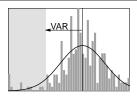
## From VAR to ERM: Latest Advances in Risk Management



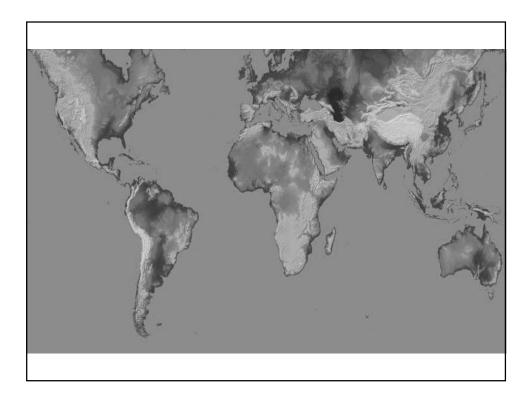
## Philippe Jorion

University of California at Irvine July 2004

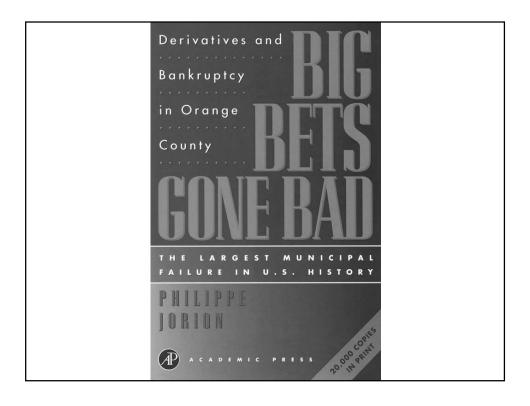
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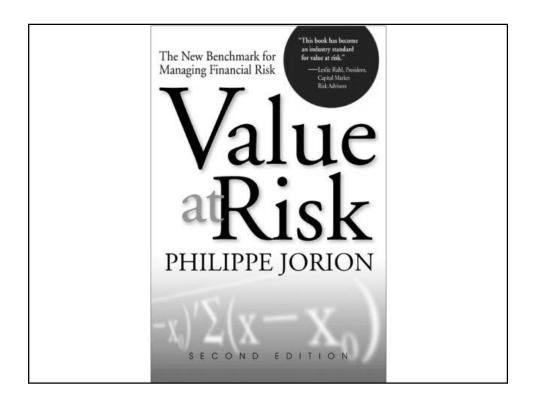
## From VAR to ERM: PLAN

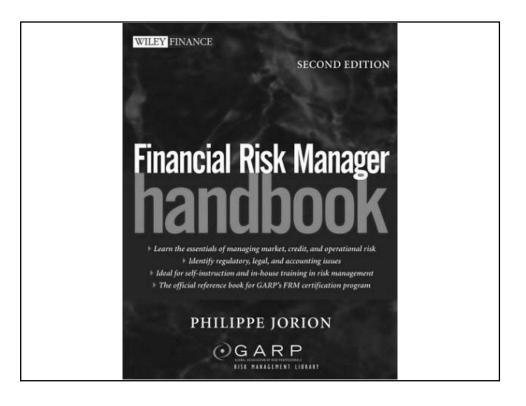
- (1) Background
- (2) UCI
- (3) Risk management
- (4) GARP and the FRM
- (5) Plan of seminar

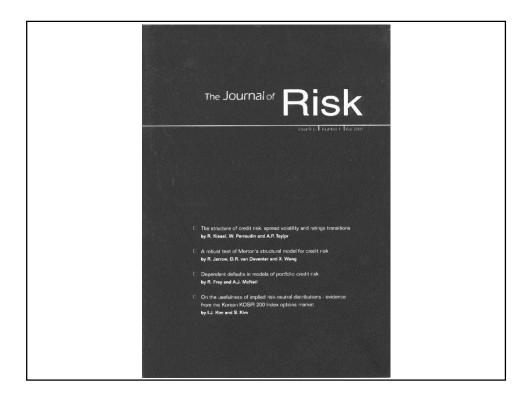












## Introduction



#### **UC-Irvine**

- Founded in 1965, UC-Irvine is a major research university, ranked #11 among U.S. public universities
- Now the fourth-largest campus in the University of California system with 1,200 faculty and 23,000 students
- Located in Southern California's Tech Coast, one of the highest concentrations of technology firms and talent in the world

Risk Management - Philippe Jorion

## Graduate School of Management at UC-Irvine

- Graduate School of Management is ranked among top business schools in the world
- GSM offers four MBA programs, PhD degrees, outstanding students, and its current enrollment is about 900
- GSM has had a long association with the KAIST business school, providing specialized classes to students in Financial Engineering



KAIST uate School of Management 금융공학전공

Risk Management - Philippe Jorion

# Business Week's Intellectual Capital (IC) Criterion

- BW calculates "...each schools' <u>intellectual</u> <u>capital</u> rating by tallying academic journal entries from 18 publications... The tallies were adjusted for faculty size..."
- This criterion is one of the inputs into the BW top-50 rankings
- IC measures the average productivity of faculty per capita
- \*The 18 journals used in the ranking are:

Accounting Review, Academy of Management Journal, Personnel Psychology, Information Systems Research, Journal of Business Ethics, Journal of Finance, American Economic Review, Harvard Business Review, Journal of Accounting Research, Journal of Financial Economics, Management Science, Academy of Management Review, Sloan Management Review, Journal of Marketing Research, Operations Research, Strategic Management Journal, Journal of Business Logistics, Journal of Marketing



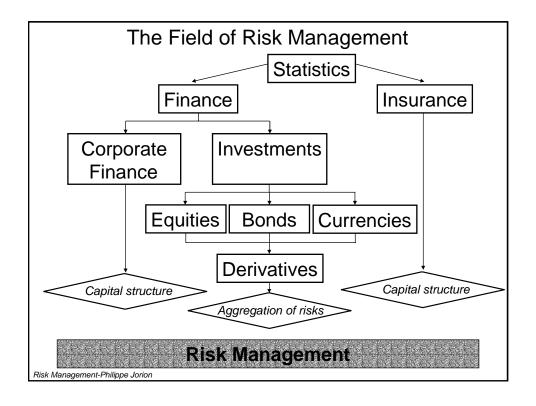
# Business Week's IC Criterion for 2002

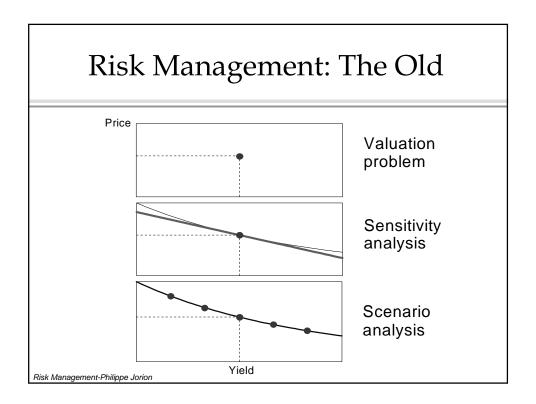


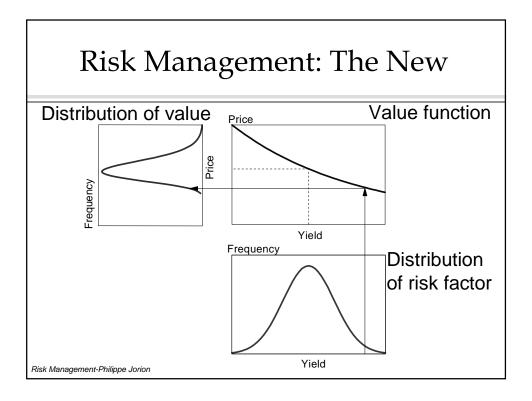
- 1. Stanford
- 2. MIT
- 3. Berkeley
- 4. Duke
- 5. UCI
- 6. Harvard
- 7. Columbia
- 8. Wharton
- 9. Yale
- 10. UCLA

#### Introduction

Risk Management







# Introduction GARP

# Global Association of Risk Professionals OGARP

- Established in 1996 as a non-profit association
- ●MISSION STATEMENT: "To be the leading professional association for risk managers, managed by and for its members dedicated to the advancement of the risk profession through education, training and the promotion of best practices globally."
- ■Now: more than 38,000 members
- Administers the "Financial Risk Manager"
   (FRM) examination, the world's most prestigious certification program in risk management

Risk Management-Philippe Jorion

#### FRM Examination

- The FRM Exam is designed to test for a mixture of basic analytical skills, general knowledge and intuitive capability acquired through experience in capital markets
- It focuses on the core body of knowledge required for independent risk management analysis and decision making
- 5 hours examination

Risk Management-Philippe Jorion

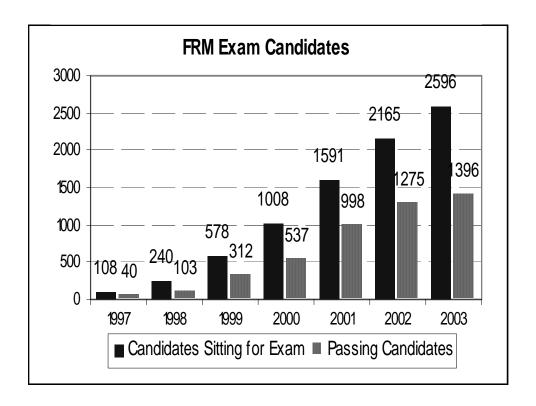
FRM Exam Topics	
Topic	Percentage
I. Quantitative	10%
II. Market Risk Management	30%
III. Credit Risk Management	25%

IV. Operational & Integrated Risk Management 20%

V. Legal, Accounting, and Ethics <u>15%</u>

**Total** 100%

Risk Management-Philippe Jorion



# From VAR to ERM: PLAN

- (1) Assessing Market Risk
- (2) Measuring Market Risk
- (3) Managing Credit Risk Validation under Basel II
- (4) Managing Market Risk
- (5) Managing Operational Risk
- (6) Entreprise-Wide Risk Management

## References

- Philippe Jorion is Professor of Finance at the Graduate School of Management at the University of California at Irvine
- Author of "Value at Risk," published by McGraw-Hill in 1997, which has become an "industry standard," translated into 7 other languages; revised in 2000
- Author of the "<u>Financial Risk Manager Handbook</u>," published by Wiley and exclusive text for the FRM exam; revised in 2003
- Editor of the "Journal of Risk"
- Some of this material is based on the online "market risk management" course developed by the Derivatives Institute: for more information, visit www.d-x.ca, or call 1-866-871-7888

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#### For More Information

- Some of this presentation is based on an online "market risk management" course series developed by the *Derivatives Institute* at the *Bourse de Montréal*
- This 20-hour course provides in-depth, self-paced training using state-of-the art multimedia design and web delivery
- The course is highly interactive, with animated graphs and interactive equations illustrating important concepts
- Each module contains self-test questions and an extensive quiz section including sample questions from the Financial Risk Manager (FRM) examinations

For more information, visit www.d-x.ca, or call 1-866-871-7888



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The Market Risk Management Series of five courses provides a complete understanding of market risk and the issues involved in measuring, computing and managing that risk. The courses cover the concepts, tools and methods used to manage market risk, including identifying sources of risk, derivatives, hedging and VAR methods.

#### Who Can Benefit

This series of courses uses a comprehensive and progressive approach. It is suitable for practitioners, at all levels of expertise, who manage exposure to market risk. These include:

- Treasurers, assistant treasurers and other risk officers who manage market risk exposures in commercial firms, commercial banks, central banks, investment banks, mutual funds, pension funds, brokerage firms and insurance companies.
- Financial analysts.
- Executives whose firms are exposed to market risk.
- Professionals who need to understand how market risk is measured, assessed and managed in a diversified portfolio of financial instruments (equity, fixed income, currency, commodity).
- Individuals preparing for GARP's Financial Risk Manager™ (FRM™) exam. The series is based on The Financial Risk Manager Handbook, Second Edition by Philippe Jorion (John Wiley & Sons, Inc.), and each course includes sample questions from the FRM™ examinations.

#### Course Developer

Developed by Professor Philippe Jorion (University of California at Irvine), the courses incorporate a sound pedagogical approach that emphasizes practical applications and the development of strong analytical and problem-solving skills.

#### State-of-the-art Web Delivery

Each course in the series was designed for the Web and uses the latest in multimedia design to deliver an exceptional learning experience to participants. The courses are highly interactive, with animated graphs and interactive equations illustrating important concepts. Each course contains self-test questions and an extensive quiz section.

#### Topics

#### Market Risk Management Series – Outline of the five courses

#### Course 1 – Introduction to Market Risk Measurement (code 411)

- Definition
- Review of probability distributions
- Measuring Value at Risk (VAR)
- Choosing VAR parameters
- Pros and cons of VAR measures
- Stress-testing

#### Course 2 – Sources of Market Risk (code 412)

- Types of risk
- Sources of market risk
- Fixed-income risk
- Equity risk
- Currency risk
- Commodity risk
- Liquidity risk

#### Course 3 – Managing Linear Risk (code 421)

- Pricing forward and futures contracts
- Risk management with forwards and futures
- Optimal hedging
- Hedging fixed-income, equity, and option portfolios

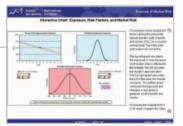
#### **Course 4** – Managing Non-Linear Risk (code 422)

- Option contract features
- Option pricing
- Mapping options on risk factors
- Measuring exposures for complex portfolios
- Risk management with options

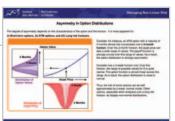
#### Course 5 – VAR Methods (code 423)

- Introduction to modern risk measurement systems
- Local versus full valuation methods
- Mapping positions on risk factors
- Modeling portfolio risk
- VAR measurement methods











## About the Derivatives Institute

The Derivatives Institute continues the Montréal Exchange's proud tradition of providing training and education to individual investors and finance professionals. The Derivatives Institute was created in April 2001 as a key component of the Exchange's reorientation as a specialized derivatives exchange, with the goal of providing practical and applied derivatives training to the Canadian and international marketplaces.