



## Economic Capital after the Crisis: Its essential role in performance management



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# Polling Question 1

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Since the Financial crisis, senior management's attention for economic capital has:

- a) Increased
- b) Remained the same
- c) Decreased
- d) Remained absent, since economic capital is not used

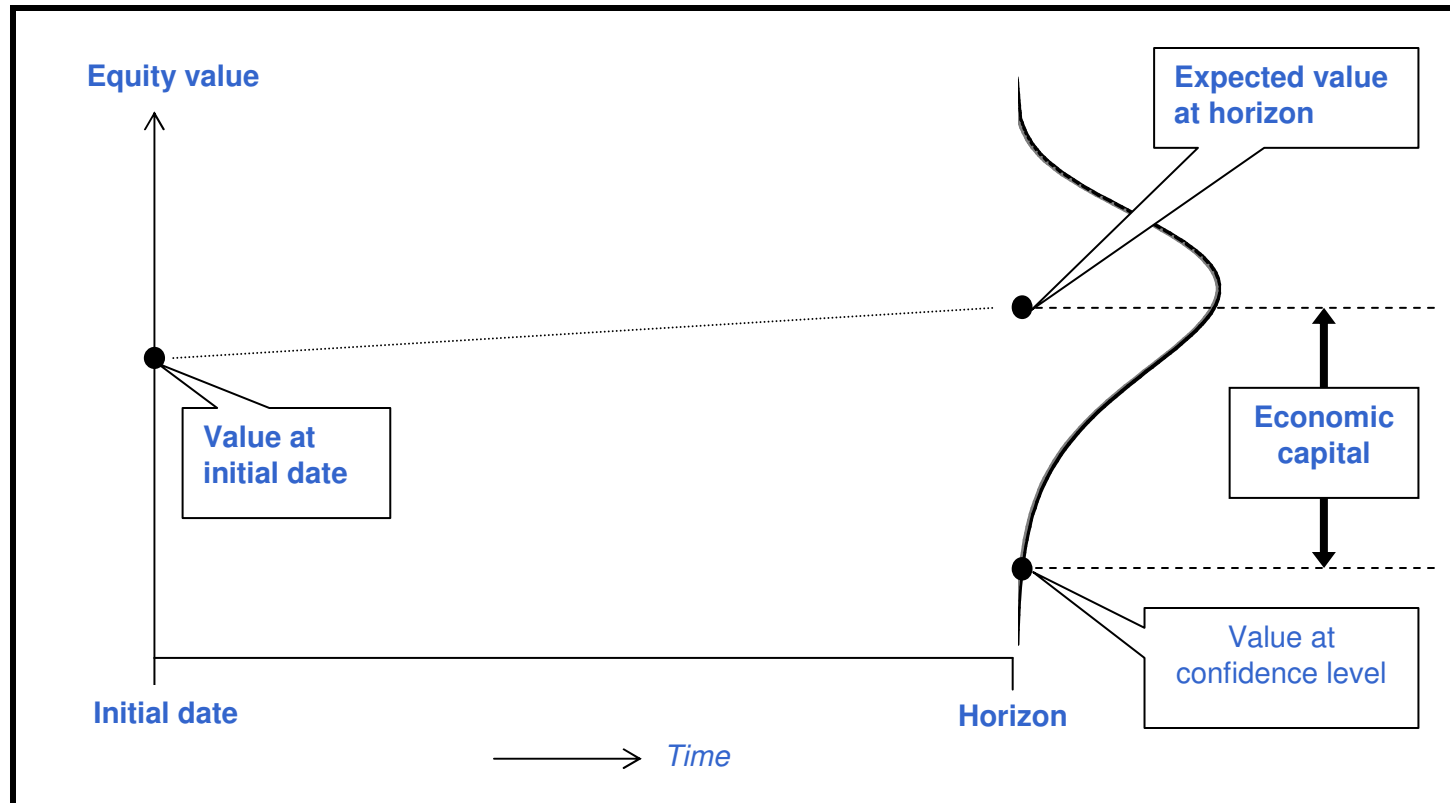
# Agenda

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- Our definition of Economic Capital
- History of Economic Capital
- Lessons from the Crisis
- Regulatory Response
- Why Economic Capital is important for Performance Management
- Design Choices when Economic Capital is used for Performance Management
- Future of Economic Capital

# Our definition of Economic Capital

An estimate of the maximum potential downward deviation of a firm's equity value from the expected equity value at a chosen time horizon (*one year*), subject to a chosen confidence level.

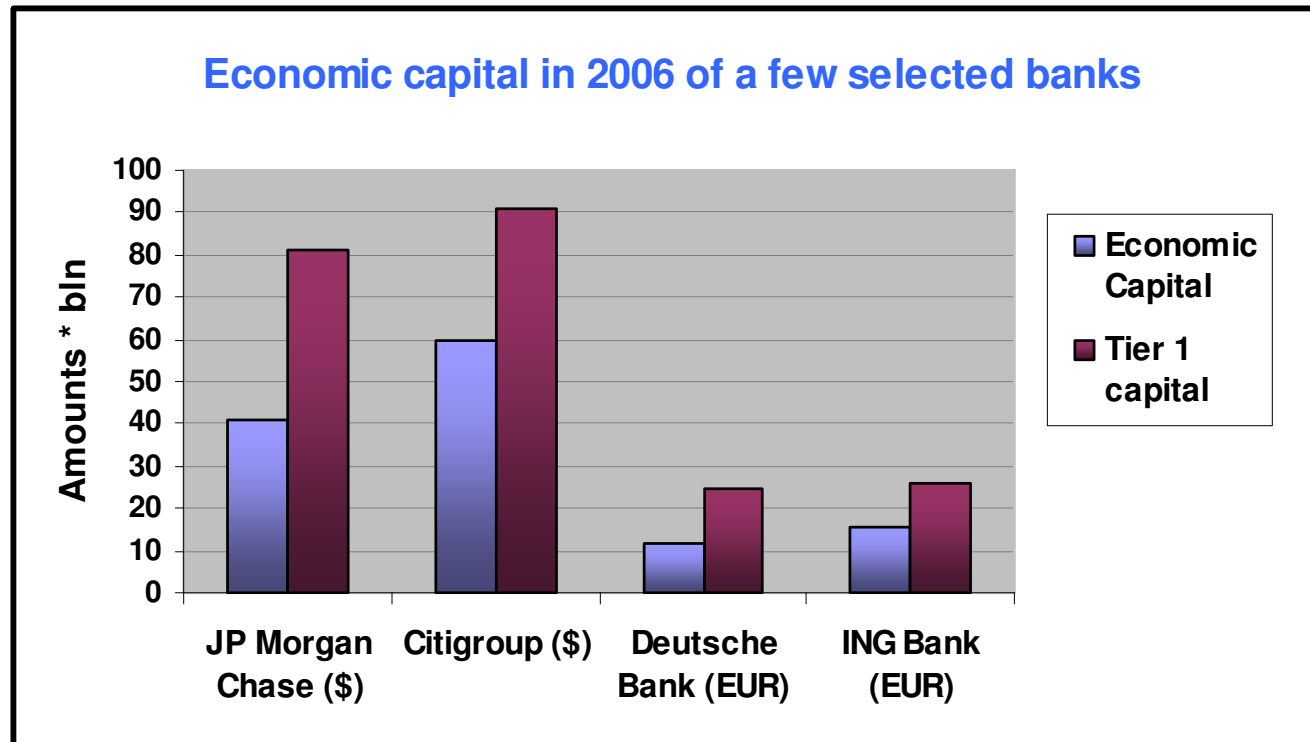


# History of Economic Capital

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- Introduced in 1970s by Bankers Trust
  - To evaluate profitability of transactions
  - Income expressed as return on EC contribution (RAROC)
- In 1990s, adopted by regulators in development of Basel II
- Since 1990s, increasingly used by financial institutions
  - To assess the amount of capital needed, and
  - To measure risk-adjusted performance.

# Economic Capital in 2006



- Economic capital includes credit, market and operational risk.
  - JP Morgan Chase includes Private Equity risk
  - Deutsche and ING include business risk
- For all banks, reported economic capital is significantly lower than the available Tier 1 capital.

# Lessons from the Crisis

## Why economic capital was often underestimated

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- Underestimation of default risk (eg. US sub-prime mortgages)
- Underestimation of model risk (eg. structured products)
- Underestimation of concentration risk (eg. mortgage exposures in banking as well as trading book)
- Underestimation of contagion risk (eg. spill-over to structured products in general, and financial institutions)

# Lessons from the Crisis

## The importance of a proper risk-return analysis

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- Return on complex structured products looked attractive compared to other assets with same rating
  - eg. AAA CPDO paid 1% or more over LIBOR
- Usually funded by short-term funding
  - Return on investment exceeds cost of funding ('carry')
- Ignored 'tail risks':
  - Potential illiquidity of investments
  - Potential rise in funding cost
  - Sufficiently extreme events wrt defaults rates
- Focus on net profit or revenues without considering risk provided incentives for such carry trades.

# Regulatory Response: Increase Capital Requirements

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The Basel Committee has announced several amendments to increase the minimum regulatory capital requirements of institutions. These include:

- Higher capital requirements for securitizations
  - Higher capital requirements for counterparty risk
  - Stressed market VaR
  - The introduction of a leverage ratio
  - Building capital buffers
  - Limit eligible (hybrid) capital instruments
- ⇒ Regulatory capital more likely to determine overall level of capital than economic capital

# Regulatory Response: Improve Remuneration Policies

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Incentives should discourage excessive risk-taking.

- **FINMA (Switzerland)**
  - "Size of [bonus] pools shall depend on long term performance of the firm"
  - "Risk are to be taken into account."
  - "Capital costs ... are to be considered in a comprehensive manner [and] shall reflect the risk profile of the firm."
- **Federal Reserve (USA):**
  - "incentive compensation should balance risk and financial results."
  - "Banks should consider the full range of risks as well as the time horizon over which those risks may be realized."

Four methods are mentioned, including *Risk Adjustment of Awards*:

- "Where reliable risk measures exist risk adjustment of awards may be more effective than deferral of payment in reducing incentives for excessive risk-taking."

# A moment for questions ...

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## Polling Question 2

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Are bonus payments in your firm influenced (partly) by risk-adjusted performance measured such as RAROC, EVA or Economic Profit?

- a) Yes, but only for a small group (e.g. top management)
- b) Yes, for a broad group (e.g. staff involved in risk taking)
- c) No, because economic capital is not calculated
- d) No, although economic capital is available

# Why *risk-adjusted* performance?

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To take account of full range and time horizon of risks.

- Bonus deferral with, say, 3 years is not likely to prevent search for carry trades that involve tail risk.

For example:

- Leveraged loan with default probability of 4% is expected to generate profit equal to loan margin in 24 out of 25 years
- Writing far out-of-the money options on stock index can be structured in such a way that only once in 25 years it is expected to expire in-the money. The other 24 years the strategy delivers a (small) profit.

# Measuring *risk-adjusted* performance?

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- Commonly used measures:

$$\text{RAROC} = \frac{\text{Profit}}{\text{Economic Capital}}$$

$$\text{Economic Profit} = \text{Profit} - \text{Economic Capital} \times \text{Cost of Capital}$$

- Economic Capital x Cost of Capital represents the ‘risk cost’ of the activity.
- Profit often written as  
Revenues – Cost – Expected or Realized Loss

## Design Choices: What definition of capital?

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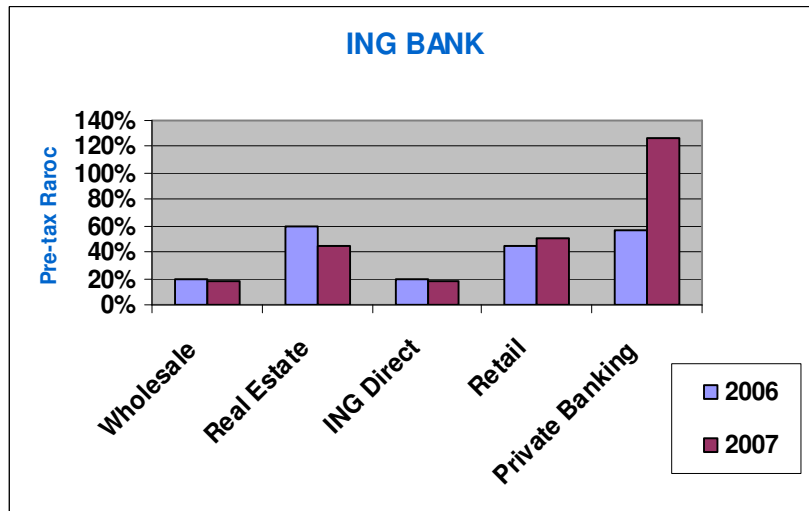
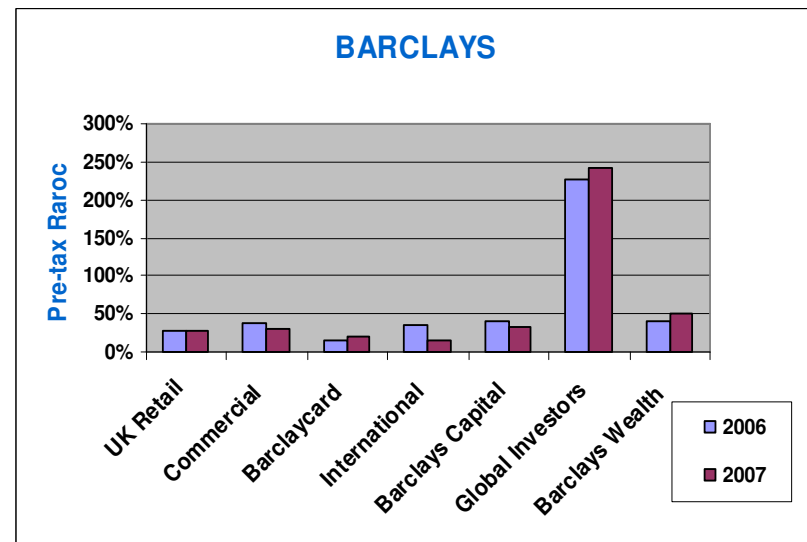
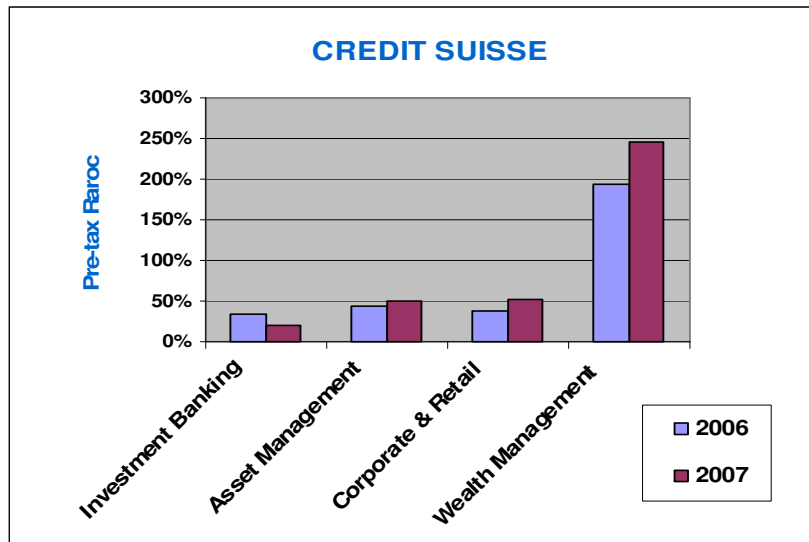
- Many firms derive confidence level from target rating of senior debt
  - Implies that available capital consists of all equity and debt instruments that are junior to senior debt
- Performance management aims to provide attractive returns to equity investors
- Hence, available capital logically consists of equity capital (including retained earnings)
  - Confidence level derived from capital or debt instruments just senior to equity capital

## Design Choices: Include franchise value in economic capital?

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- Franchise value equals the NPV of future earnings related to future assets and liabilities that are not on the firm's current balance sheet.
- Shareholders require return on market value of capital, ie. including franchise value.
- For capital adequacy purposes regulators focus on book value of capital, ie. excluding franchise value.

# Is RAROC good performance measure if franchise value is disregarded?



**RAROC is typically overestimated for business lines with high franchise value, here asset management and private banking.**

# Design Choices: include inherent risks in performance measure?

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## Position Risks:

Credit risk  
Market risk  
ALM risk  
Insurance risk

## Inherent Risks:

Operational risk  
Business risk  
Tax risk

- Q For capital adequacy obviously all relevant risks should be included, but is it fair to include inherent risks (i.e. risks that cannot be avoided and that can be influenced less directly) in performance management?
- A Since a business line's overall return is a compensation for all the risks to which it is exposed, all risks should be included in the performance measure

## How may RAROC influence incentives in your firm?

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- + Disincentive to take risks that are not compensated by revenues.
- ± Use of expected versus realized losses
  - Use of expected loss avoids rewarding “luck” and penalizes “bad luck”
  - But may be undesirable if actual losses can be influenced (e.g. work-out department)
- Business units may argue to decrease attributed economic capital
  - If additional revenues are scarce then risks may be talked down rather than managed down. This requires a strong and independent risk management function to counterbalance.

# Economic Capital after the Crisis

## Applying lessons learned

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- Economic Capital is as accurate as the ability of a firm to identify the risks to which it is exposed.
- Regulatory capital requirements will increase and may even exceed economic capital
- The desire to make remuneration policies more risk-sensitive and the scarcity of capital that necessitates an efficient allocation of capital will increase the role of economic capital in performance management
- Design choices for economic capital estimates need to be reviewed with increasing role of economic capital in performance management.

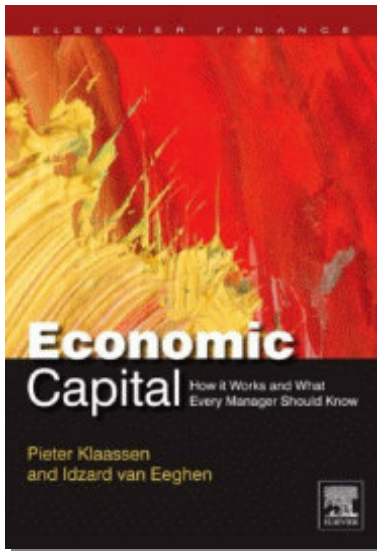
## Polling Question 3

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Do you think in 3 yrs time your firm will use risk-adjusted performance measures (RAROC, EVA, EP) to partially set bonuses?

- a) Yes, the firm is already using such measures
- b) Yes, this will be new to the firm
- c) No, these measures are too complex and not transparent
- d) No, these measures are deemed inaccurate
- e) No, for other reasons

# Where can I find out more ?



Economic Capital: How It Works, and What Every Manager Needs to Know  
by **Pieter Klaassen and Idzard van Eeghen**

Available at an exclusive 30% discount for webinar participants. Follow the instructions in our follow-up Email.



**With the increased importance of economic capital models for the management of financial institutions, senior managers need to understand clearly the concepts, assumptions, and limitations of these models. This book contributes greatly to this understanding by the intuitive, non-mathematical way in which it approaches the subject.**



**Nout Wellink, Chairman of the Basel Committee on Banking Supervision and President of De Nederlandsche Bank**



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