

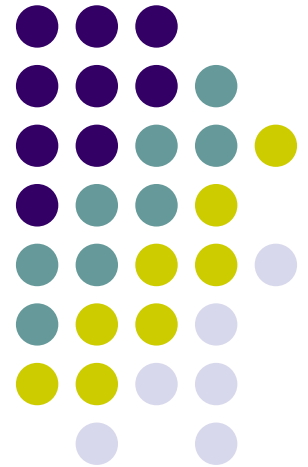
# Role of Risk Management and The Board/CEO Perspective

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Moscow, June 2008

Prof. Dan Galai

Sigma PCM and Hebrew University

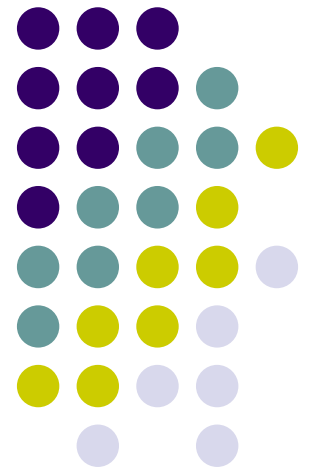




Dan Galai is the Abe Gray Professor of Finance and Business Administration at the Hebrew University, School of Business Administration, in Jerusalem. He was a Visiting Professor of Finance at INSEAD and has also taught at the University of California, Los Angeles, and the University of Chicago. Dr. Galai holds a Ph.D. from the University of Chicago and undergraduate and graduate degrees from the Hebrew University. He has served as a consultant for the Chicago Board of Options Exchange and the American Stock Exchange as well as for major banks. He has published numerous articles in leading business and finance journals, on options, financial assets, and corporate finance, and was a winner of the first Annual Pomeranze Prize for excellence in options research presented by the CBOE. Dr. Galai is a Principal in SIMGA P.C.M., which is engaged in portfolio management and corporate finance.

# I. Why is Risk Management so Complicated?

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# Why is Risk Management so Complicated?



**The major difficulties are that risk is**

- **Intangible**
  - **Expressed in probability terms**
- and**
- **There is one realization against a whole spectrum of expectations**

# Why is Risk Management so Complicated?



**Management must make decisions**

- **ex-ante,**
  - **under uncertainty**
- and**
- **With limited information.**

# Why is Risk Management so Complicated?



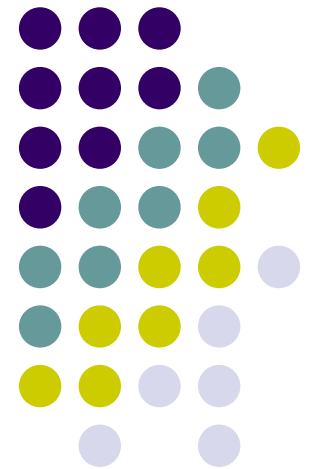
## The Board of Directors' dilemmas

- How to monitor the risks?
- How to assess them?
- How to have the right incentives so that management makes the “best decisions”?

**The CEO is critical in this system-he supplies the information to the BOD**

# II. Required Steps in Risk Management

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# Required Steps in Risk Management



**1. Determine an Objective Function, and Set Limits.**

**2. Map Risks.**

**3. Find Relevant Instruments for Risk Management.**

**4. Construct a Strategy.**

**5. Implement Strategy/Tactics.**

**6. Check Performance (against Objective Function).**



# 1. Determine an Objective Function



The objective function must

- Be feasible
- Be consistent with overall strategic plan of the firm
- Take risk-return trade-offs into account
- Be reevaluated after a certain period or with changing conditions.

# 1. Determine an Objective Function



Some difficult issues:

How to determine the Risk-Return trade-offs

How to set risk limits

What is the relevant time horizon

Accounting vs economic profits

What risks should be taken into consideration

Top-down approach

# 1. Determine an Objective Function



## Case Study 1:

- In 2006 the BoD of a bank decided to raise return on equity from 10% to 12%.
- As a result the bank purchased AAA CDOs and SIVs.
- Yielding heavy losses during 2007/2008

# 1. Determine an Objective Function

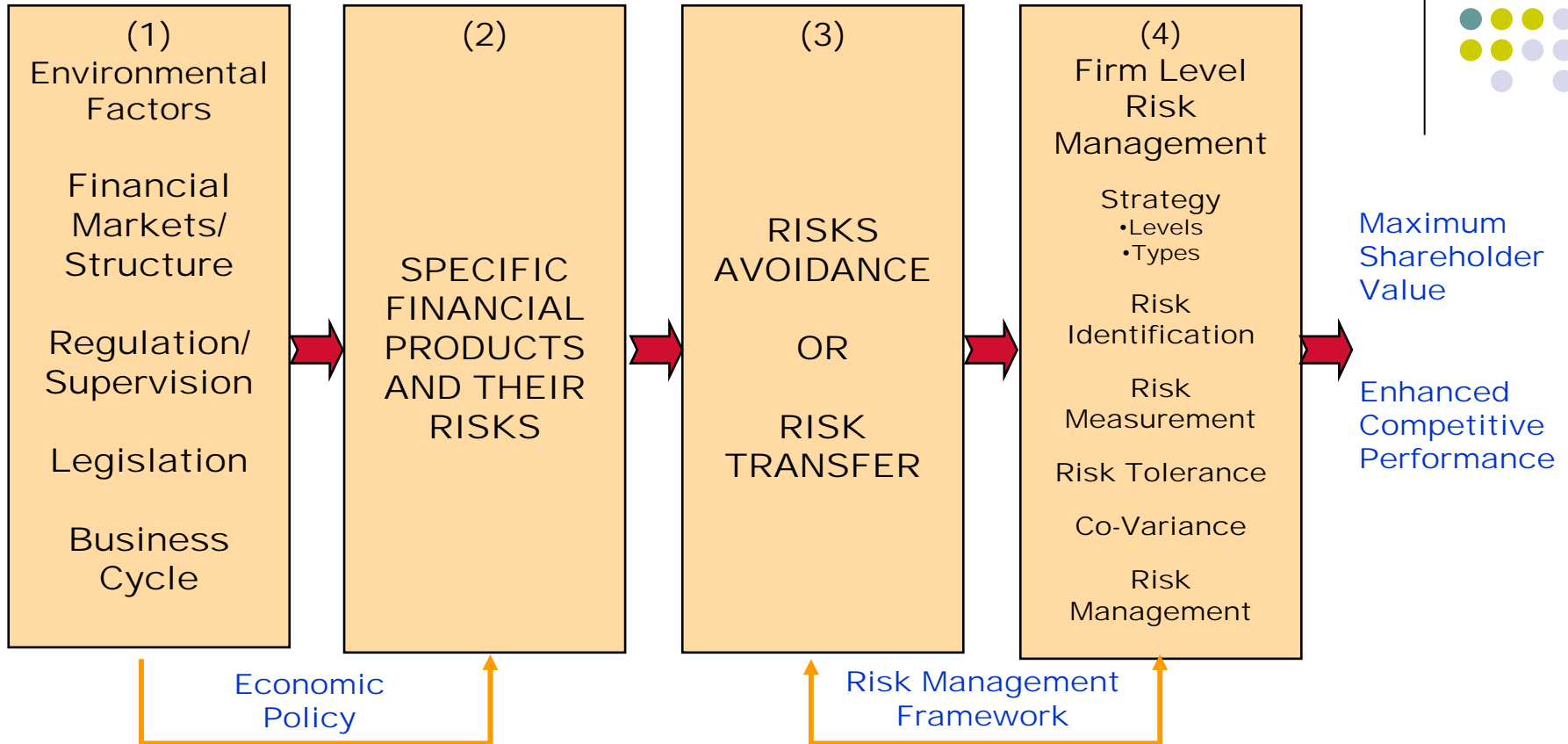


## Case study 2: **MGRM**

10-year short position in oil is hedged with short-term derivatives- the accounting implications!



# An Overview of The Risk Management Process



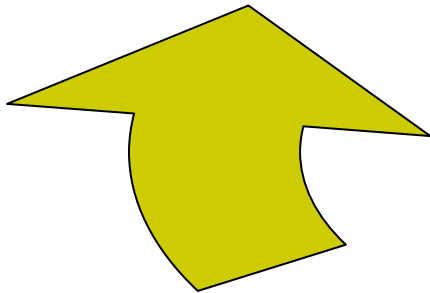
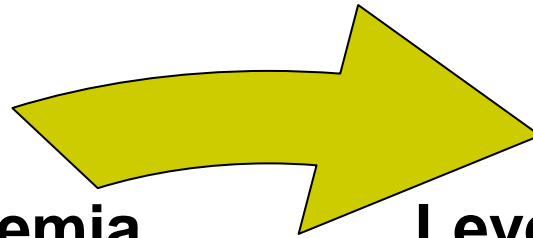
Environmental factors (1) drive the nature of financial services products (2). Firms determine which risks to transfer or avoid (3). The last step in the process is to establish a substantial risk management process for those areas of risk the firm intends to actively manage (4)

# Environmental Factors



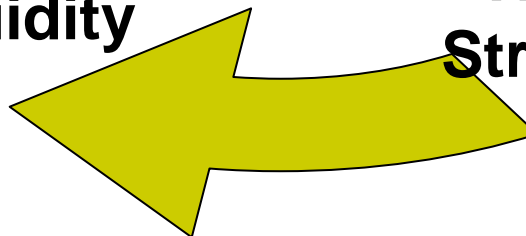
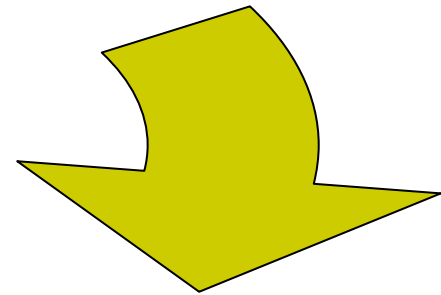
**Shrinking Risk Premia**

**Leveraged Positions**



**High Global Liquidity**

**Higher Yields on Structures Products**



# The Economists's Accepted Objective Function\*:



**Maximize market value of the firm/bank**

**Accept projects with  $ANPV \geq 0$**

**How to adjust for risks?**

**How to account for dependencies?**

**Implementation problems**

**All economic models are based on a Perfect Capital Markets (PCM) assumptions.**



# Objective Function

**In a bank:**

**Most of the risks on the assets side are credit risks, and some are market risks (+operational risks + liquidity risks)**

**All risks on the liability side are market risks**

**In a non-bank corporations**

**Most of the risks on the assets side are operations risks and some are credit, market and operational risks**





## 2. Map Risks

**-Operations risk vs. financial risk**

**-Financial risk:**

**Market Risk**

**Credit Risk**

**Operational Risk**

**-Systematic vs. nonsystematic  
(idiosyncratic) risk.**

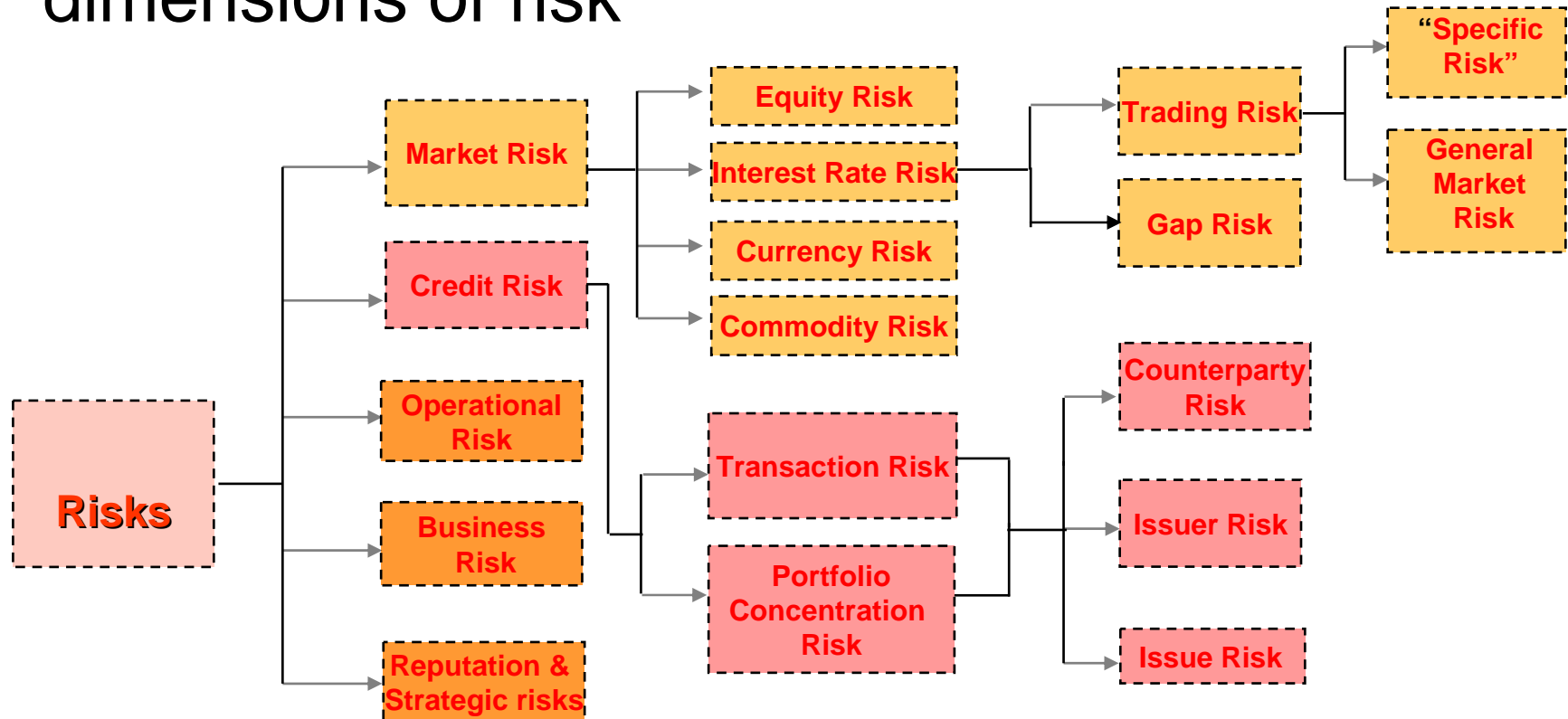
**-Insurable risk vs hedgeable risk vs non-  
insurable and non-hedgeable risk.**

# Schematic presentation, by categories, of the risk exposures.



(need to made comprehensively disclosed Risks in Pillar 3 )

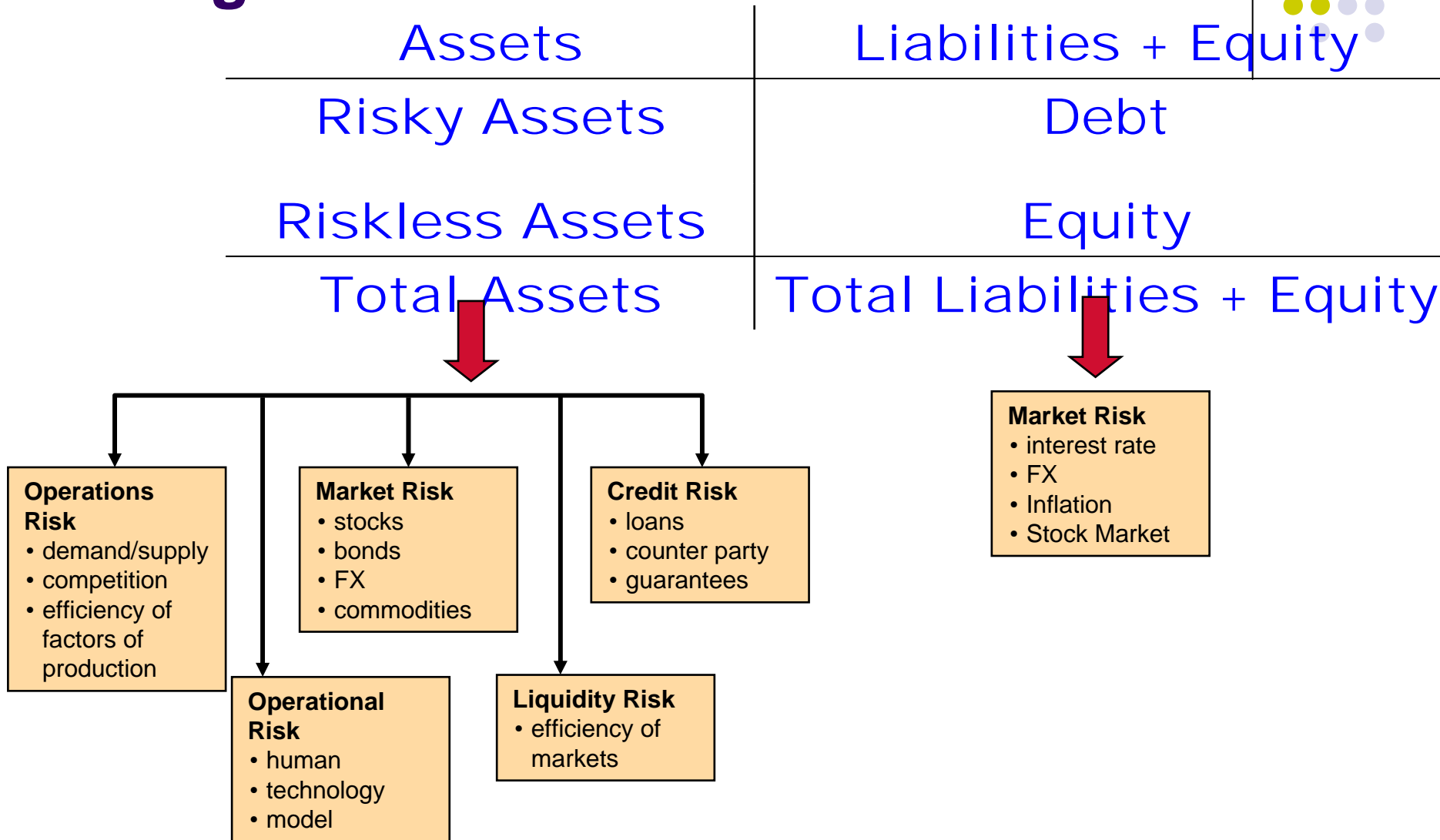
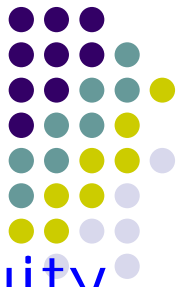
One can “slice and dice” these multiple dimensions of risk



•For more details, see “Essentials of Risk Management”

• by Crouhy, Galai and Mark (McGraw Hill)

# Firm-wide Approach to Risk Management



# 3. Instruments for Risk Management



**Internal instruments**

**External instruments:  
market traded vs. OTC**

**Accounting and tax treatment**

**Counterparty credit risk**



## **4. Construct a Strategy**

**Determine risks to hedge or insure**

**Determine time horizon for hedging**

**Budget risk management**

**Set models and estimate parameters**



## **5. Implement Strategy**

**Consistency of Risk Management with Business Strategy of the Bank.**

**Timing of Implementation.**

**Costs/Benefits Considerations.**

**Synchronization of Various Systems in the Bank**



## **6. Check Performance**

**Continuous Process.**

**Always, check against Objectives.**

**-Remember:**

**All Derivatives are Zero Sum Game**

**-Remember when Hedging:**

**When One Instrument Increases in Value, the  
Other Instruments Decrease in Value**