidents data	If the world gets riskier, the ING needs more economic capital
Operational size ING & BU	If a business unit's size increases within ING, so does its capital
Product and business environment risk	If the business of a business unit is more complex, it needs more capital
Scorecard - Quality of control ORM framework	If the level of control of a business unit is lower, it needs more capital
Bonus/malus - Incident track record	If a business unit has losses from incidents that exceed the level of expected loss, it needs more capital



ERM also use ING “Managing for Value” Model to maximize value, per level of risk.



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In summary...

The objective of ERM in ING is to:

- ✓ Better understand risks and make them transparent for business managers to manage them.
- ✓ Idea is not to eliminate risk and volatility – this is the business we are in!
- ✓ Idea is to use risk information to make strategic business decisions

ING has a strong Enterprise Risk Management culture and risk governance

Nevertheless, we are continually improving our risk practices in innovative way

Goal is to support and increase shareholder return (share price) by

helping balance risk, return and growth.

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Thank you

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