



ING Enterprise Risk Management

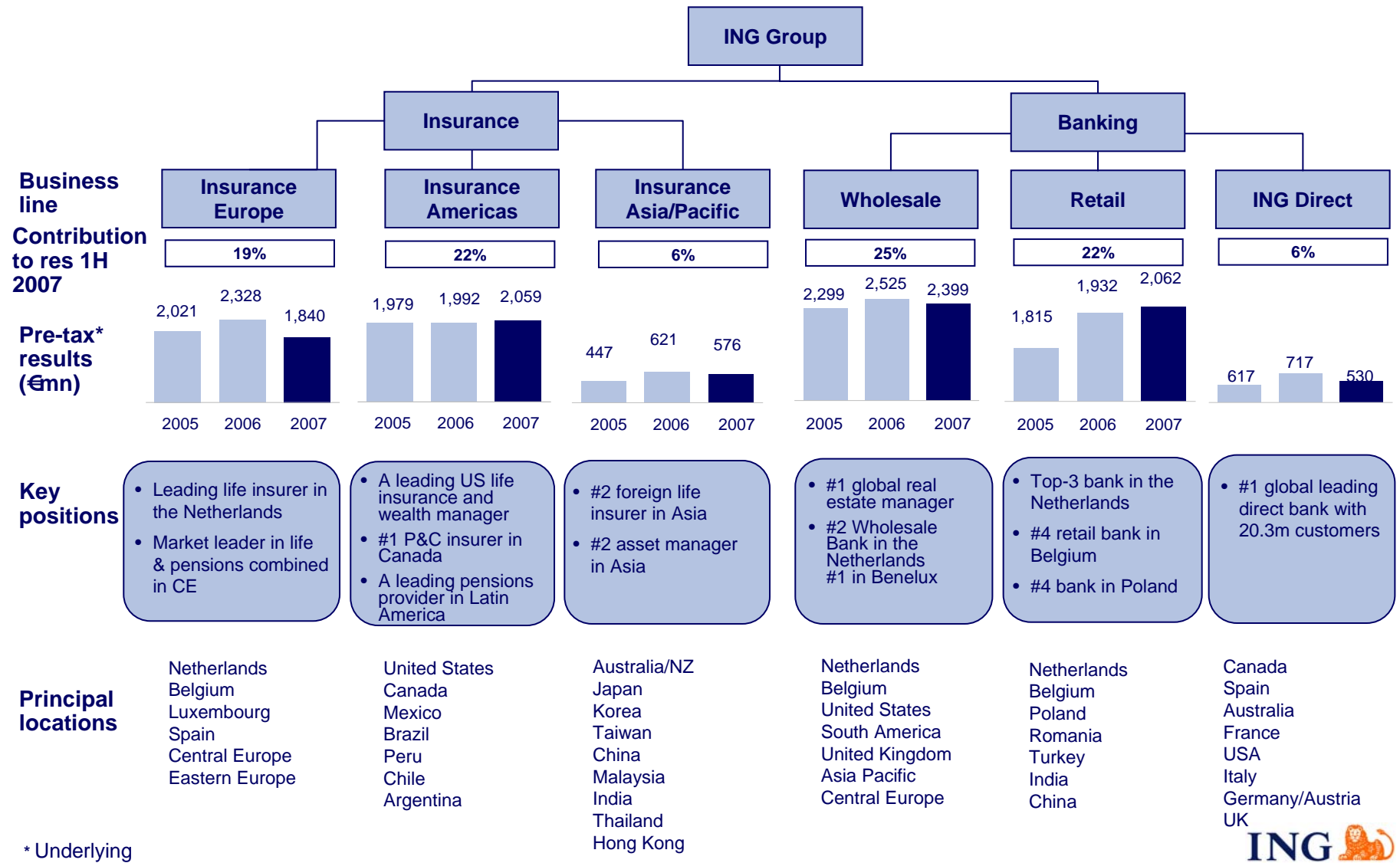
Doug Caldwell
Corporate Insurance Risk Management

April 2008
www.ing.com

INSURANCE - BANKING - ASSET MANAGEMENT



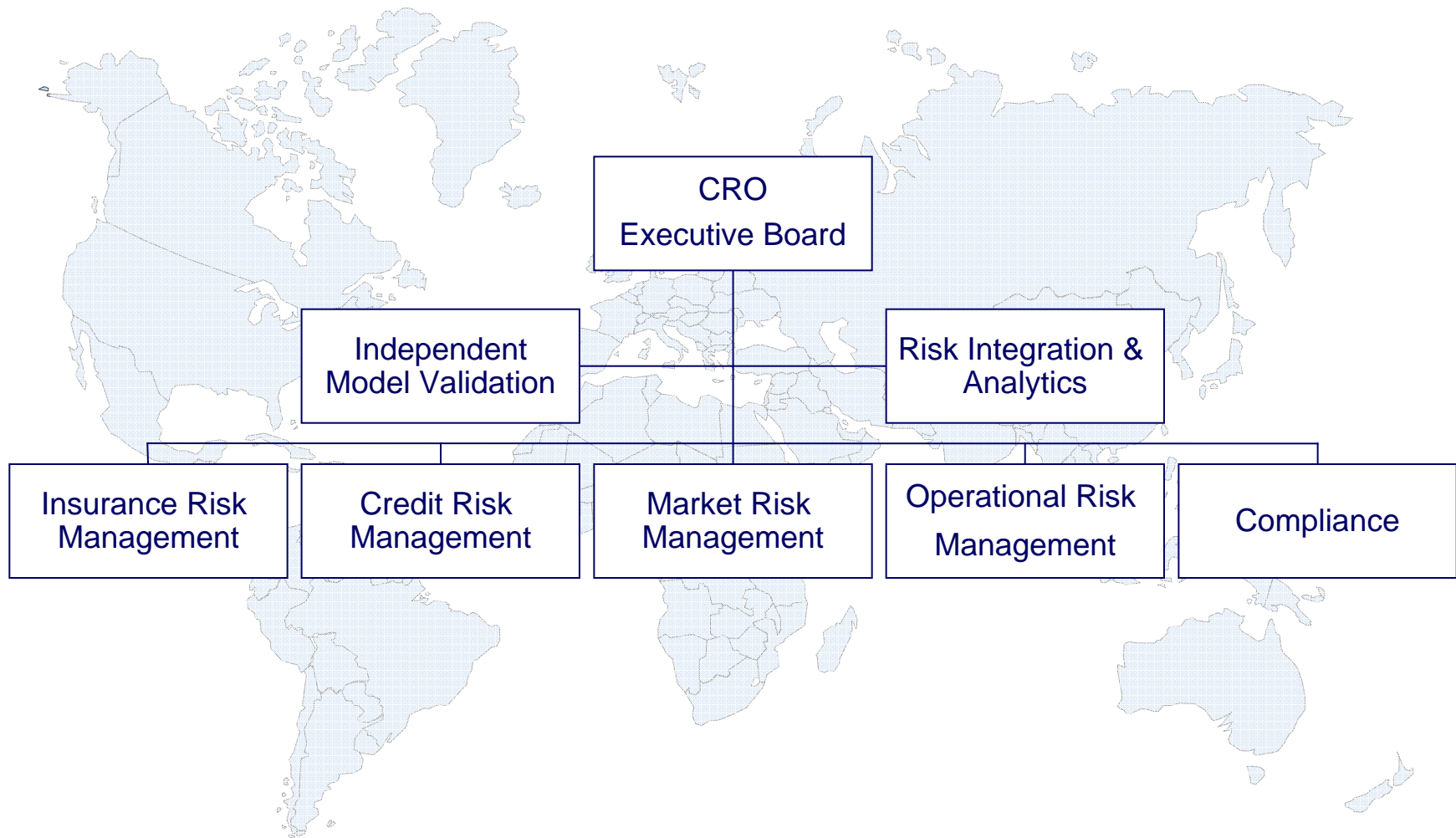
At a glance – ING Group



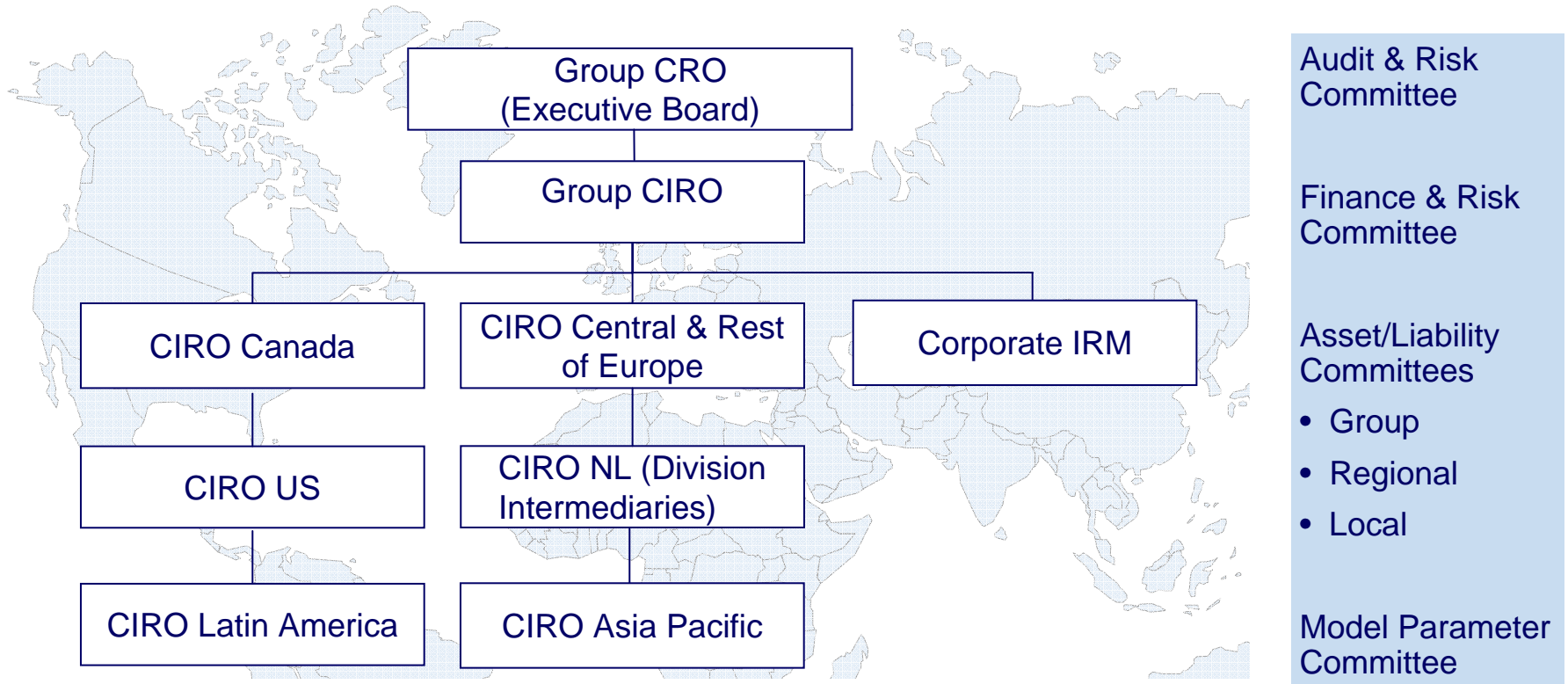
* Underlying



Risk management organisation

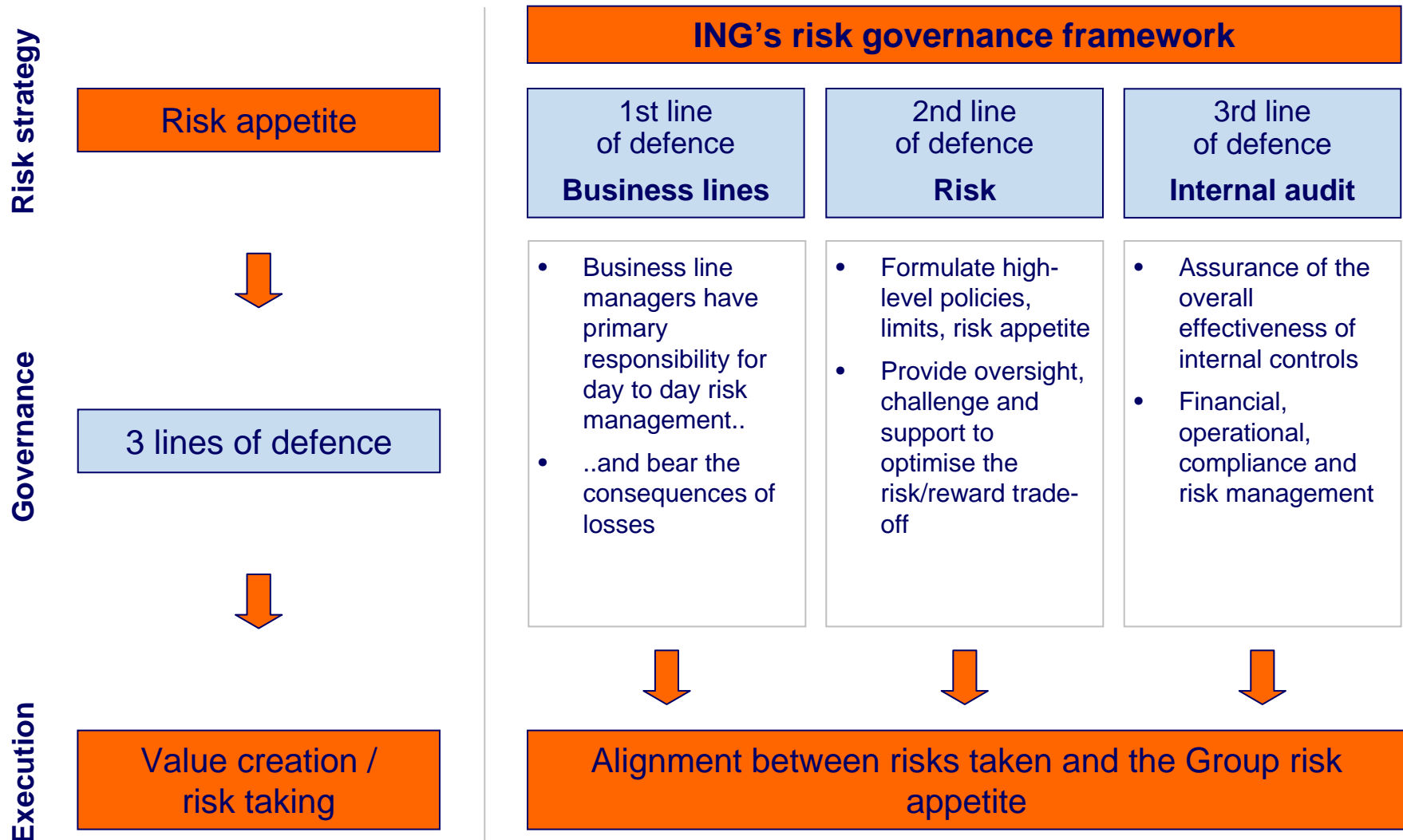


ING's international Insurance Risk Management organisation



Global network of 700+ combined risk / actuarial professionals in 45+ business units in 30+ countries

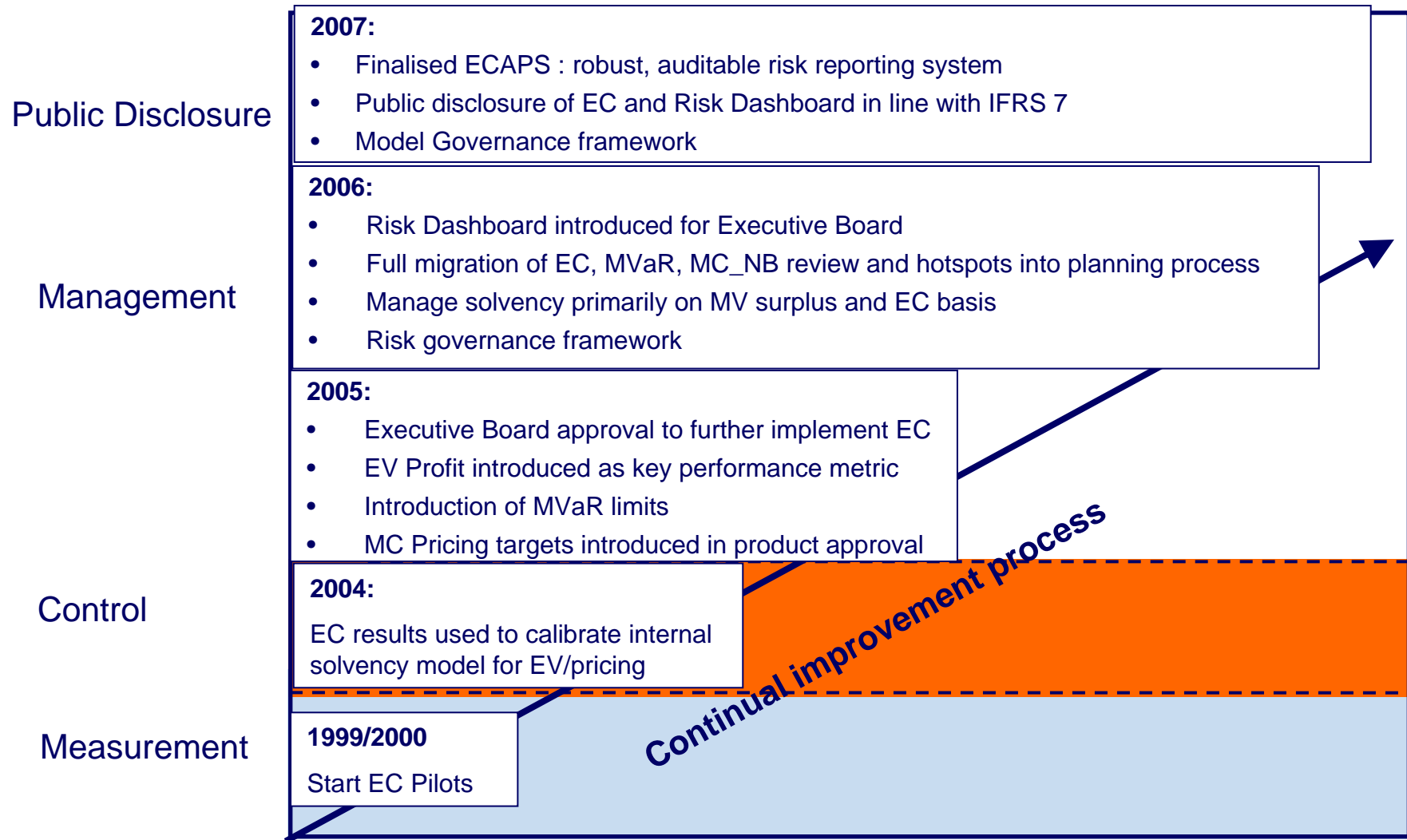
ING risk governance framework ensures the risk appetite is cascaded through the Group



ING focused on all roles of risk management

	Purpose	Examples
Risk Disclosure	Our risks and strategy are transparent to internal and external stakeholders to support an appropriate evaluation	<ul style="list-style-type: none"> • Investor disclosures – substantially improved in 07/08 • IFRS 7 Risk Paragraph • Basis for Solvency II/QIS 4
Risk Strategy	Delegated authorities are consistent with the overall Group strategy for profitable growth and the Group's risk appetite	<ul style="list-style-type: none"> • Establish Risk Appetite • Strategic Planning: EC/limits/value metrics • Capital Management & Planning
Risk Reporting/Controlling	Our risk profile is transparent, e.g. “no surprises”, and consistent with authorities and limits delegated by the Group	<ul style="list-style-type: none"> • Risk Dashboard at EB level • MVaR limit structure • EC and MV Surplus quarterly • Innovative EC system ties to market risk analysis
Risk Underwriting	Our products and portfolios are structured, underwritten, priced, approved and managed appropriately	<ul style="list-style-type: none"> • Clear standards for approval of ins./inv. products • Standards of Practice/Guidelines • Value metrics for new business- IRR and market consistent

Key Points for ING Risk / Value Based Mgmt



Important ING ERM initiatives in last 3-4 years

Risk Culture	<p>In 2004, ING began an initiative to “turn actuaries into risk managers”</p> <ul style="list-style-type: none">• Value metrics added as key performance metric next to earnings – EV Profit• “Chief Actuaries” are now “Chief Insurance Risk Officers”• Strengthening of functional risk management column
Risk Governance	<p>Insurance risk management functional governance structure defined</p> <ul style="list-style-type: none">• Risk appetite set by Executive Board based on Capital/Earnings at Risk• Clear roles and competencies established for risk managers• Clear accountability for risk approval/disapproval – CIROs have veto rights• Risk model governance approved with clear approval/review procedures
MVaR Limits	<p>Market Value at Risk limits were set in 2005</p> <ul style="list-style-type: none">• Strict limits on market + credit risk EC by business line- cascaded to units• Provides clear method of mapping economic capital usage to returns• Assigned annually after strategic planning process• Improved structure to discuss changes to risk profile in volatile markets
Risk Modelling	<p>New EC model based on replicating portfolio methodology</p> <ul style="list-style-type: none">• Increased efficiency and auditability leads to SOXable 2007 EC disclosures• Significantly improved ability to aggregate and analyse risk positions• Basis for Solvency II and potential IFRS Phase II reporting



ERM: The RenaissanceRe Approach

Todd Fonner, Chief Risk Officer

April 15, 2008

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RenaissanceRe

Overview of RenaissanceRe Holdings Ltd.

- Bermuda-based insurance and reinsurance company founded in 1993
- Financial profile YE 2007
 - \$3.5 billion of shareholders equity
 - \$1.8 billion of gross premiums written
 - \$570 million of net income
- 240 employees in six locations (Bermuda, Dallas, Dublin, Houston, Narragansett, Raleigh)
- One of the leading writers of property catastrophe reinsurance, \$1 billion of gross written cat premium in 2007
- Given focus on property cat, risk management has been key to the management of the company from inception
 - Early adopter of catastrophic risk models, over \$30 million invested in proprietary risk model, REMS©

Risk management framework has four key activities

Evaluating and quantifying risk

Aggregating the risk portfolio

Managing operational risk

Improving the way we manage risk

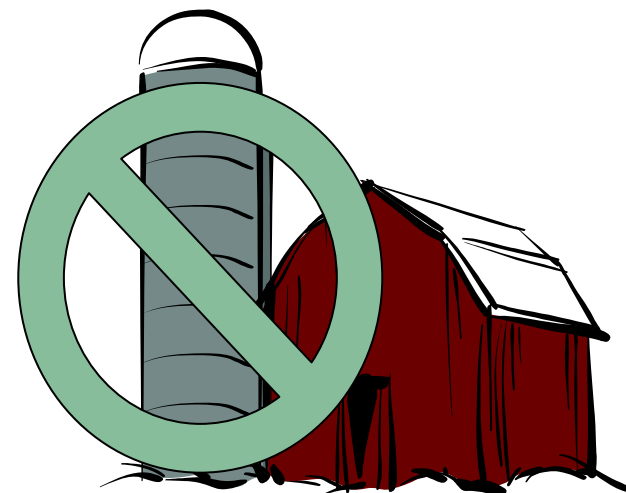
- Modeling
- Risk identification
- Governance

RenRe Risk Management Principles

- Seek to understand all the risks being assumed
 - Avoid gratuitous exposure
- Combine tools and expert users to evaluate risk-reward decisions
- Foster the right culture
- Use multiple vectors to evaluate risk
 - Crude proxies for risk instead of ignoring risk
- Structure appropriately; how you take risk can be as important as the risk you take
- Measure and monitor the aggregate portfolio using robust systems and frameworks
- Define tolerances for acceptable levels of risk
 - Processes to avoid or eliminate certain types of risks
- Emphasize performance vs. expectations rather than outcomes
- Undertake a constant process to enhance and improve
- Communicate regularly with key stakeholders

Organizational culture and structure matter

- Culture of risk management needs to permeate the organization to be effective; silos of expertise do not work
- Linkage between modeling and underwriting is critical
 - Underwriters should understand the models and seek to assess risk with the consistent framework
 - Integration needs to occur in a real time environment to be effective
 - Recognize the limits of modeling and value underwriting judgment
- Keep risk-management and risk-taking processes as close as possible in terms of responsibility
- Underwriting mindset to assess impact of the incremental deal on the overall portfolio using consistent risk metrics → avoid surprises when portfolio is rolled-up



Robust process to calibrate, use and maintain the various quantitative models

- Scrub exposure data and maintain industry databases
- Incorporate the best of what is available from the vendors
- Build proprietary models for unmodeled risks
- Regular process to upgrade and enhance models
- Actual vs. modeled analyses whenever possible
- Impose correlation when not captured 'organically'
- Pursue scientific research to better calibrate models

~20% of our employees support this work

Risk Aggregation Schematic

RenaissanceRe Holdings Ltd.

- Business units
- Segments
- Portfolios
- Legal Entities

Catastrophe Reinsurance
Workers Comp Cat
Cat-exposed Individual Risk
JV Fees and Equity Pick-up
Ceded Retro
Credit Haircut
Event Driven Correlation

Specialty Reinsurance
Program Business
Imposed Correlation

Strategic Investments
Fixed income Investments
Alternative Investments
Operational Risk
RIM
Random Correlation



Enterprise Risk Management at Manulife Financial

Bev Margolian
Executive Vice President and Chief Risk Officer

April 15, 2008



Overview of Manulife Financial

Manulife Financial

Business Segment

U.S. Insurance

U.S. Wealth Management

Canada

Asia & Japan

Reinsurance, Inv Mgmt & Other

2007 Earnings Contribution

18%

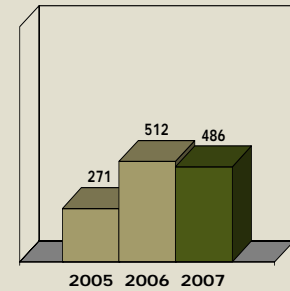
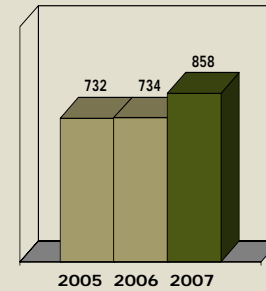
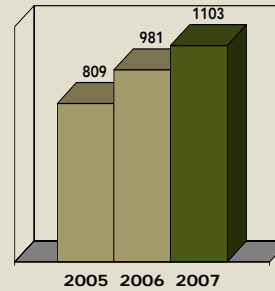
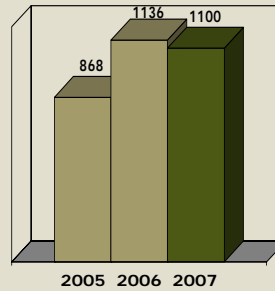
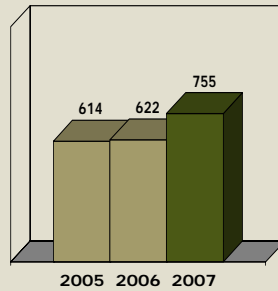
26%

26%

20%

10%

3 Year Earnings (C\$m)



Premier Market Positions

#1 Individual Life
#1 Variable Life
#1 Group LTC
#2 Universal Life
#2 Retail LTC

#1 Small Case 401(k)
#3 Variable Annuities
#20 Mutual Funds

#1 Group Health
#1 Ind Seg Funds
#2 Group Pensions
#2 Ind Fixed Annuities
#2 Ind Life
#3 Group Life

#3 Vietnam
#4 Shanghai
#5 Singapore
#6 Japan VA
#6 Philippines
#7 Hong Kong
#10 Malaysia

#1 North American Individual Life Retrocession

Over C\$90 billion in 3rd Party Assets Under Management

22,000 employees across 15 different countries



Overview of ERM Framework

Governance



Risk philosophy and appetite

**Policies and standards of practice
Accountabilities and authorities
Cascading limits**

Execution



Risk taking

**Identification, assessment,
measurement, reporting**

Control and mitigation

Assurance



Independent audit



Our Risk Philosophy

**Strategically optimize risk
to support long term revenue and earnings growth
to ultimately increase shareholder value**

- ❖ Safeguard commitments to customers
- ❖ Protect reputation
- ❖ Take appropriate level of risk
- ❖ Capitalize on aligned opportunities
- ❖ Make informed decisions about risk



Key elements to ERM effectiveness

- Well entrenched risk culture; risk management highly valued
- Strongly endorsed by executive management and Board
 - Support demonstrated proactively and broadly
 - Constant investment in enhancements and improvements
 - Focus on transparency with key internal and external stakeholders
- Business leaders own risks
 - Risk management integral component of business management
 - ERM framework and philosophy guides all risk-taking activities
- Corporate Risk partners with businesses to optimize risk/returns
 - Risk policies and standards of practice applied consistently across all business and markets globally
 - Risk exposures considered from an enterprise perspective
 - Appropriate balance between robust risk assessment tools and fundamental business judgment

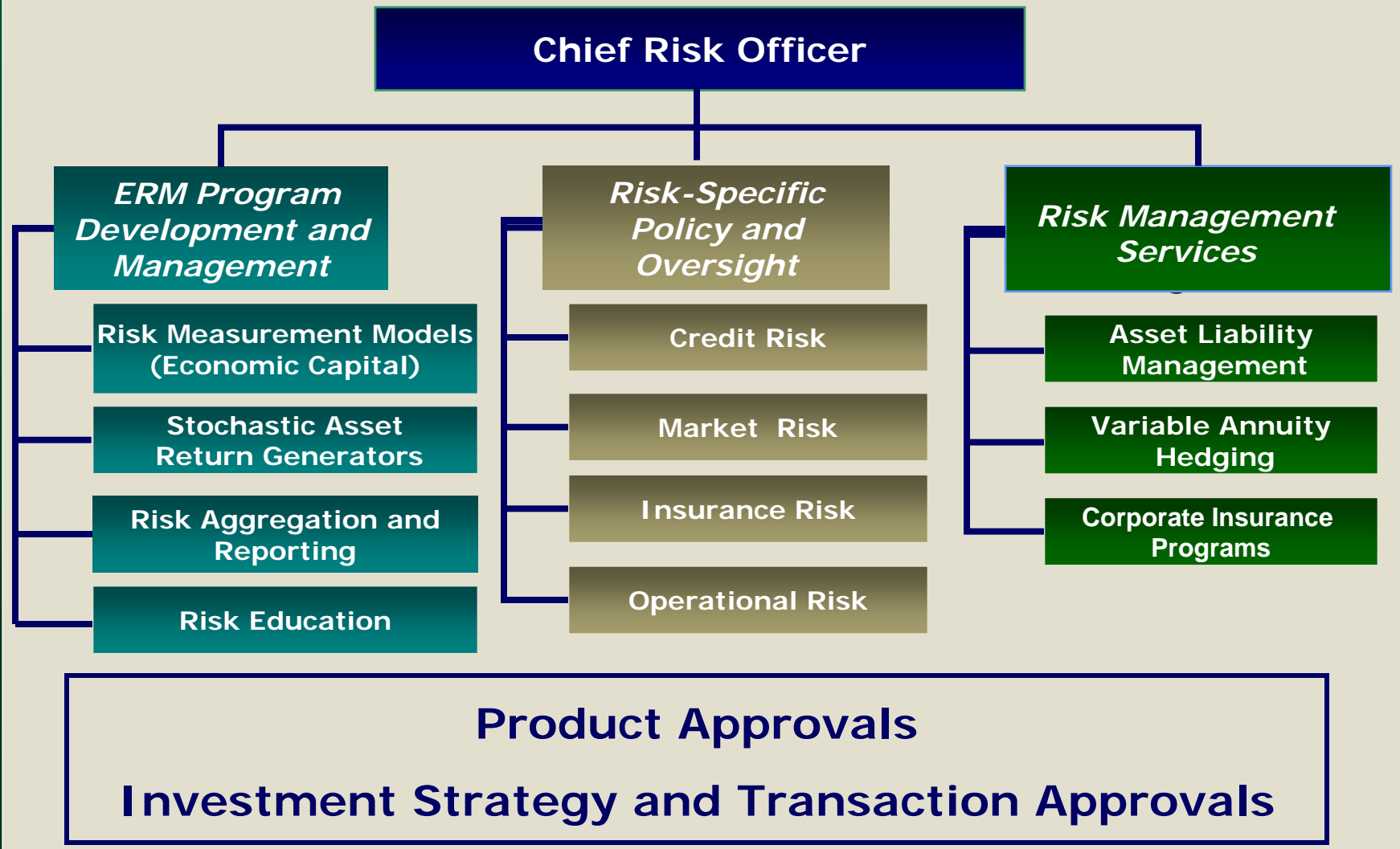


Governance Structure





Corporate Risk Management's Role





Important ERM Developments

- Appointment of CRO, integration of all risk functions
 - ~90 people covering market, credit, insurance, operational risks and aggregate risk measurement and reporting
 - Integrated approach to risk/return/growth optimization reflecting product portfolios and investment strategies
 - Maturation of risk committees and education of executive/Board
 - Created Executive Risk Committee
 - Strategic discussion of enterprise risk profile/positions and business strategies
 - Developed consistent risk models and metrics for all risks and business
 - Established risk appetite and consistent risk limits
 - Applied tools for risk/return optimization
 - Enhanced risk disclosure internally and externally
 - Board, regulators, rating agencies, investors
- ⇒ Excellent S&P ERM Rating, contributor to AAA rating
- ⇒ Contributed to strong market positions, growth and profitability