

## Ch11 Lecture Notes: Risk

Gold: a safe investment; it will always be worth something

- Diversified portfolio

### Understanding Risk

In a perfect world, there would be no risk...but **certainty** isn't a reality. **Risk** is the **uncertainty that could result in an undesirable outcome** / uncertainty that something could happen that hurts value (lower than expected benefits or benefits that are received later than expected)

Without benefits, value is destroyed. Its all about **risk and return!**

Probability of uncertainty deserves a higher return

Risk comes from everything a business does! Financing decisions, investing decisions, using money for operating decisions, etc.

**Internal** Environment, **Exterior** Environment, and the **interaction** of the business's internal and exterior environments

**Riskiest thing is to work with people!**

**How the firm adapts to risk is the key!**

Financing Risk: the risk that arises from **financing assets with debt, or increasing financial leverage**; higher financial leverages means higher financial risk

1. Are your lenders adequately informed?
2. Does the business have the right blend of debt and equity?
3. Where do we borrow money?
4. Do your lenders agree on your loan structure?

Investing Risk: **allocation of money to hiring employees and investing in assets**

1. Does the investment plan take into consideration the economy, competition, etc.
2. Does the business have the right blend of assets
3. Does the business have a contingency plan if the unexpected occurs?
4. Does your investment plan reflect what your competitors are likely to do?

Operating risk: risks of executing plans

1. What happens if the product does not perform as desired?
2. What happens if there are problems with the inputs into the value chain?
3. Does the business have the right people working for them?
4. Are you complying with government regulations?
5. What happens if a key supplier goes out of business?

Dealing with risk:

**Recognizing, understanding, measuring, manage, and price risk!**

Risk is measured using statistics

- **descriptive statistics**: process of **communicating the frequency** and characteristics of an event or events within a population

- **inferential statistics**: used to **reach conclusions** about a population  
By using statistics we can see the **mean, median, and mode** (*measures of central tendency*)

By using statistics we can see **the variance and standard deviation** (*measures of dispersion*)

Variance:  $\sum (x - \text{mean})^2 / \text{relative frequency}$

Using Statistics:

Sampling

Multivariate (vs. univariate Statistics: examines **one** variable or dimension)

Covariance and correlation

- Covariance is the measure of how closely two or more variables co-vary, or move together

*Recognizing the past is NOT THE SAME as the future- CHANGE!*

What can be done to reduce risk?

**Taking risk without additional benefits hurts value!** Remember we must: recognize, understand, measure, manage, and price risk!

Enterprise Risk Management (ERM)

= Look at totality of organization and deal and manage its risk!

Establish **risk tolerances**: *determining how much risk a business should tolerate*

Programs to **Assess risk**: *recognizing, analyzing, understanding, and measuring the risks associated with a business's investing, financing, and operating activities.*

- sensitivity analysis: process of estimating the impact of unexpected events

Programs to **Monitor risk**: *creating and implementing adequate controls to manage the risk accepted by the business; contingency planning*

Programs to **Continuously evaluate risk**: *continuous examination of the risk management process and determining whether or not it is effective*

Alternatives to help manage risk!

1. **Risk management programs**; specific programs used to address specific risks

- a. **Quality control**: operating and manufacturing systems that ensure products will meet required specifications

## 2. Insurance

- property insurance
- loss of income insurance
- worker injury insurance
- life insurance for key employees
- product liabilities insurance

3. **Diversification**: not putting all your eggs in one basket! Spreading out risks amount alternatives that are not perfectly correlated

- a. Remember that a business is a portfolio
- b. How does the variability and thus risk of one part

4. **Hedging**: derivatives are financial instruments

- a. Swaps: financial agreement where **two parties agree to swap something of value** at a future date to alleviate the risks associated with the value
- b. Futures and forwards: an agreement by **two or more parties to buy and sell a specific item at a future price and date**, but dissimilar from a future a **forward is customized**, not standardized, to fit a business's needs
- c. Options:
  - i. Option premium: what the buyer must pay to receive the option contract
  - ii. **Call options (to buy)**: an option that gives the **option owner the right to buy from the option seller** an item at a specified price at or during a specified time in the future
  - iii. **put options (to sell)**: an option that gives the **option owner the right to sell the item to the option seller** at a specific price at or during a specified time in the future

Pricing Risk: price its products so it can

Risk hurts value