Chapter 1

Introduction to Enterprise Risk Management and Insurance

Enterprise Risk Management
• Logical process used by firms to deal with multifaceted exposures to loss.
• Continuous process that identifies exposures and decides how to deal efficiently with them.
• Process that examines all risks collectively.
• Number of reasons:
  • Catastrophic Loss Events.
  • Corporate Financial Failures.
  • Shrinking Employee Benefits.

Risk – Classification
• Pure Risk – exposure that can result in a loss or no change (two possible outcomes).
• Speculative Risk – exposure that can result in a loss, no change, or gain (three possible outcomes).
Risk – Classification

- **Diversifiable Risk** – financial losses of a few members are spread across a much larger number of the group: “Risk Pooling.”
- **Non-Diversifiable Risk** – cannot be spread, but affects all members.

Spreading Risk

<table>
<thead>
<tr>
<th>Number of Exposures</th>
<th>Probability of the event</th>
<th>Standard Deviation</th>
<th>Expected Value</th>
<th>Coefficient of Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.970</td>
<td>0.970</td>
<td>0.970</td>
<td>0.5394</td>
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![Graph showing the relationship between Objective Risk and Number of Exposures](image-url)
Insurance works well when:

- Many individuals purchase
- Paying relatively small premium amounts
- Few people collect
  - Keeps rates affordable
  - Losses can be large

Risk – Classification

<table>
<thead>
<tr>
<th>Divisible Risk</th>
<th>Non-Divisible Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure risk (insurer risk pool)</td>
<td>Building fire</td>
</tr>
<tr>
<td>Speculative risk (investment portfolio)</td>
<td>Auto accident</td>
</tr>
<tr>
<td>(Failed) launch of new product</td>
<td>Changes in input prices (corn, gas)</td>
</tr>
<tr>
<td></td>
<td>Unemployment</td>
</tr>
<tr>
<td></td>
<td>Flood</td>
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<td></td>
<td>Economic recession</td>
</tr>
<tr>
<td></td>
<td>Global inflation</td>
</tr>
</tbody>
</table>

Risk – Classification

- **Risk Aversion** – firms and individuals prefer to take less risk rather than more.
- **Risk-Return Trade-Off** – if taking more risk, firms and individuals expect a higher return.
Attitudes Toward Risks

- **Risk averse** refers to shying away from risks and preferring to have as much security and certainty as is reasonably affordable.
- **Risk seeker** is someone who will enter into an endeavor as long as a positive long run return on the money is possible, however unlikely.
- **Risk neutral** attitude is seen when one's risk preference lies between the extremes of risk averse and risk seeking.

Benefits Compared to No Insurance

- Stability of families.
- Aids planning ability to businesses.
- Facilitates credit transactions.
- Anti-monopoly device.
- Reduces credit costs.
- Increases capital efficiency.

Social or Private?

- Insurance is a financial agreement in which an individual pays a premium to transfer the financial consequences to a risk pool.
- **Social** – administered and funded by governmental bodies.
- **Private** – independently owned and operated.
Employee Benefit Plans

- Nonwage compensation provided by firms as a protection from a number of personal pure risks:
  - Health.
  - Life.
  - Disability.
  - Retirement.

Risk Management Process

**FIGURE 1-1 Steps in the Risk Management Process**

- Establish the Goals of the Risk Management Function
- Identify Potential Loss Exposures
- Measure Potential Loss Exposures
- Choose Risk Handling Techniques
- Implement Techniques and Monitor Effectiveness

Risk Management Process
Identify Potential Loss Exposures

- Property Risks.
- Liability Risks.
- Human Resource Risks.
- Indirect Losses.

Measure Potential Loss Exposures

- Frequency of the loss.
- Severity of the loss.

Beginning Steps: Communication and Identification

- **Risk mapping**: Charting entire spectrums of risk, not individual risk "silos" from each separate business unit.
- Risk identification and estimates of frequency and severity
- Plotting the risk map
Risk Handling Techniques

- Loss control – reduce the frequency and/or severity.
- Loss transfer – (contractual) arrangement to transfer risk to party that is best at mitigating, controlling, or bearing it.
- Loss financing – arrangement to pay for future costs.

Loss Control - Reduction

**Always engage in, if beneficial**

- Loss Reduction:
  - Steps designed to reduce the frequency and/or severity.
  - Take steps to reduce the damage before and after a loss.
**Loss Transfer**

- Hold harmless agreements - transfer of risk through a contract.
- Hedging - take equal but opposite position on an even based on chance.
- Financial risk management - techniques to deal with interest rate, currency value, and crop price changes.
- Leases - transfers risk of obsolescence.

**ERM – Integrated Framework**

- Top-Down Corporate Focus.
- Broad Scope of Loss Exposures.
- Portfolio Perspective for Diversification Opportunities.
- Systematic Process of Risk Identification, Assessment, and Treatment.

**ERM – Recent Loss Events**

- Hazard Risks, e.g. WTC or death of Michael Jackson.
- Financial Risks, e.g. credit crisis started in an obscure part of real estate financing.
- Operational Risks, e.g. supply chain disruption.
- Strategic Risks, e.g. reputation loss.
Reputation

- Reputation is a valuable asset
- Value of reputation is PV of cash flows earned when you continue to perform as promised
- Cost of lost reputation is the PV of higher costs/lost revenue when firms are discovered to have cheated their investors, suppliers, employees, or customers.
  - Counterparties stop doing business with the firm, or change the terms with which they are willing to continue to do business with the firm.
- Reputation is difficult to build, easy to damage
- Risks to reputation are important strategic risks

What deters fraud: Three legs of a stool...

1. Regulations and regulators
2. Personal ethics and integrity
3. Market forces
   - Repeat contracting and reputation

Obvious once you point it out, but underappreciated

Xerox’s cumulated market-adjusted returns
January 1997 – December 2006
Xerox’s reputation loss...

Price inflation during the violation period

$16.864b

Readjustment (back to $15.725b) = 23% of loss

Hypothetical value without the short-term inflation from cooking the books

$15.725b

Loss due to legal penalties = $0.523b = 10% of loss

Reputation loss = $3.33b = 67% of loss

$11.864b

Actual price path

Xerox’s experience is close to the norm:

Legal headaches are relatively small

This is the larger part of the story

Reputation loss 66%
Product recalls

- Direct cost = 23%
- Reputation loss = 77%

Sources: Jarrell and Peltzman (JPE 1985), Rubin, Murphy, and Jarrell (Regulation 1988), Barber and Darrough (JPE 1990)

Frauds of private par

- Direct cost = 7%
- Reputation loss = 93%

Sources: Karpoff and Lott (JLE 1992), Alexander (JLE 1998), Murphy, Shrieves, and Tibbo (JQA 2000)

Airplane crashes

(when airline bears some blame)

- Direct cost = 38%
- Reputation loss = 62%

Sources: Chalk (Econ Inq. 1990), Mitchell and Malikay (JLE 1998), Rosenstiel and Zimmerman (AER 1988)
Environmental violations

Sources: Klassen and McLaughlin (Mgmt. Sci. 1996), Karpoff, Lott, and Wehrly (J.E 2005)

Why is reputation important for some types of misconduct and not for others?

- Product recalls, frauds
  - Firm has repeat business with harmed parties, or potentially harmed parties
  - Customers, suppliers, employees change the terms of contract to reflect the higher probability that they will be harmed
- Environmental violations
  - Harmed parties do not in general do business with the firm
  - Parties with whom the firm does business suffer little or no direct harm
  - Customers, suppliers, employees have no incentive to change the terms of contract