

University of Tourism and Business Studies (UTB)

Principles of Risk Management & Insurance

June – July 2016

Introduction

Fair Bet

- Cost Equals Expected Gain
- $\text{Cost} = P * (\text{Amount you Win})$
- Example: Flipping a Coin
 - Cost = \$10
 - $P = .5$
 - Amount You Win = \$20

Is This A Fair Bet?

- Flipping A Coin
 - Cost = \$50
 - Amount You Win = \$75

Risk Taking Behavior

- Risk-Averse
- Risk-Neutral
- Risk-Taker (Risk-Seeker, Risk-Lover)

Risk and Uncertainty

- **Risk:** A situation in which several different outcomes are possible.
- **Uncertainty:** The perception that several different outcomes are possible.

Categorizing Risk

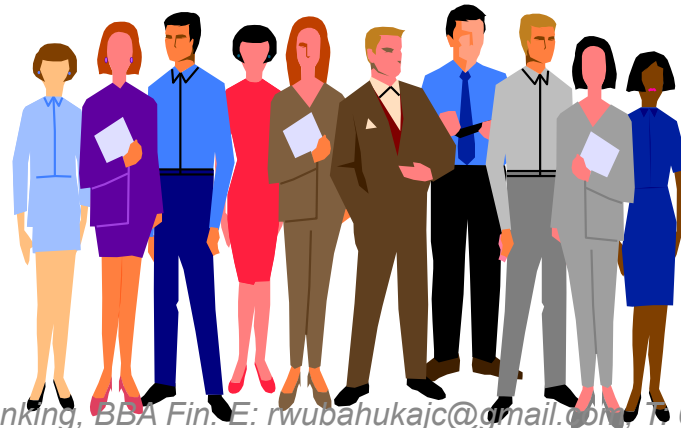
- Pure Risk v. Speculative Risk
- Diversifiable Risk v. Nondiversifiable Risk
- Fundamental Risks and Particular Risks

Pure Risks v. Speculative Risks

- Speculative Risks are Usually Chosen
 - Stock Appreciation
 - Manufacturing and Selling a Product
- Pure Risks are Usually a Byproduct
 - Automobile Accident
 - Sports Injury

Diversification

- Pooling Similar Risks
 - INSURANCE
- Pooling Offsetting Risks
 - A DIVERSIFIED PORTFOLIO



Why Reduce Uncertainty

- Individual
- Corporations
- Government

Why Manage Risk? Individuals

- Reduce anxiety

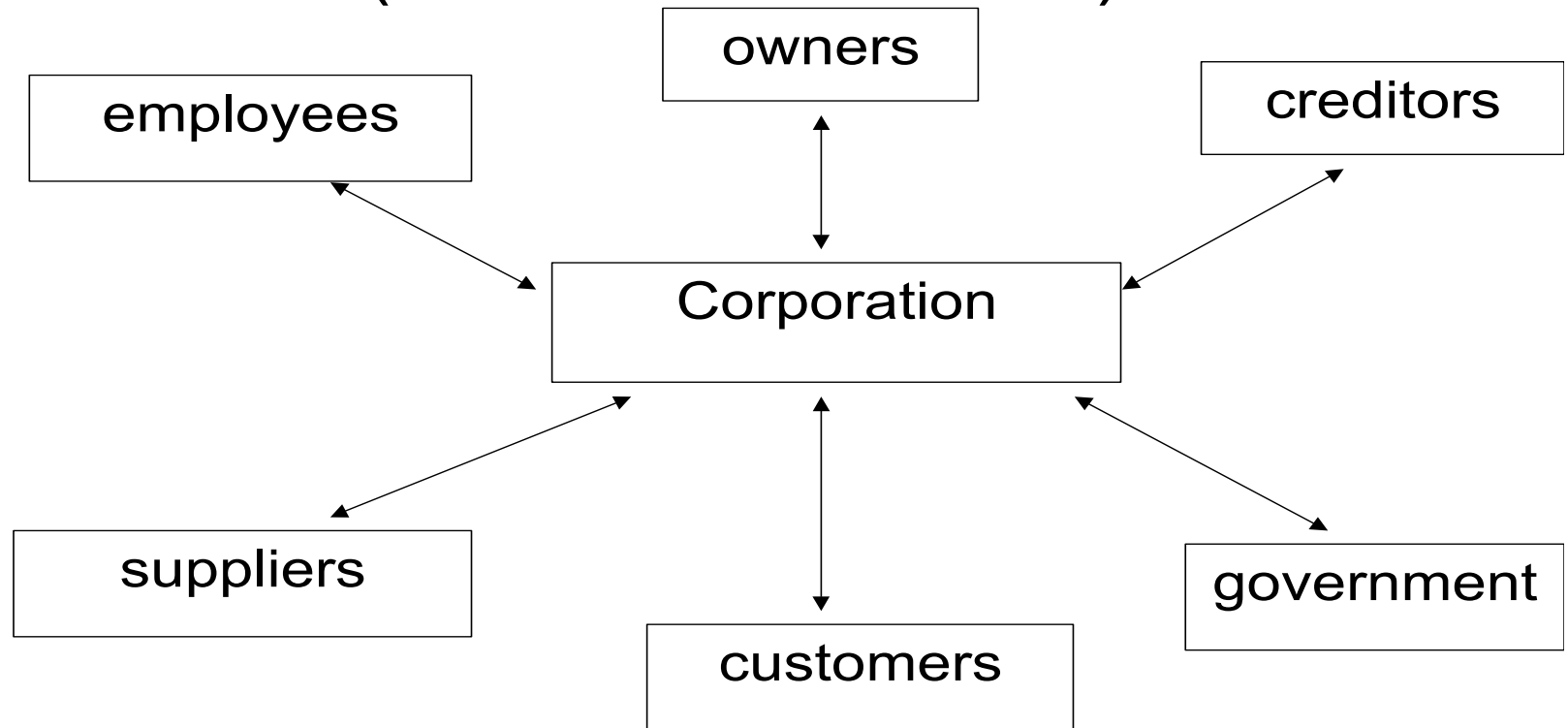


- Planning



Why Manage Risks: Corporation

(Nexus of Contracts)



Modern Risk Management

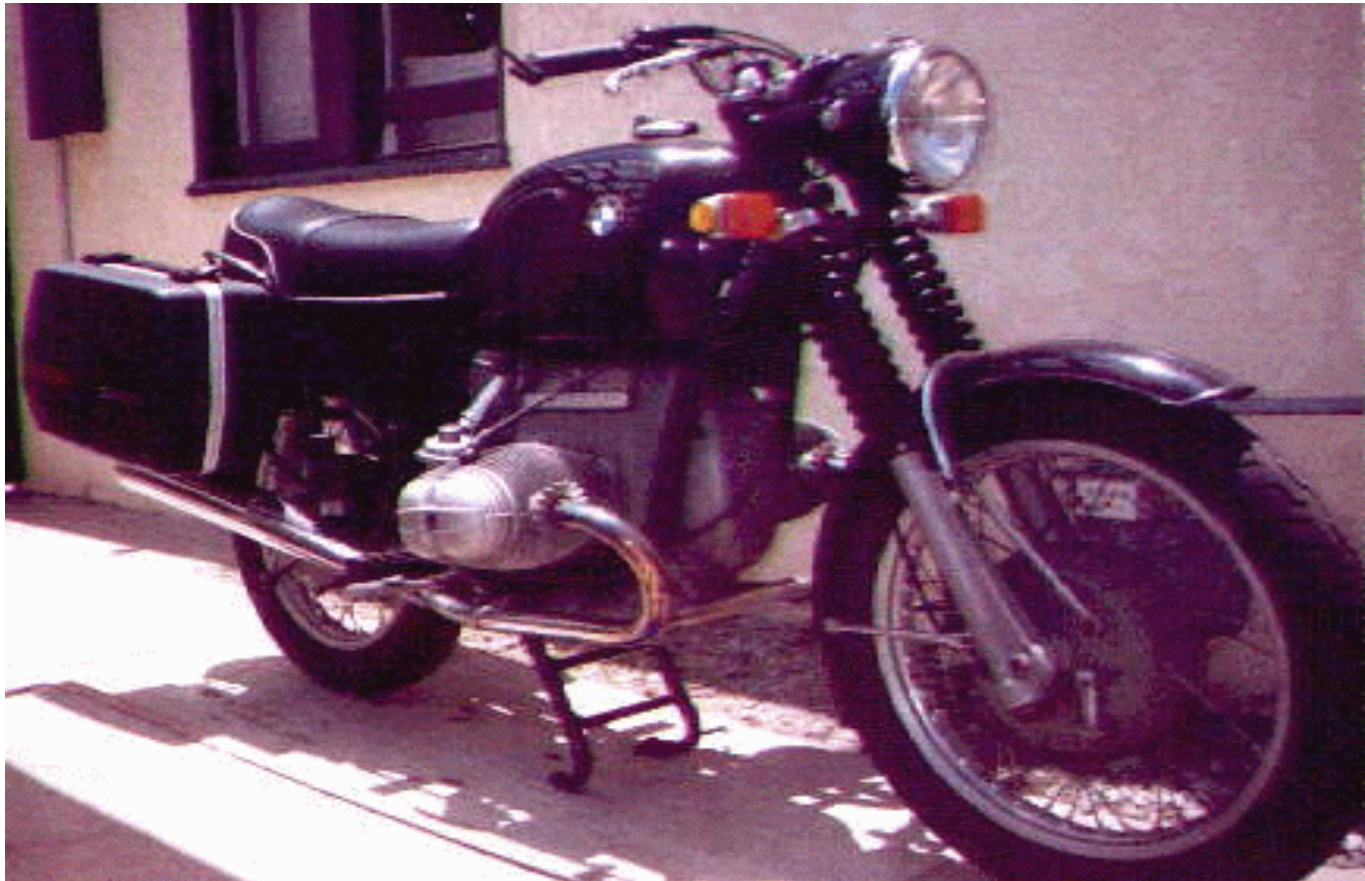
- Prior to 1950s: Insurance Purchaser
- Risk Managers
 - Finance Dept., Freestanding, or Human Resource Dept.
 - Larger Companies
 - Companies Facing Greater Risk

Risk Manager:

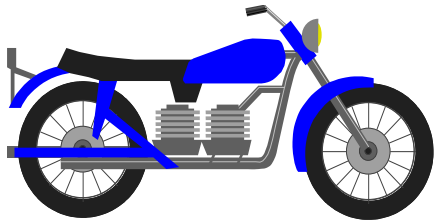
Minimize Adverse Consequences of Risk

- Avoidance
- Loss Control
- Self-Insurance
- Purchase Insurance
- Anticipate Risk

The Decision to Manufacture a Product



Product Development: Motorcycle



- Investment: \$1,000,000
- Profits if there is no Loss: \$150,000
- Possible Liability Losses:
 - 1% Chance of \$2,000,000 Loss
- Required Return on Investment: 10%

Hiring an Employee



Hiring an Employee: Baseball Player with Drug Addiction



- Salary: \$200,000/year
- Financial Contribution to Club
 - \$300,000 if Says Clean
 - \$50,000 if Uses Drugs
 - Chance of Staying Clean: 50%

Major Duties of Risk Managers

- Buy Insurance
- Identify Risk
- Loss Prevention and Loss Control
- Contract Review
- Safety Training and Education
- Govt. Compliance with Safety Issues
- Risk Finance
- Claims Mgmt. and Litigation Support
- Employee Benefits

Risk Management Process

- Mission Identification
- Risk Identification
- Risk Analysis
- Consider Alternatives
 - Risk Control
 - Risk Finance
- Implement and Monitor

Mission Identification

- Goal of Organization
- Goal of Risk Management Department

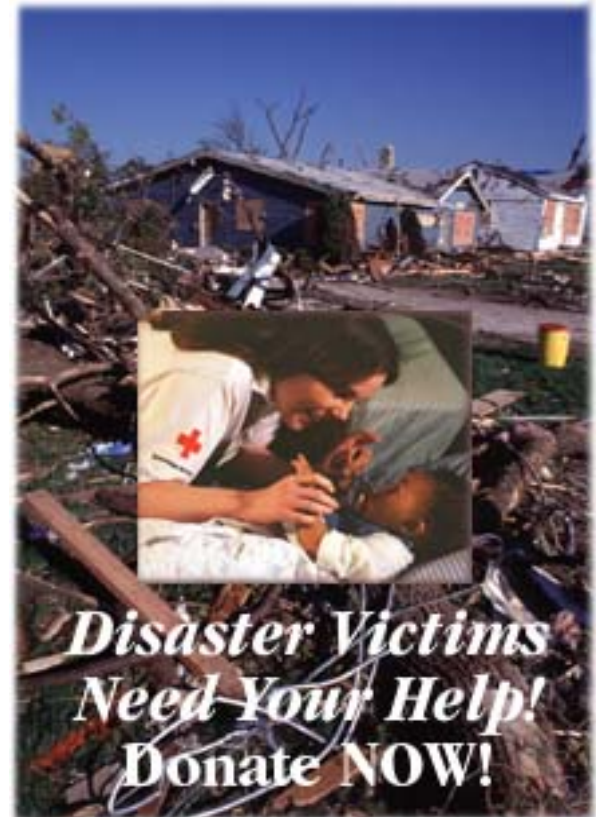
Organization Goals

- Corporation: Maximize Profits
- Non-Profit Organizations
 - Religious Organization
 - Hospitals



Organization Goals

- Charities
 - **Red Cross:** The American Red Cross, a humanitarian organization led by volunteers, . . . will provide relief to victims of disasters and help people prevent, prepare for, and respond to emergencies.



Post-Loss Objectives

- Survival of the Organization
- Continuity of Operations
- Earnings Stability
- Continued Growth
- Social Responsibility

Pre-Loss Objectives

- Economy
- Reduction in Anxiety
 - Owners
 - Suppliers
 - Lenders
 - Customers
 - Govt. Agencies
- Meeting Externally Imposed Obligations
- Social Responsibility

Risk Management Process

Step 2

Risk Identification and Analysis

Risk Identification: Key Terms

- Hazard
- Risk Factor
- Peril
- Exposure

Sources of Risk

- Physical Environment
- Social Environment
- Political Environment
- Legal Environment
- Operational Environment
- Economic Environment
- Cognitive Environment

Categories of Exposures

- Property Exposures
 - Direct: Immediate Result
 - Indirect: Secondary Results
 - Example: Robbery of a Store
- Liability Exposures
- Human Resource Exposures

Risk Identification Methods 1

- Insurance Survey
- Risk Analysis Questionnaires
- Financial Statement Analysis
- Flow Chart Method
- Systems Safety Techniques

Risk Identification Methods 2

- Interactions with External Resources
- Interactions with other Departments
- Past Losses
- On-Site Inspections

Accident Causation

- Human Relations View
- Engineering View

Loss Analysis Ratios

- Severity = $\$ \text{Losses} / \# \text{ Losses}$
- Frequency = $\# \text{ Losses} / \# \text{ Exposures}$
- Expected Loss = $\$ \text{ Losses} / \# \text{ Exposures}$

Ratios Example

- Data
 - 1000 Restaurants
 - 50 Fires
 - Type 1 Fires: 20, \$25,000
 - Type 2 Fires: 30, \$50,000
- **Severity** = $[20(\$25,000) + 30(\$50,000)]/50 = \$40,000$
- **Frequency** = $50 / 1000 = .05$
- **Expected Loss** = $.05(\$40,000) = \2000

Concerns with Measuring Severity

- Indirect Losses
 - Ex: Store robbery
- Contagion
 - Ex: Foot-and-Mouth Disease
- Snowball Effect
 - Ex: Mad Cow Disease

Loss Severity Measures

- Maximum Possible Loss
- Maximum Probable Loss

Importance of Timing of Losses

- Time Value of Money
- Cash Flow Considerations

Loss Triangles

- Predict When Losses Will Occur
- Predict Total Losses
- Highlight Trends

Property Losses



- Property Exposed to Loss
- Peril
- Financial Consequences

Property Exposed to Loss

- * Real Property

- * Personal Property

- * Non-owned Property

Non-owned Property

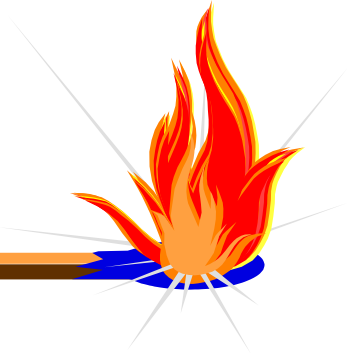
- Bailed Property
- Leased Property
- Property on Consignment
- Employee's Property
- Property under Lien
- Agency Relationships
- Contingent Property



Perils

- Commonly Insured
- Government Insured
- Uninsurable

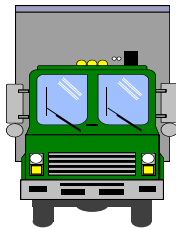
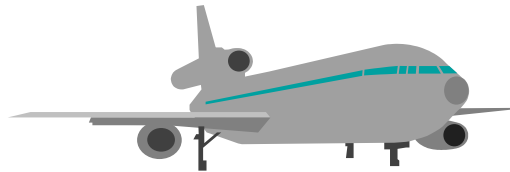
Commonly Insured Perils 1



- Fire
- Lightning
- Windstorm
- Hail
- Explosion
- Smoke



Commonly Insured Perils 2

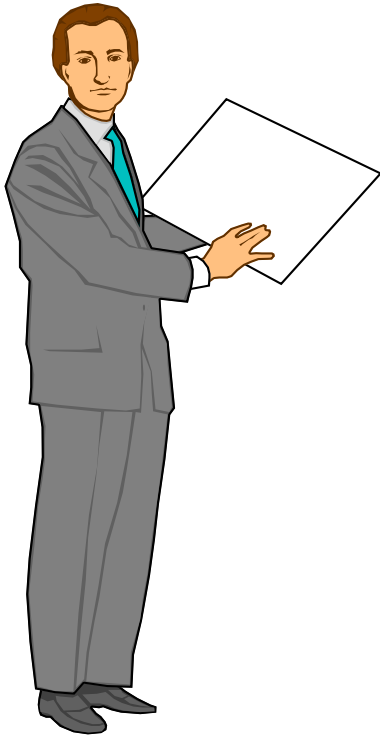


- Aircraft & Vehicle Damage
- Riot
- Vandalism (Malicious Mischief)
- Falling Objects
- Weight of Snow, Ice, or Sleet
- Water Damage
- Glass Breakage
- Sprinkler Leakage
- Perils of Transportation
- Crime Perils

Difficult to Insure Perils

- Earth Movement
- Floods
- Nuclear Reaction

Why Are Some Perils Uninsurable?



- Against Public Policy
- Under the Control of the Insured
 - [Ex. Suicide](#)
- Probability of Loss is Too High
- Simultaneous Destruction

Generally Uninsurable Perils

- War, **Terrorism**, Rebellion, and Insurrection
- Intentional Losses
- Fading, Rust, Dry Rot, Settling
- Production, Marketing, and Political Risks

Financial Consequences

- Reduction in Value
- Debris Removal
- Business Interruption
- Contingent Business Interruption
- Loss of Rental Income
- Loss of Rental Value
- Loss of Leasehold Interest
- Inability to Reconstruct Records
- Loss of Use Value in Improvements and Betterments
- Demolition Costs and Increased Cost of Reconstruction

Valuation of a Loss

- Market Value
- Replacement Cost
- Actual Cash Value
 - *(Replacement Cost - Depreciation)*
- Present Value of the Asset's Contribution



Actual Cash Value Calculation: Building

- Purchase

- Date: January 1, 1987
- Price: \$1,000,000
- Expected Lifetime: 40 years

- Fire

- Date: January 1, 2007
- Replacement Cost: \$2,000,000

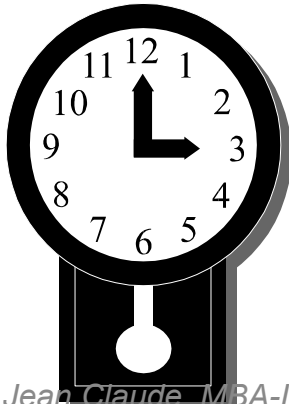


Actual Cash Value Calculation: Building

- $ACV = \text{Replacement Cost} - \text{Depreciation}$
– *As of the Time of Loss*
- $ACV = \$1,000,000 = \$2,000,000 - \$1,000,000$

Liability Loss

- Expenditure of TIME and MONEY
- Investigate, Negotiate, Defense, Payment



Property Losses v. Liability Losses

- Parties Involved
- Measurement of Exposure
- Changing Environment
- Tail

Types of Legal Liability

- **Criminal**
 - Agent
 - Punishments
 - Insurance
- **Civil**
 - Private Duties
 - Common Law, Statutes, Contracts

TORT

- Wrongful Act or Omission
- Independent of Contract
- Legal Remedy: DAMAGES (\$\$\$)

Types of TORTS

- Intentional Torts
- Negligence
- Strict Liability

Intentional TORTS

- Legally Protected Right
- Intentional Interference
 - Voluntary
 - Damages Reasonably Foreseen
 - No Valid Defense

Intentional Torts: Defamation

- Types
 - Libel
 - Slander
- Plaintiff Must Show
 - False, Injurious Statement
 - Publication
 - Damages

Defenses

- Truth
- Privilege
 - Absolute
 - Qualified
 - No Malice
 - Not Known False
 - No Intent to Injure
 - Fair, if by news media
 - Covered Body

Intentional Torts: Invasion of the Right of Privacy

- Examples
 - Release Confidential Information
 - Hidden Microphones
- Public Figures v. Private Figures

Intentional Torts: Assault and Battery

- Assault
- Battery
- Defenses
 - Consent
 - Self-Defense
 - Defense of Property
 - Defense of Others
 - Allowed Discipline

Intentional Torts: Assorted Others

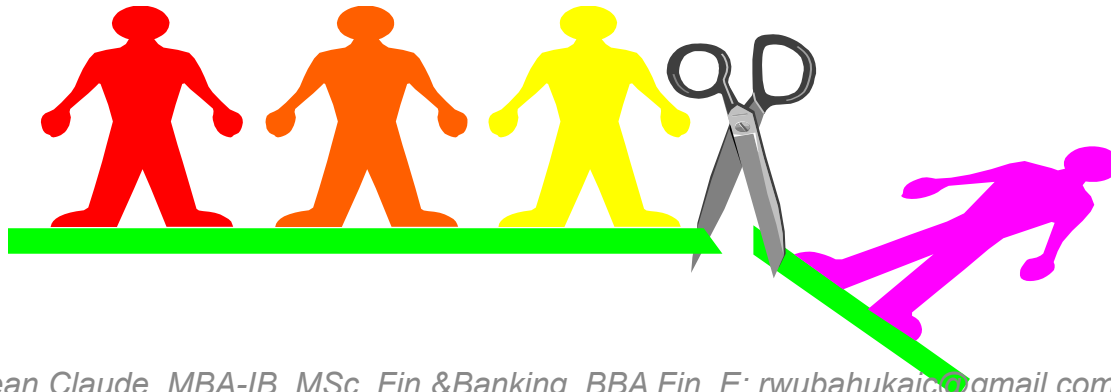
- False Arrest and Wrongful Detention
- Malicious Prosecution
- Trespass
- Conversion
- Nuisance

Intentional Torts: Assorted Others Continued

- Wrongful Interference with a Business Relationship
 - Copyright Infringement
 - Deception
- Bad Faith
 - Delaying Payment of Claims
 - Refusing to Pay Claims

Negligence

- Acts of Omission
- Acts of Commission



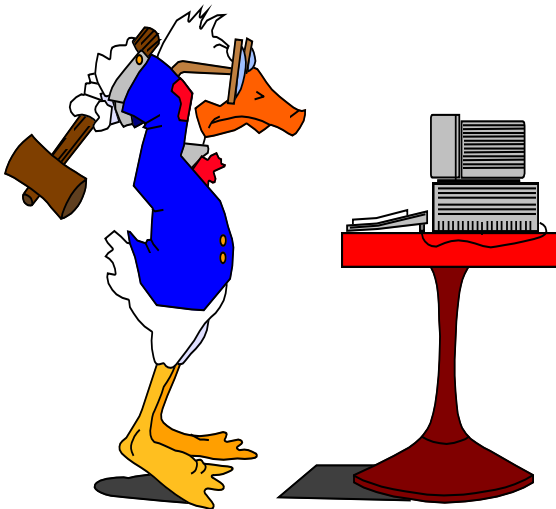
Elements of a Negligent Act

- Legal Duty
- Breach
- Damages
- Proximate Cause



Damages

- Compensatory Damages
 - Special Damages
 - General Damages
- Punitive Damages



Defenses to Negligence

- Contributory Negligence
- Comparative Negligence
- Assumption of Risk
- Statute of Limitations
- Immunities
 - Sovereign
 - Charitable Institutions
 - Public Officials

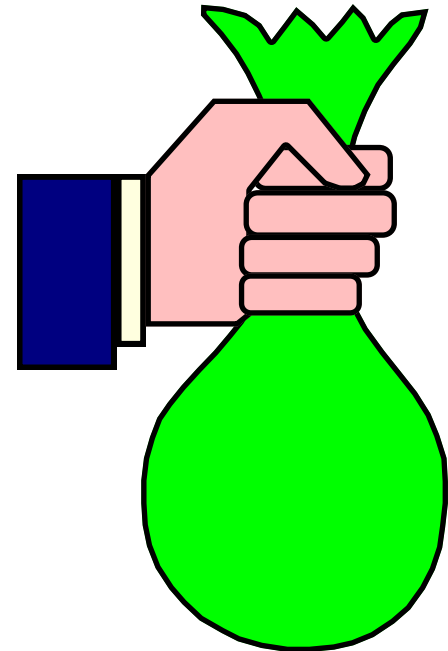
Strict Liability Torts

- Abnormally Dangerous Instrumentalities
- Ultrahazardous Activities
- Dangerously Defective Products
- Workers Compensation Statutes
- Disability Benefit Statutes
- Aviation Law
- Dram Shop Laws
- Contractual Assumptions



Goals of the Tort System

- Compensate
- Deter



Tort Reform Proposals

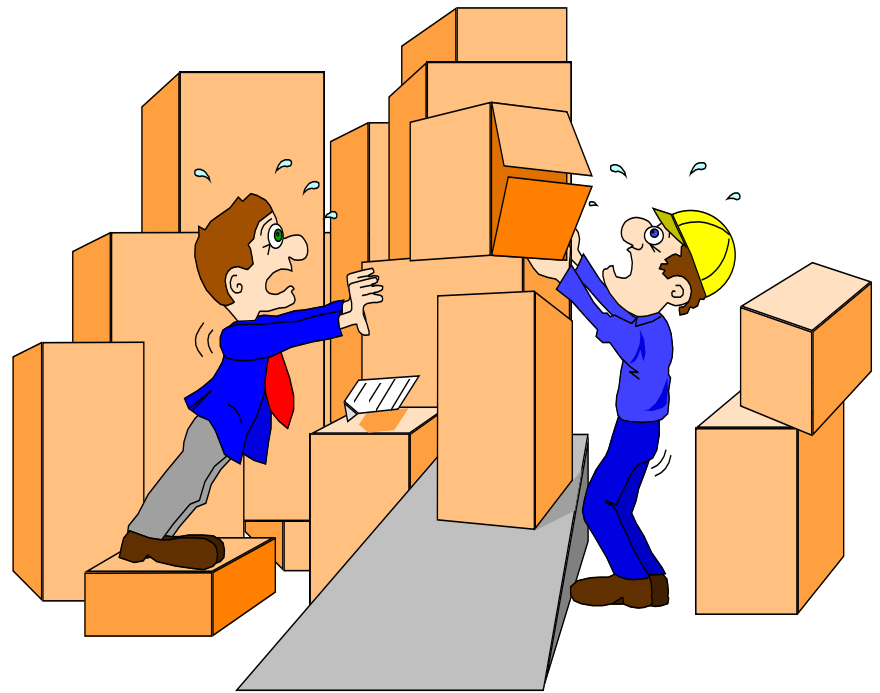
- Modify Joint and Several Liability
- Caps on Non-Economic Damages
- Caps on Punitive Damages

The Work Relationship

- Employer
 - Sets Hours
 - Defines and Supervises Work
- Employee
 - Sacrifices Time for Income
 - Is Told How to Work
 - Method of Payment Not Important to Status
- Independent Contractor
 - Not an Employee
 - Controls Methods of Work

Workplace Injuries

- Common Law: Negligence
- Statutory Law: Workers Compensation



America's Most Dangerous Jobs in 2004

Rank	Occupation	Death rate/100,000	Total deaths
1	Logging workers	92.4	85
2	Aircraft pilots	92.4	109
3	Fishers and fishing workers	86.4	38
4	Structural iron and steel workers	47.0	31
5	Refuse and recyclable material collectors	43.2	35
6	Farmers and ranchers	37.5	307
7	Roofers	34.9	94
8	Electrical power line installers/repairers	30.0	36
9	Driver/sales workers and truck drivers	27.6	905
10	Taxi drivers and chauffeurs	24.2	67

Some Exceptions to Workers Compensation

- Small Firms
- Farm Workers
- Domestic Workers

Employers' Common Law Duties

- Safe Place to Work
- Adequate Number of Competent Fellow Employees
- Provide Safe Tools and Equipment
- Warn of Inherent Dangers
- Make and Enforce Safety Rules

Workers Compensation

- Accident
- Arising Out of and In the Course of Employment
- Only Bodily Injury

Workers Compensation Benefits

- Lost Wages
- Medical Care
- Body Part Payments
- Death Benefits



Exceptions to WC as Sole Remedy for Workplace Injury

- Assault by the Employer
- Retaliatory Discharge of the Employee
- Dual Capacity Doctrine
- Suits by 3rd Parties
 - Ex. Loss of Consortium
 - Ex. Consequential Injuries
- Property Damage

Human Resource Exposures

- Loss of Personnel
- Cost of Employee Benefits

Employee Benefits

- Attract Workers
- Retain Workers
- Retire Workers
- Encourage Productivity

Loss of Personnel

- Premature Death
- Disability/Poor Health
- Resign

Premature Death Losses that Result

- Loss of Human Life Value
- End of Life Expenses
- Emotional Grief of Survivors

Premature Death Risk Management Strategies

- Loss Prevention:
 - Medical Care
 - Good Health
- Life Insurance: Many are Underinsured
- Pension Plan
- Earnings of Surviving Spouse

Disability Problem

- Disability is comparatively frequent
- Disability can be extremely costly
- Most lost income due to disability is not replaced
- Disability insurance is confusing
 - Multiple definitions of disability
- Disability insurance is subject to moral hazard
 - Malingering

Risk Control

- Avoidance
- Prevention
- Reduction
- Information Management
- Some Risk Transfers

Risk Avoidance

- Proactive Avoidance
- Abandonment

Drawbacks to Avoidance

- Lost Benefits of Risk
- Perhaps not Possible
 - \$ Government Imposed Risks
 - \$ Nature of the Risk
- May Result in Worse Risks

Important Forms of Loss Reduction

- Salvage
- Subrogation
- Litigation Management
- Catastrophe (or Contingency) Plans
- Duplication
- Separation

Information Management as Loss Control

- Customers: Enhanced Sales
- Creditors: Lower Debt Cost
- Suppliers: Better Relationships
- Owners: Greater Market Value

Risk Transfer

- Property or Activity Transferred
- Contractually Pass the Liability
“Exculpatory Contracts”

Government and Risk Control

- Public Interest
- Efficiency

Risk Financing: General Methods

- Retention
- Transfer

Risk Financing: Timing

- Contemporaneous
- Prospective
- Retrospective

Approaches to Retention

- Passive or Unplanned
- Active or Planned

Retention: Funding Arrangements

- No Advance Funding
- Liability or Earmarked Accounts
- Earmarked Asset Accounts
- Captive Insurer

Types of Transfers

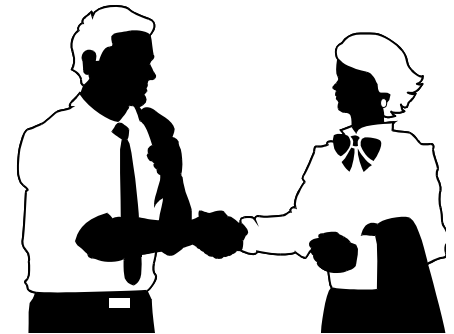
- Insurance
- Noninsurance Transfers
- Hedging

Elements of Insurance

- Contract
- Premium
- Conditional Benefits
- Pooling of Resources

Insurance Transaction

- Buyer Side of the Market
 - Risk Managers
 - Brokers
 - Consultants
- Supplier Side of the Market
 - Insurance Company
 - Underwriters, Claims Adjusters, Agent, Actuaries
 - Agent



Noninsurance Transfers

- Do Not Satisfy Conditions to be Insurance
- Provide External Funding

Hedging

- Taking an Offsetting Risk
- Not Possible for Many Types of Risks

Hedging Example

January 1: Arrange to sell chairs for \$5.00
Raw materials today cost \$2.50/chair

June 1: Build chairs

July 1: Deliver chairs

Hedging Example

Risk: Cost of raw materials

- Options:
1. Sell chairs on a cost + basis
 2. Buy and hold raw materials
 3. Buy and have seller hold raw materials
 4. Use a hedge

Retention vs. Transfer

- Ability to Bear the Loss
- Cost and Effectiveness of a Transfer
- Degree of Control over the Risk
- Insurance Loading Fees
- Additional Insurer Services
- Insurance as a Signal
- Opportunity Costs
- Taxes

Requirements of an Insurable Risk

1. Large Number of Homogenous Exposure Units
2. Accidental
3. Determinable and Measurable
4. No Simultaneous Destruction
5. Probability Calculable and Not Too High

- *suicide, space shuttle, mental illness, war,*
- *early flight and computers, terminally ill*

Social and Economic Value of Insurance

- Stability
- Indemnification
- Reduction in Reserve Funds
- Insurers' Ability to Invest
- Satisfies Financial Requirements
- Specialization in Loss Prevention

Social Costs of Insurance

- Insurers' Operating Costs
- Moral Hazard
- Exaggeration of Losses

Cheating with Insurance

- Insurer
 - Failure to Honor the Contract
 - Misleading Contracts
 - False Advertising
 - Inappropriate Sales
- Insured
 - Fraud

Controlling Cheating

- Litigation
- Regulation

Litigation

Requirements of an Insurable Contract

- Offer and Acceptance
- Consideration
- Competent Parties
- Legal Purpose

Litigation

Legal Principles: Indemnity

- Valuation
 - Property
 - Liability: Actual Damages
- Apparent Exceptions
 - Valued Policies
 - Replacement Cost Insurance
 - Life Insurance

Litigation

Principle of Subrogation

- Prevents Double Indemnification
- Holds Down Insurance Costs

Litigation

Principle of Utmost Good Faith

- Representations
- Concealment
- Warranty

Is It Material?

Why Is Insurance Regulated?

- Advance Payment of Premiums
- Complexity of Transaction

Types of Regulation

- Licensing
- Solvency
- Rate Approval
- Agents' Activities
- Insurance Contracts

Insolvency: Major Reasons

- Bad Management
- Poor Underwriting
- Inadequate Reserves
- Bad Investing
- Inattentive to Loss Prevention
- Competitive Pressures

Danger of Insolvency

- Most Insurers are Very Solid
- 100+ Years
 - 71 Life Insurers
 - 200 Property and Liability Insurers
- Guaranty Funds
- Buyout of Failing Firms

Premium Regulation

- Adequate
- Fair
- Reasonable

Methods of Rate Regulation

- Prior Approval
- File and Use
- Open Competition

Advantages of Open Competition

- Flexibility
- Increased Availability of Insurance
- Avoid Political Fights
- Frees Time of Regulators

Disadvantages of Open Competition

- Price Gouging (?)
- Risk of Insolvency (?)
- Fair (?)

Regulation of Agents' Activities

- Licensing
- Prohibited Acts
 - Twisting
 - Rebating

Causes of Insurance Market Failure

- Adverse Selection
- Individuals Underestimate the Loss Potential
- Insurance Costs Too Much
- Pooling Not Possible
- Insurers Can Not Estimate the Loss Potential

THE END

