



IBM

Applied Corporate Finance

Dr. Ian Giddy
New York University



Giddy.org/ibmfinance



Copyright ©2005 Ian H Giddy

3

Giddy.org/ibmfinance

Course Outline

Applied Corporate Finance
IBM Thomas J. Watson Research Center, Spring 2005

| Date | # | Topics | Readings |
|------------|---|--|---|
| Thu Mar 17 | 1 | Corporate Finance and Investments | <i>Applied Corporate Finance</i> , Ch 3-4 |
| Thu Mar 24 | 2 | Corporate Valuation and Investment Decisions | <i>Applied Corporate Finance</i> , Ch 5-6 |
| Mon Mar 28 | 3 | Corporate Financing Decisions | <i>Applied Corporate Finance</i> , Ch 7-8 |
| Thu Apr 14 | 4 | Risk Management and Debt Design | <i>Applied Corporate Finance</i> , Ch 9 |
| Thu Apr 21 | 5 | Valuing a Company | <i>Applied Corporate Finance</i> , Ch 12 |
| Tue May 3 | 6 | Mergers, Acquisitions and Divestitures | Damodaran, <i>Corporate Finance</i> , Ch 25 |
| Thu May 12 | 7 | Corporate Financial Restructuring | Weston, et al, <i>Takeovers, Restructuring and Corporate Governance</i> , Prentice-Hall, 2nd Ed., Ch 13 Case Study TDI A (HBS 9-291-064) |

Live Case Study



Live Case Study

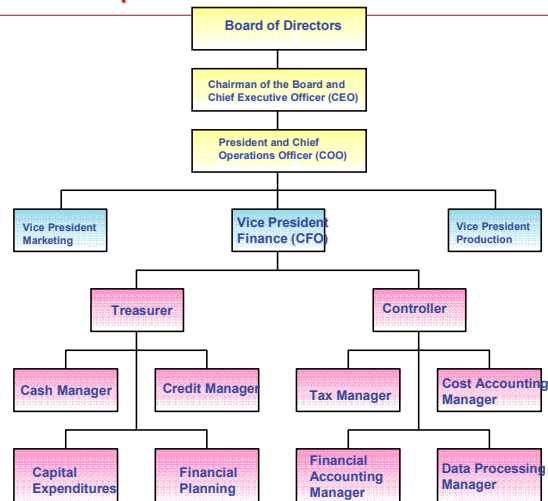
Assignment 1

1. What is your company's "business risk?" (How much do operating earnings fluctuate with changes in the economy?)
2. What is your company's "financial risk" due to leverage -- the proportion of its financing that is debt?
3. What risk premium do bondholders (lenders) expect (the spread over Treasury due to the company's bond rating)
4. What is the company's equity risk, as measured by its beta?

Sources:

- readings and data on the course "downloadable materials" web page
- bondsonline.com
- biz.yahoo.com
- morningstar.com

Finance in the Corporation



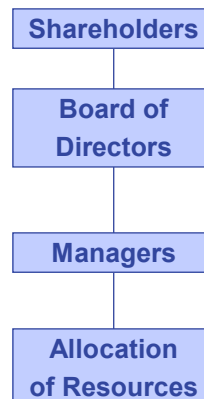
The Principles of Corporate Finance

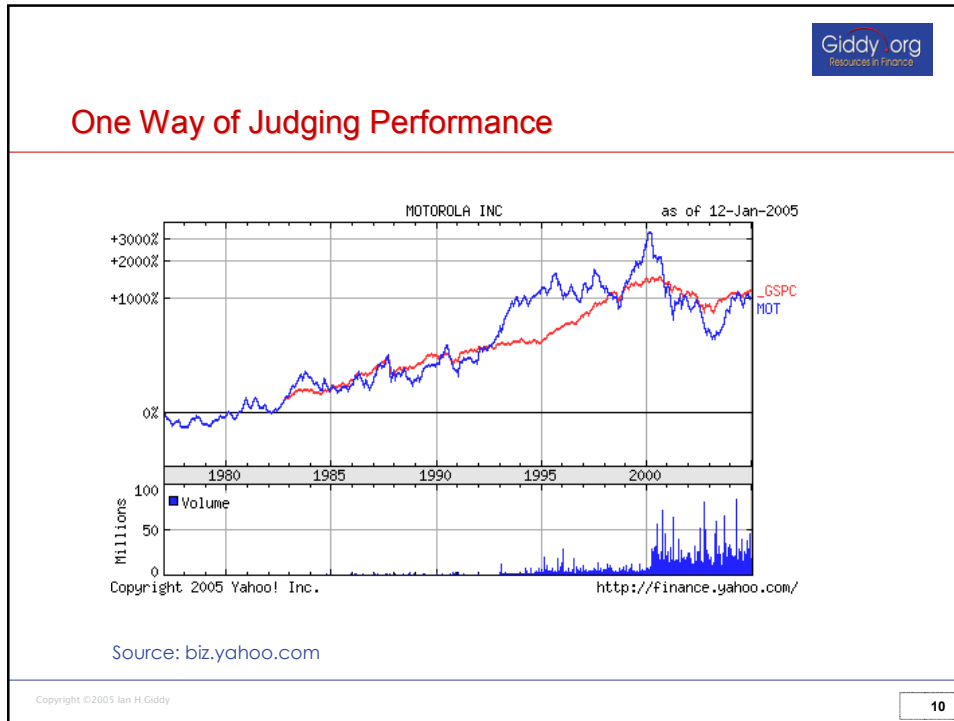
- Invest in projects that yield a return greater than the minimum acceptable hurdle rate.
 - The hurdle rate should be higher for riskier projects and reflect the financing mix used - owners' funds (equity) or borrowed money (debt)
 - Returns on projects should be measured based on cash flows generated and the timing of these cash flows; they should also consider both positive and negative side effects of these projects.
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- If there are not enough investments that earn the hurdle rate, return the cash to stockholders.
 - The form of returns - dividends and stock buybacks - will depend upon the stockholders' characteristics
- Minimize unnecessary financial risks.

Objective: Maximize the Value of the Firm

The Agency Problem

- The agency relationship: see diagram
- Why don't managers work in the shareholders' best interests?
 - Agency costs
 - Corporate governance
 - Incentive issues
- When control breaks down -- *there is a market for corporate control*





Motorola Performance

| | Stock | Industry | S&P 500 |
|----------------------------|-------|----------|---------|
| ROA % | 1.9 | 9.5 | 4.1 |
| ROE % | 4.8 | 12.2 | 15.7 |
| Net Margin % | 2.2 | 11.3 | 9.1 |
| Asset Turnover | 0.9 | 0.9 | 0.6 |
| Fin Leverage | 2.6 | 1.6 | 5.7 |
| Sales/Employee \$Thousands | 269.4 | --- | --- |

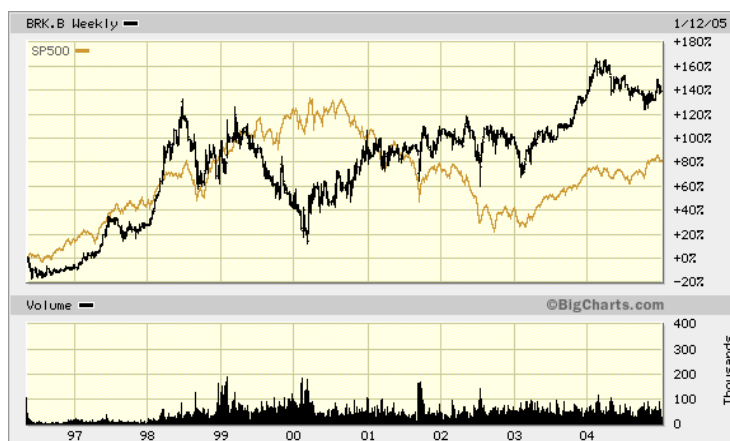
Stock uses trailing 12 months. Industry and S&P 500 use fiscal year-end.

Source: morningstar.com


Who's to Blame?

- ❑ Berkshire's long-term performance versus the S&P remains all-important. Our shareholders can buy the S&P through an index fund at very low cost. Unless we achieve gains in per-share intrinsic value in the future that outdo the S&P's performance, Charlie and I will be adding nothing to what you can accomplish on your own.
- ❑ If we fail, we will have no excuses. Charlie and I operate in an ideal environment. To begin with, we are supported by an incredible group of men and women who run our operating units. If there were a Corporate Cooperstown, its roster would surely include many of our CEOs. Any shortfall in Berkshire's results will not be caused by our managers.
- ❑ Additionally, we enjoy a rare sort of managerial freedom. Most companies are saddled with institutional constraints. A company's history, for example, may commit it to an industry that now offers limited opportunity. A more common problem is a shareholder constituency that pressures its manager to dance to Wall Street's tune. Many CEOs resist, but others give in and adopt operating and capital allocation policies far different from those they would choose if left to themselves.
- ❑ At Berkshire, neither history nor the demands of owners impede intelligent decision-making. When Charlie and I make mistakes, they are – in tennis parlance – unforced errors.

One Way of Judging Performance



Source: bigcharts.com



It's All About Value

- How can corporations create value?
- Return on assets > cost of capital

ROA
and ROE

Assets

Operating
Cash
Flows


Liabilities

Debt

Equity

Cost of
capital

Copyright ©2005 Ian H Giddy 14



It's All About Value

- How can corporate and financial restructuring create value?

Fix the
business

Assets

Operating
Cash
Flows

Liabilities

Debt

Equity

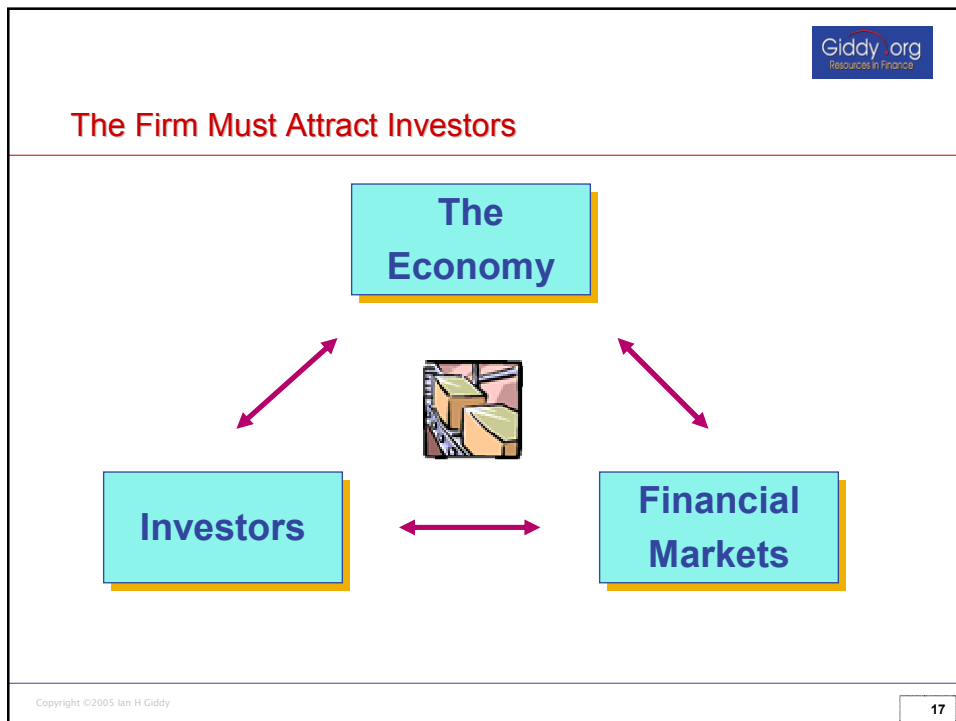
Or fix the
financing

Copyright ©2005 Ian H Giddy 15

IBM

**Investments:
Risk and Return**

Dr. Ian Giddy
New York University





Investors Have Choices

- ❑ Money market instruments - Short-term debt instruments, like deposits and bills
- ❑ Bonds - used by businesses and governments to raise money
- ❑ Common Stock - Units of ownership, interest, or equity
- ❑ Preferred Stock, Convertibles, other hybrids - A form of ownership with features of both debt and common stock

Investors Compare Possible Investments Against Market Benchmarks



World Indices

Thu, 09 Jan 2003, 7:18am EST

| Description | Value | Net Change | % Change | Time |
|----------------------------|----------|------------|----------|-------|
| North/Latin America | | | | |
| DOW JONES INDUS. AVG | 8595.31 | -145.28 | -1.66 | 01/08 |
| S&P 500 INDEX | 909.93 | -13.00 | -1.41 | 01/08 |
| NASDAQ COMPOSITE INDEX | 1401.07 | -30.50 | -2.13 | 01/08 |
| S&P/TSX COMPOSITE INDEX | 6723.11 | -79.67 | -1.17 | 01/08 |
| MEXICO BOLSA INDEX | 6266.48 | -12.80 | -0.20 | 01/08 |
| BRAZIL BOVESPA STOCK IDX | 11785.54 | -90.55 | -0.76 | 01/08 |
| Europe/Africa | | | | |
| DJ EURO STOXX 50 P INDEX | 2416.08 | -33.70 | -1.38 | 07/03 |
| FTSE 100 INDEX | 3882.70 | -42.10 | -1.07 | 07/03 |
| CAC 40 INDEX | 3068.54 | -25.55 | -0.83 | 07/17 |
| DAX INDEX | 2945.78 | -47.22 | -1.58 | 07/18 |
| IBEX 35 INDEX | 6275.20 | -102.00 | -1.60 | 06/57 |
| MILAN MIB30 INDEX | 24262.00 | -324.00 | -1.32 | 07/03 |
| AMSTERDAM EXCHANGES INDX | 323.47 | -5.26 | -1.60 | 07/18 |
| SWISS MARKET INDEX | 4805.20 | -77.10 | -1.58 | 07/17 |
| Asia/Pacific | | | | |
| NIKKEI 225 INDEX | 8497.93 | -19.87 | -0.23 | 03/12 |
| HANG SENG INDEX | 9675.41 | -12.80 | -0.13 | 03/06 |
| S&P/ASX 200 INDEX | 3064.90 | -9.80 | -0.32 | 00/07 |

Source: Bloomberg.com

KEY RATES

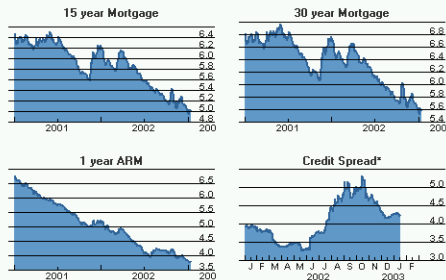
Thu, 09 Jan 2003, 7:03am EST

Choose your state

| Rate | Current | 1 Month | 2 Months | 3 Months | 6 Months | 1 year |
|------------------------|---------|---------|----------|----------|----------|--------|
| Fed Funds | 1.50 | 1.25 | 1.06 | 1.75 | 1.75 | 1.75 |
| 3 Month Libor | 1.38 | 1.41 | 1.40 | 1.77 | 1.86 | 1.84 |
| Prime Rate | 4.25 | 4.25 | 4.25 | 4.75 | 4.75 | 4.75 |
| 2-Year AAA Industrial | 2.14 | 2.36 | 2.22 | 2.28 | 2.95 | 3.15 |
| 10-Year AAA Industrial | 4.61 | 4.83 | 4.68 | 4.74 | 5.43 | 5.92 |

MORTGAGE RATES

| bankrate.com | Current | 1 Month | 2 Months | 3 Months | 6 Months | 1 year |
|------------------|---------|---------|----------|----------|----------|--------|
| 15 year mortgage | 5.02 | 5.15 | 5.09 | 5.15 | 5.54 | 6.12 |
| 30 year mortgage | 5.59 | 5.73 | 5.67 | 5.71 | 6.08 | 6.65 |
| 1 year ARM | 3.81 | 3.94 | 3.95 | 4.10 | 4.06 | 5.13 |

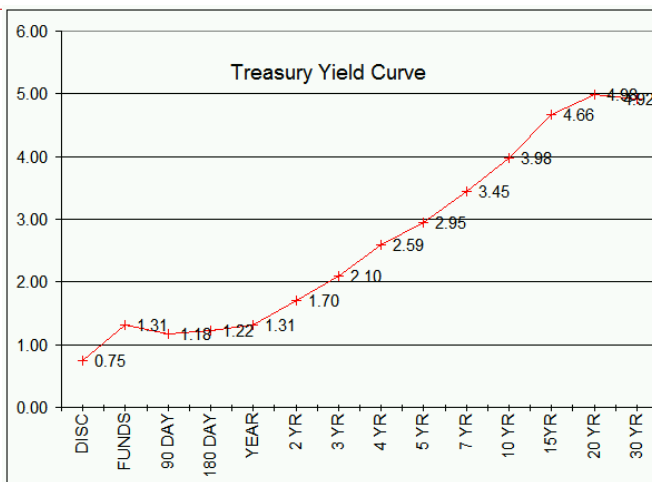


* = 10 yr BB2 rated industrial bonds minus yield on 10 yr Treasury.

Total Yield is What Investors Seek

- “Yield to maturity” combines coupons and capital gains - all cash flows.
- The yield to maturity on any bond is *the rate that will make the present value of the cash flows from the investment equal to the price of the investment.*
- Also known as the internal rate of return or IRR.

The US Treasury Yield Curve



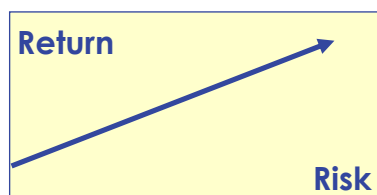
January 2003

Source: bondsonline.com

Riskier Investments Have to Offer Higher Returns

Risk and Return

- A positive relationship exists between risk and nominal or expected return
- The actual return earned on a security will affect the subsequent actions of investors
- Investors must be compensated for accepting greater risk with the expectation of greater return



Copyright ©2005 Ian H Giddy

22

Riskier Investments Have to Offer Higher Returns: Example

Bridge Corporate Spreads for Industrials


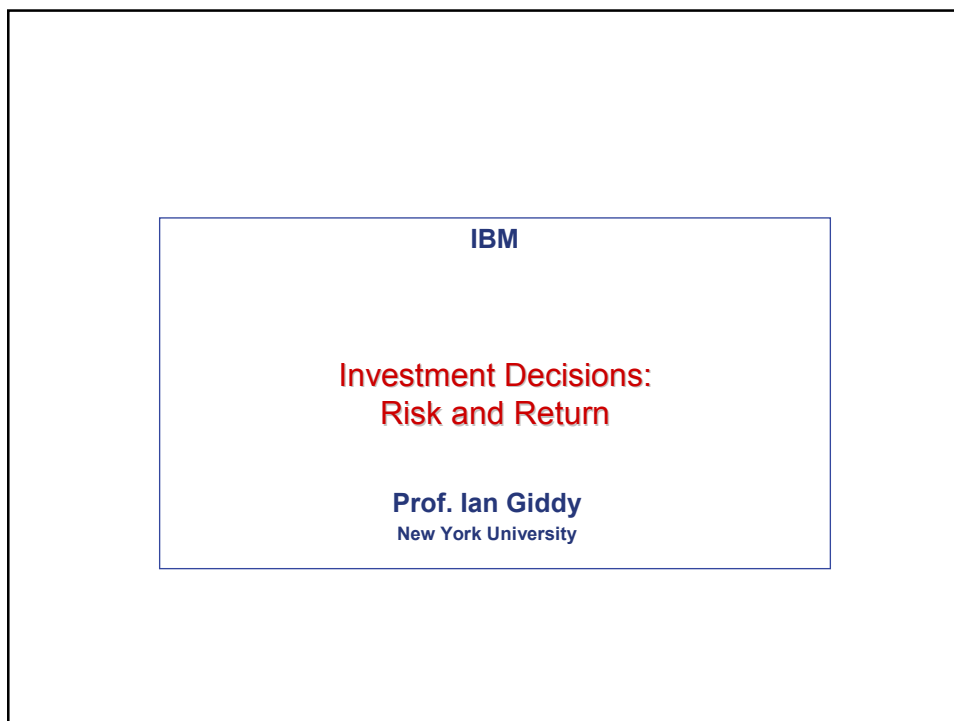
Spreads compiled using: Refresh [Download spread file](#)

| Rating | 1 yr | 2 yr | 3 yr | 5 yr | 7 yr | 10 yr | 30 yr |
|--------|------|------|------|------|------|-------|-------|
| AAA | 30 | 91 | 0 | 113 | 0 | 66 | 89 |
| AA+ | 93 | 53 | 0 | 85 | 0 | 85 | 102 |
| AA | 59 | 88 | 0 | 40 | 0 | 96 | 106 |
| AA- | 87 | 83 | 0 | 114 | 0 | 97 | 82 |
| A+ | 66 | 115 | 0 | 102 | 0 | 87 | 119 |
| A | 109 | 132 | 0 | 132 | 0 | 115 | 155 |
| A- | 139 | 170 | 0 | 153 | 0 | 131 | 148 |
| BBB+ | 146 | 211 | 0 | 181 | 0 | 171 | 199 |
| BBB | 213 | 266 | 0 | 247 | 0 | 225 | 259 |
| BBB- | 399 | 352 | 0 | 318 | 0 | 295 | 282 |
| BB+ | 496 | 542 | 0 | 460 | 0 | 440 | 697 |
| BB | 648 | 654 | 0 | 602 | 0 | 517 | 1207 |
| BB- | 649 | 660 | 0 | 594 | 0 | 559 | 1044 |
| B+ | 585 | 818 | 0 | 782 | 0 | 689 | 470 |

Source: bondsonline.com

Copyright ©2005 Ian H Giddy

23

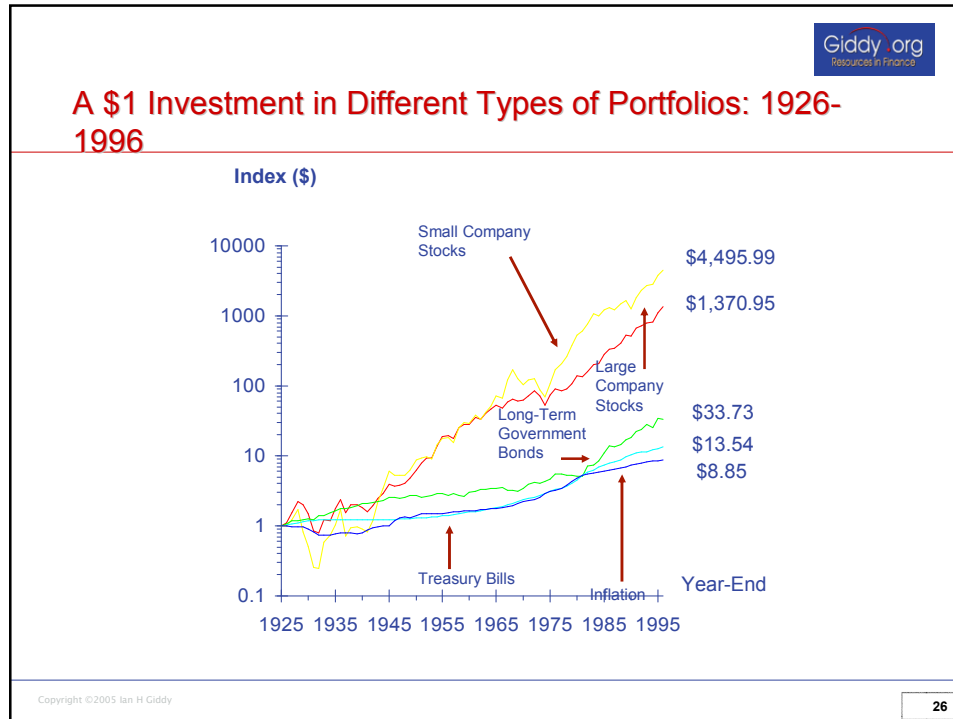


Investment: Risk and Return

- ❑ *Equity risk and bond risk*
- ❑ *Risk in a portfolio context*
- ❑ *Risk and beta*
- ❑ *The required return on investments*

Copyright ©2005 Ian H Giddy

25



Giddy.org
Resources in Finance

Risk Types

- The risk (variance) on any individual investment can be broken down into two sources. Some of the risk is specific to the firm, and is called firm-specific, whereas the rest of the risk is market wide and affects all investments.
- The risk faced by a firm can be fall into the following categories –
 - (1) Project-specific; an individual project may have higher or lower cash flows than expected.
 - (2) Competitive Risk, which is that the earnings and cash flows on a project can be affected by the actions of competitors.
 - (3) Industry-specific Risk, which covers factors that primarily impact the earnings and cash flows of a specific industry.
 - (4) International Risk, arising from having some cash flows in currencies other than the one in which the earnings are measured and stock is priced
 - (5) Market risk, which reflects the effect on earnings and cash flows of macro economic factors that essentially affect all companies

Copyright ©2005 Ian H Giddy

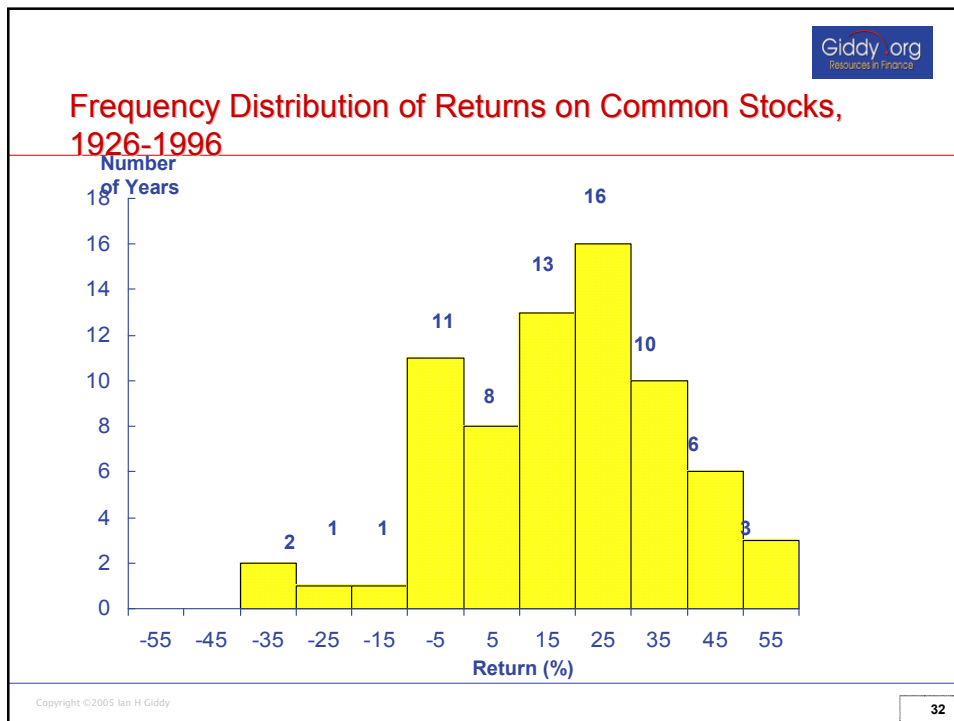
27

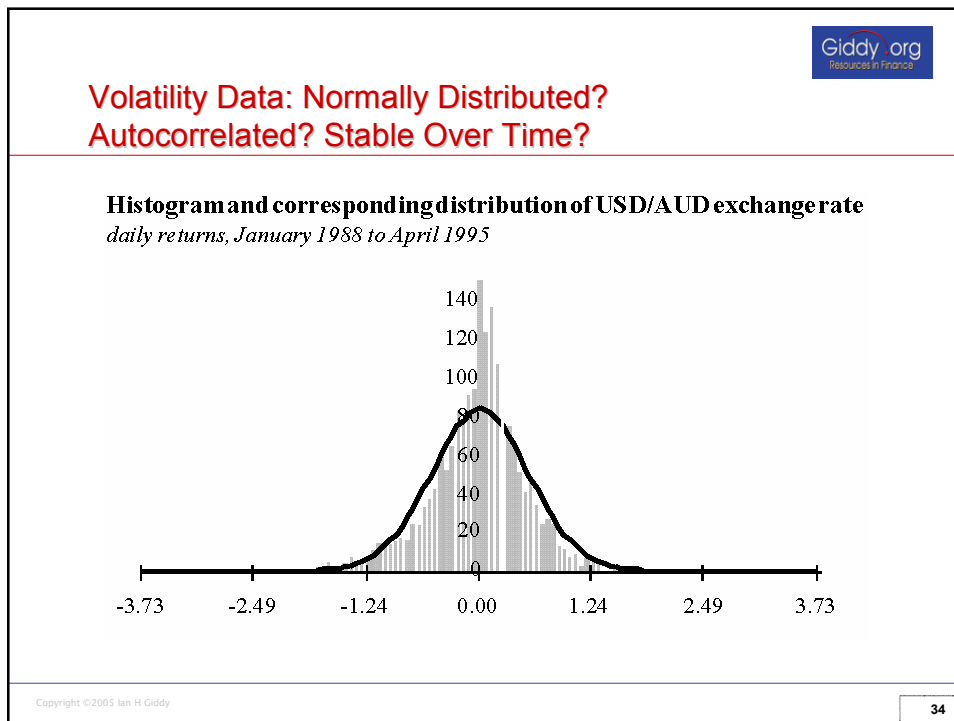
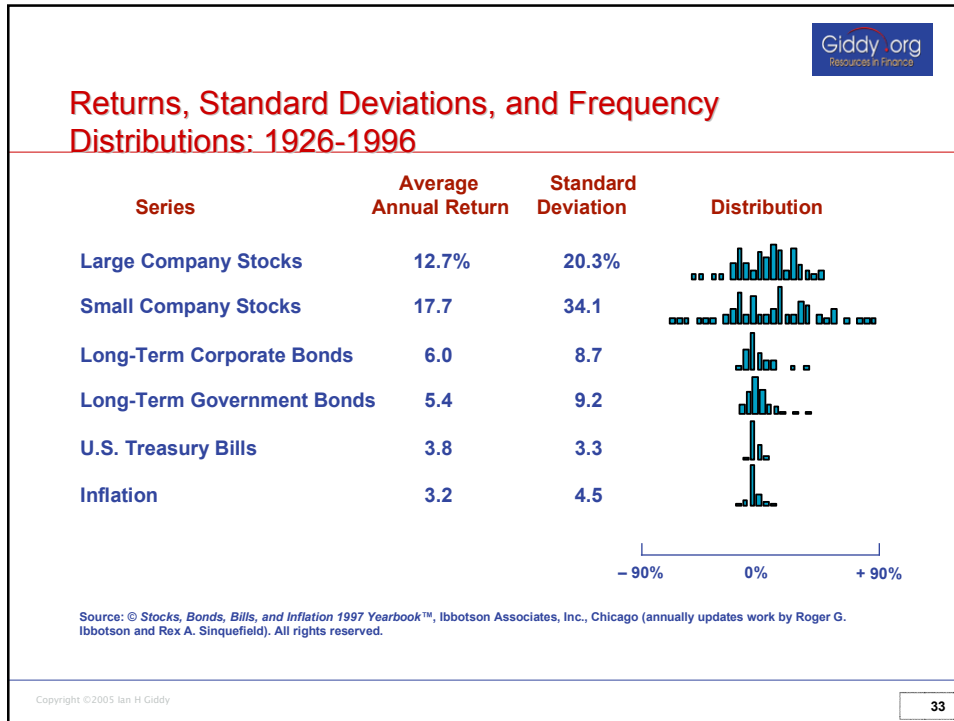
Giddy.org
Resources in Finance

Equity versus Bond Risk

| Assets | Liabilities |
|--|---|
| <p>Uncertain value of future cash flows</p> | <p>Debt</p> <ul style="list-style-type: none"> Contractual int. & principal No upside Senior claims Control via restrictions <p>Equity</p> <ul style="list-style-type: none"> Residual payments Upside and downside Residual claims Voting control rights |

Copyright ©2005 Ian H Giddy 28



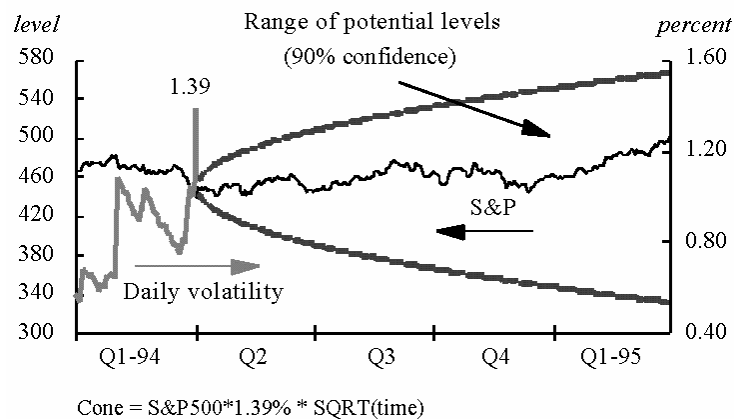


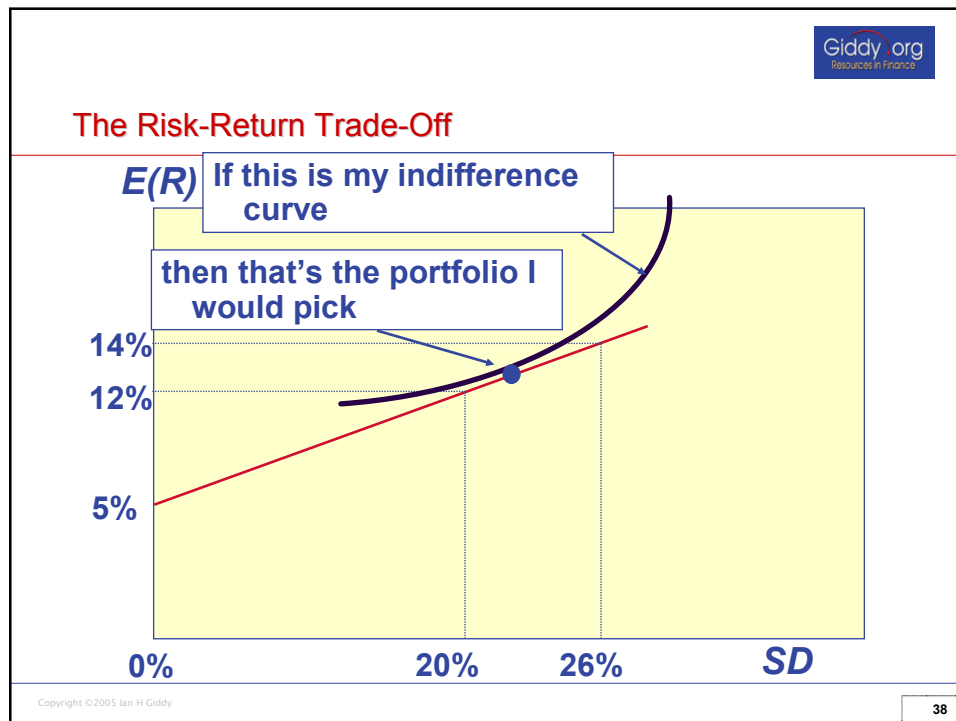
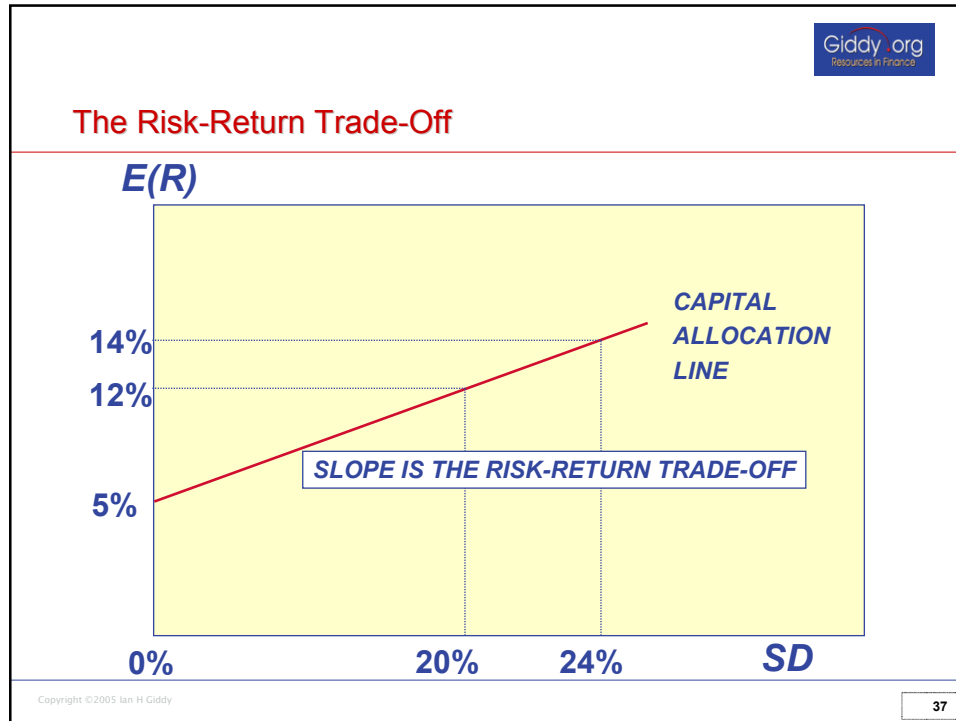
Characteristics of the Data

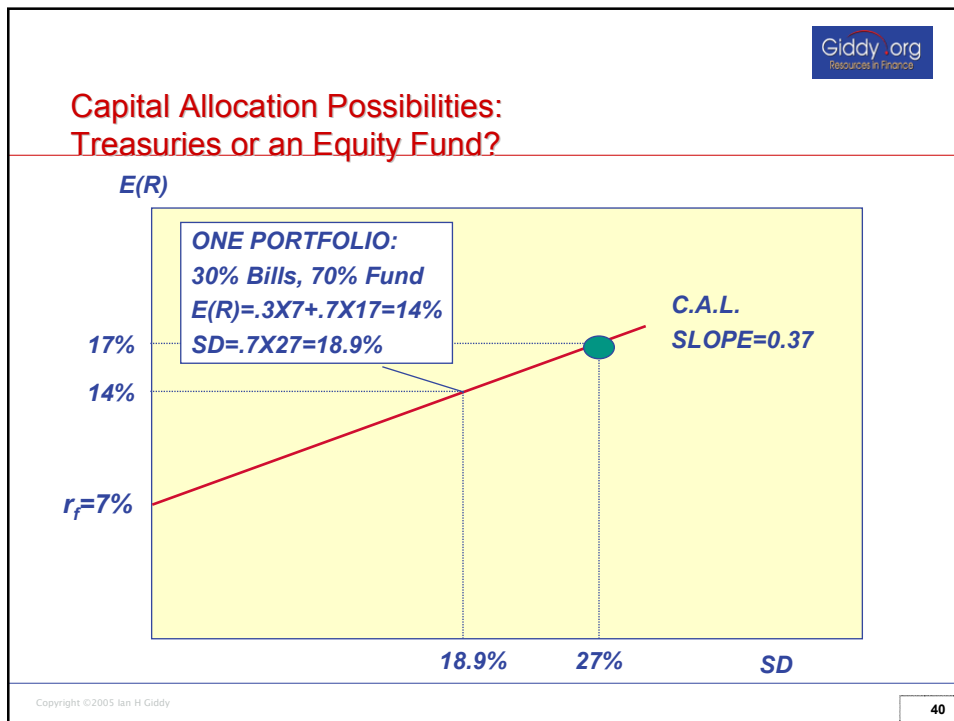
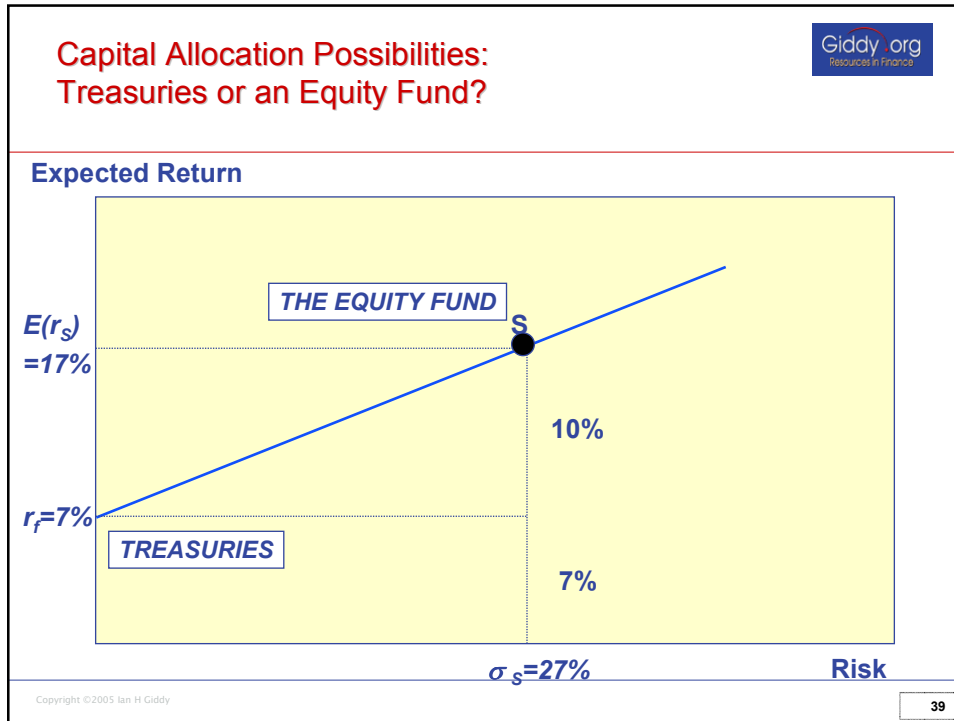
| January 1988-September 1994 | Daily % Price Change |
|------------------------------------|----------------------|
| Range | 5.759 |
| Minimum/Maximum | -1.965/3.793 |
| Count | 1740 |
| Mean | 0.0000 |
| Standard Deviation | 0.574 |
| Kurtosis | 4.251 |
| Skewness | 0.933 |
| Correlation to Normal Distribution | 0.976 |
| Autocorrelation | Not significant |

Volatility Projections: Pitfalls

S&P500 evolution and volatility estimates







If $E(r_S)=15\%$, $\sigma_S=22\%$, $r_f=7\%$

Allocate your money between a stock fund (y) and a Treasury bills ($1-y$). Then:

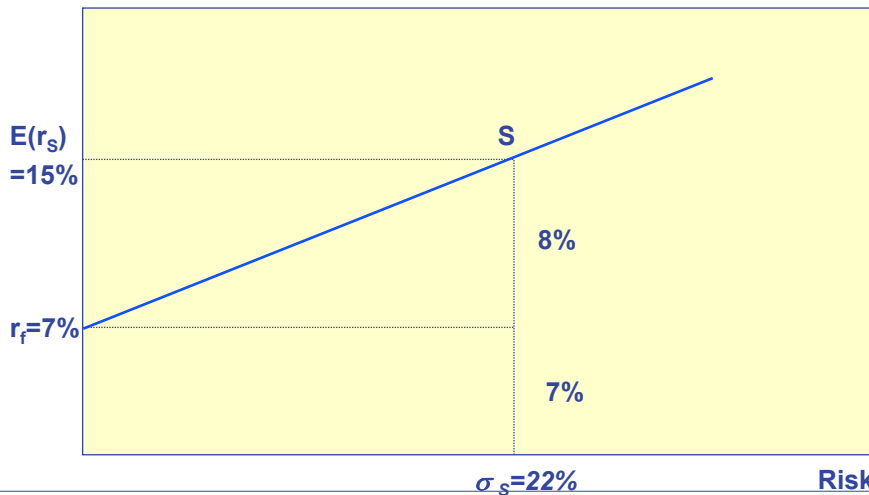
$$r_p = yr_S + (1-y)r_f$$

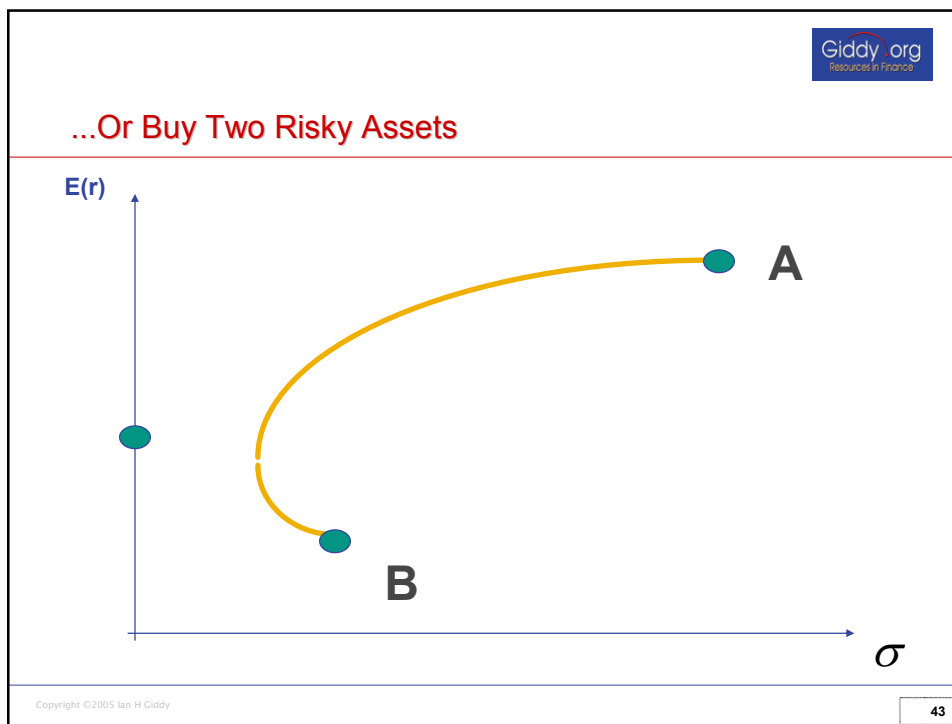
$$\begin{aligned} E(r_p) &= r_f + y[E(r_S) - r_f] \\ &= 7 + y[15 - 7] = 7 + y8 \end{aligned}$$

$$\sigma_p = y\sigma_S = y22$$

We Can Buy Some T-bills and Some of the Risky Fund...

Expected Return





Giddy.org
Resources in Finance

Measuring Portfolio Return...

To compute the return of a portfolio: use the weighted average of the returns of all assets in the portfolio, with the weight given each asset calculated as (value of asset)/(value of portfolio).

The *portfolio return* $E(R_p)$ is:

$$E(R_p) = (w_1k_1) + (w_2k_2) + \dots + (w_nk_n) = \sum w_j k_j$$

where w_j = weight of asset j, k_j = return on asset j

Copyright ©2005 Ian H Giddy

44

...and Portfolio Risk

The variance of a 2-asset portfolio is:

$$\sigma_P^2 = w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2w_A w_B \rho_{AB} \sigma_A \sigma_B$$

where w_A and w_B are the weights of A and B in the portfolio.

Case Study: A Portfolio

| | Weight | E(R) | Std Dev |
|-----------|--------|--------|---------|
| GPU | 0 | 0.1267 | 0.1715 |
| Teledyne | 0.25 | 0.1396 | 0.2893 |
| Kodak | 0.25 | 0.1402 | 0.3082 |
| Thai Fund | 0 | 0.2075 | 0.3278 |
| Merck | 0 | 0.1781 | 0.341 |
| ATT | 0.5 | 0.1126 | 0.1606 |
| TOTAL | 1 | | |

Portfolio Return Computation

| ASSET | RETURN | WEIGHT | PRODUCT |
|-------------------------|--------|-------------|---------------|
| 1 GPU | 12.67% | 0.00% | 0.0000 |
| 2 Teledyne | 13.96% | 25.00% | 0.0349 |
| 3 Kodak | 14.02% | 25.00% | 0.0351 |
| 4 Thai Fund | 20.75% | 0.00% | 0.0000 |
| 5 Merck | 17.81% | 0.00% | 0.0000 |
| 6 ATT | 11.26% | 50.00% | 0.0563 |
| TOTAL | | 100% | |
| Portfolio return | | | 12.63% |

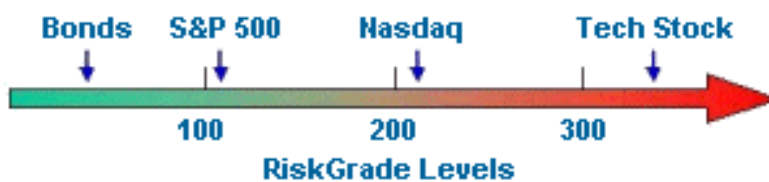
Portfolio Risk Computation

| CORRELATION MATRIX | | | | | | | |
|--------------------------------|---------|------|-------|-------|--------|--------|---------------|
| | STD DEV | GPU | Teled | Kodak | Thai F | Merck | ATT |
| GPU | 0.1715 | 1 | | | | | |
| Teledyne | 0.2893 | 0.44 | 1 | | | | |
| Kodak | 0.3082 | 0.17 | 0.65 | 1 | | | |
| Thai Fund | 0.3278 | 0.22 | 0.44 | 0.24 | 1 | | |
| Merck | 0.341 | 0.35 | 0.15 | 0.13 | 0.03 | 1 | |
| ATT | 0.1606 | 0.68 | 0.4 | 0.43 | 0.23 | 0.6327 | 1 |
| Portfolio Variance | | | | | | | 3.48% |
| Portfolio Std Deviation | | | | | | | 18.66% |

Summary: Portfolio Diversification Benefits

- Expected return is a weighted average
- Risk is *less*, because of diversification
- In general, the lower the correlation between asset returns, the greater the potential diversification of risk
- Only in the case of perfect negative correlation can risk be reduced to zero
- The amount of risk reduction achieved through diversification is also dependent upon the *proportions* in which the assets are combined

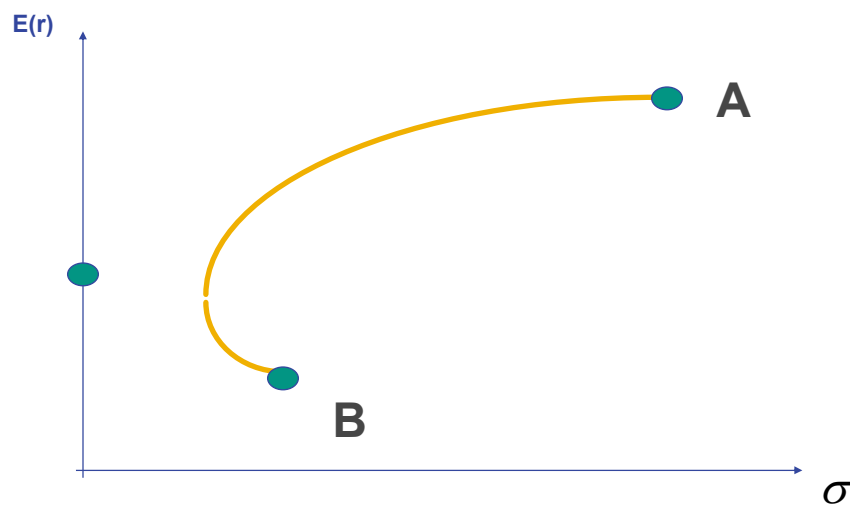
Measuring Your Portfolio's Risk: riskgrades.com

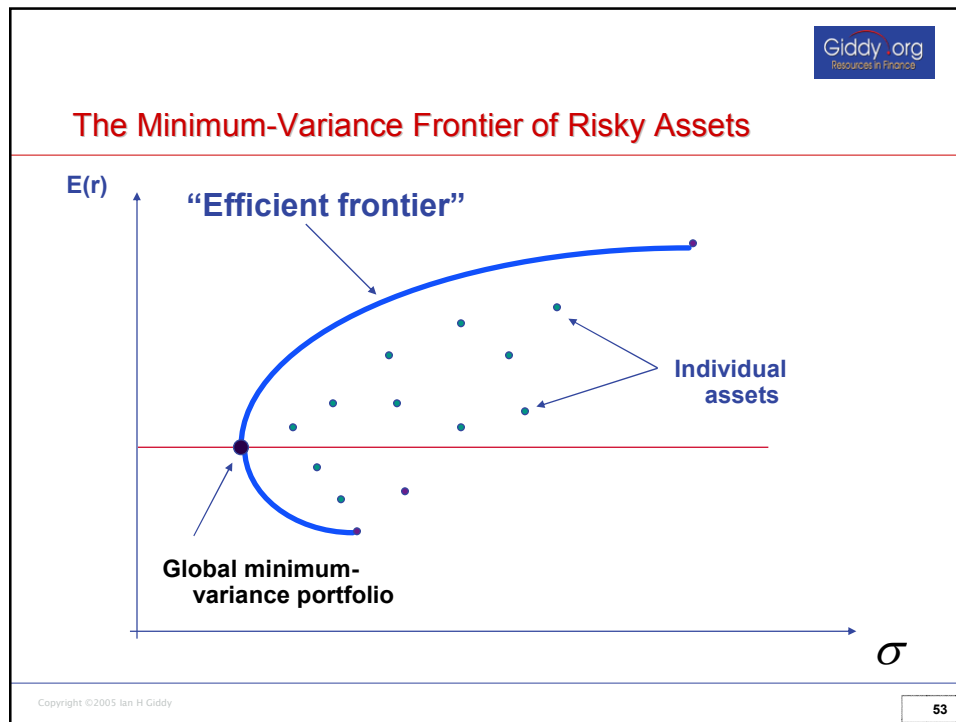


Extending Concepts to All Securities

- The optimal combinations result in lowest level of risk for a given return
- The optimal trade-off is described as the “efficient frontier”
- These portfolios are dominant

To Find the Risk-Return Possibilities, Vary the Proportions





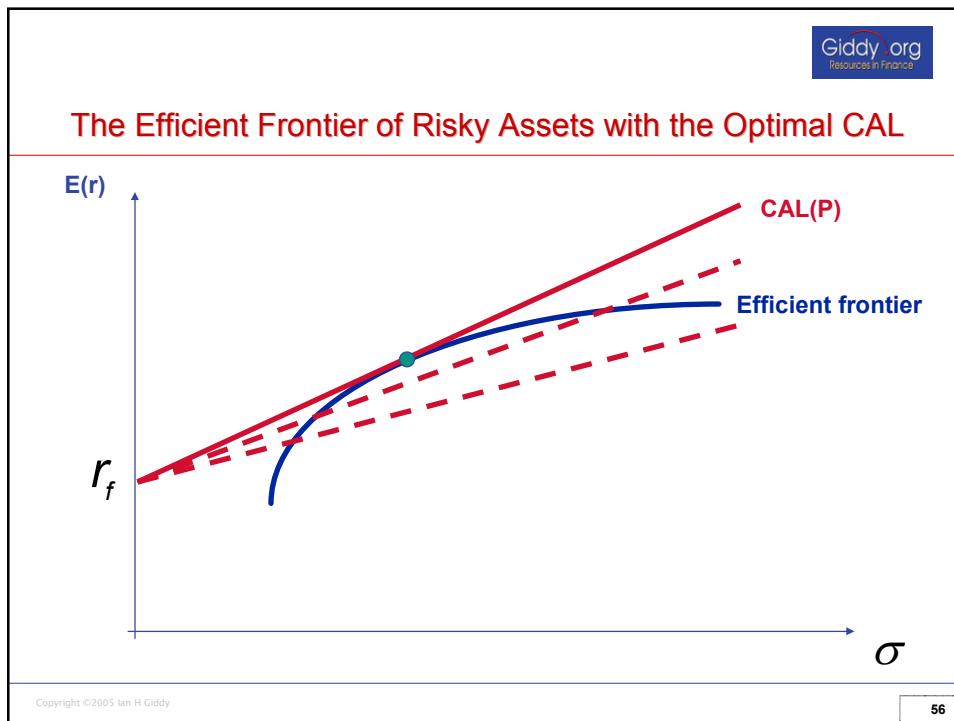
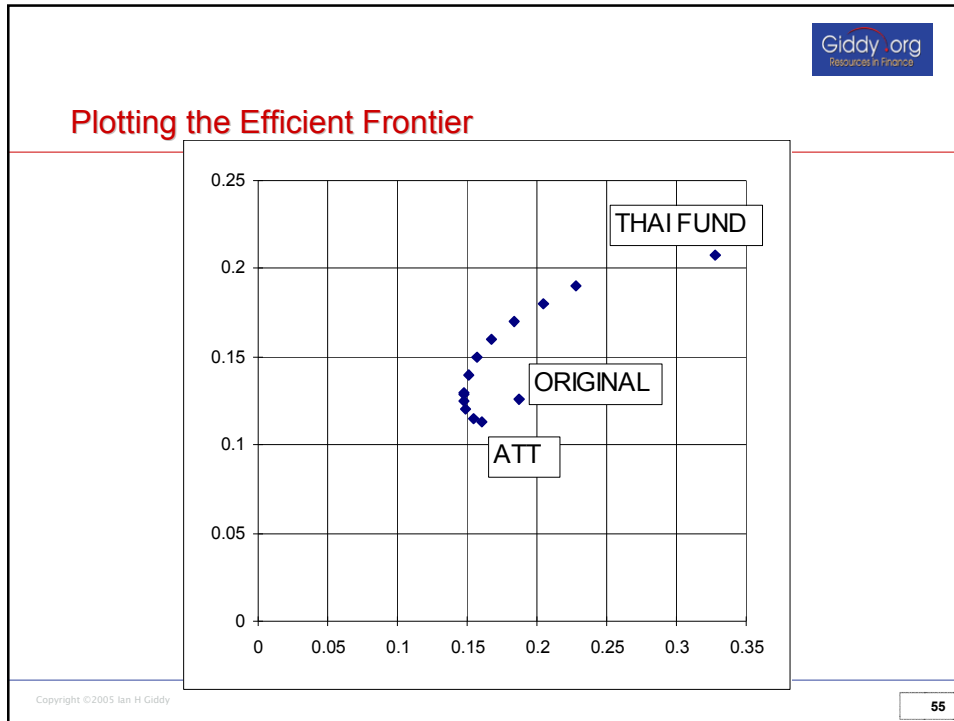
Giddy.org
Resources in Finance

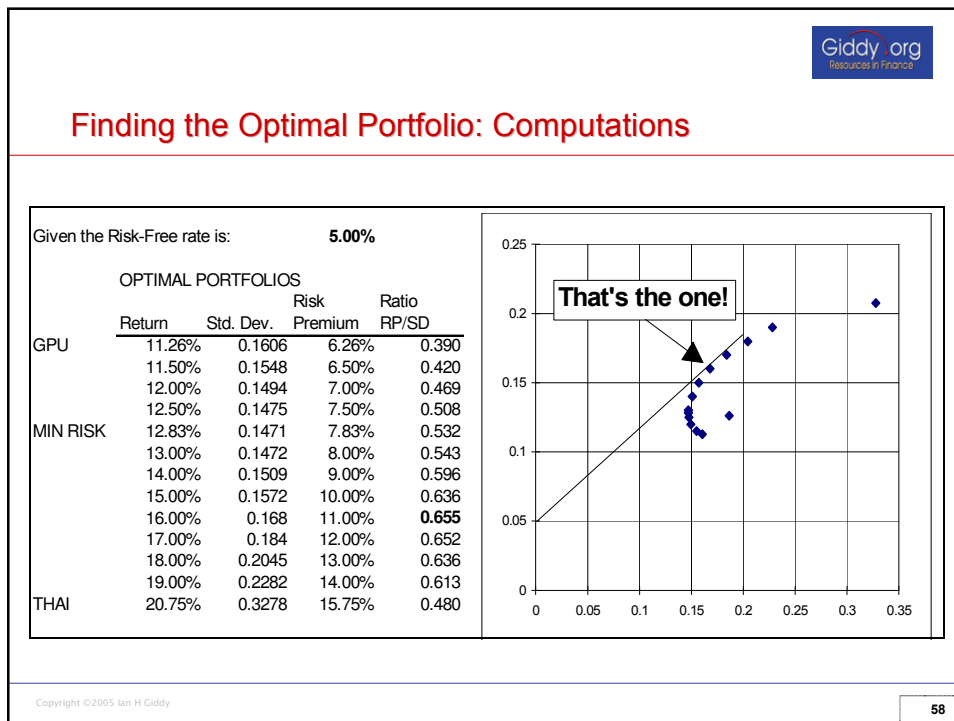
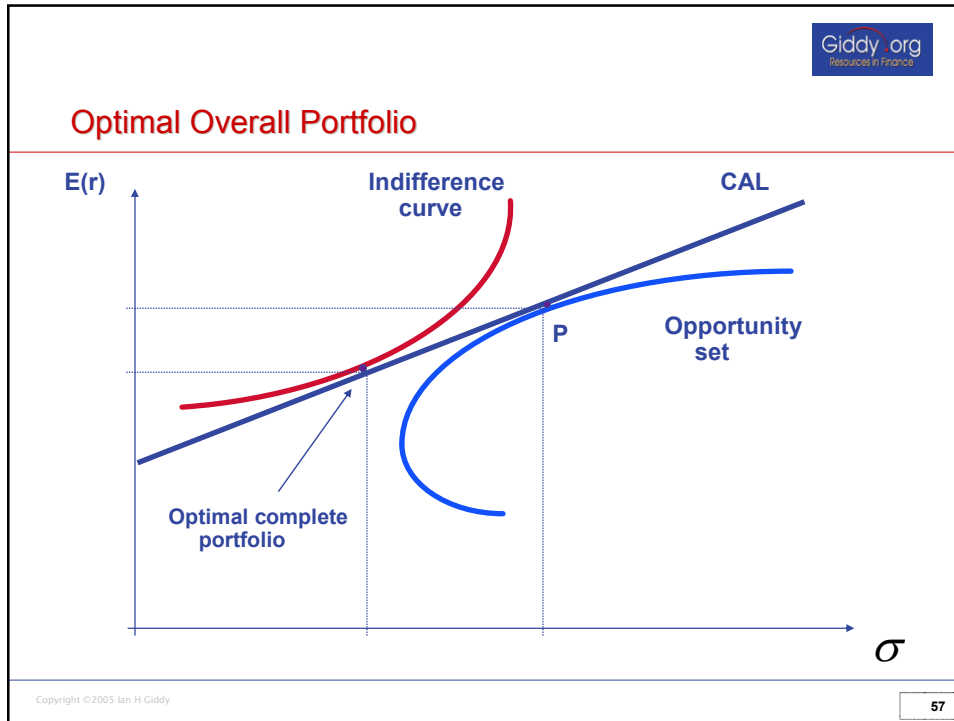
Given Return, Find Lowest-Risk Compositions

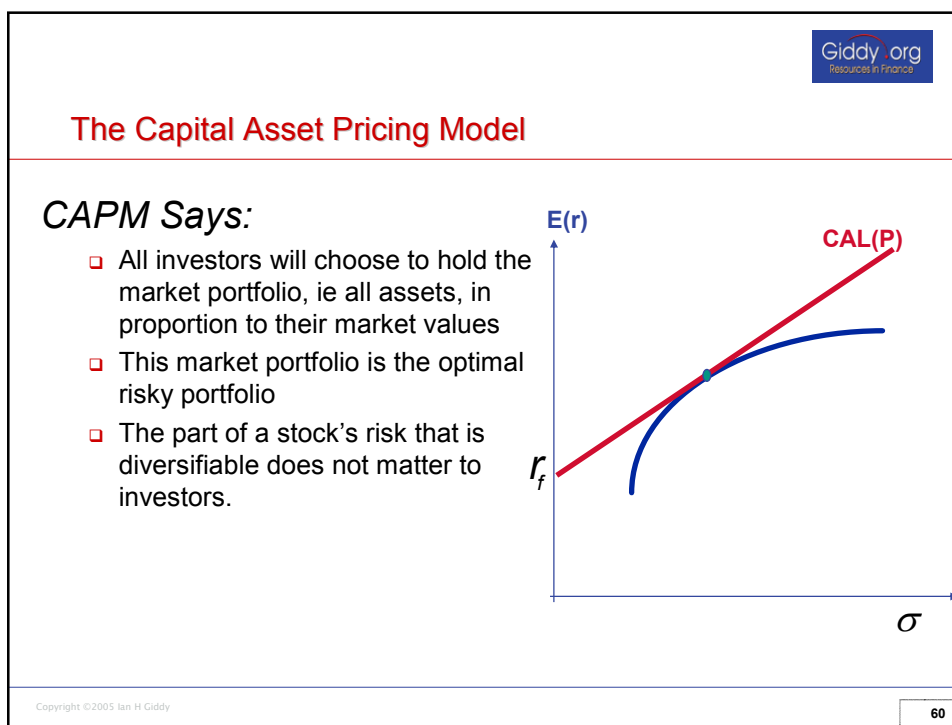
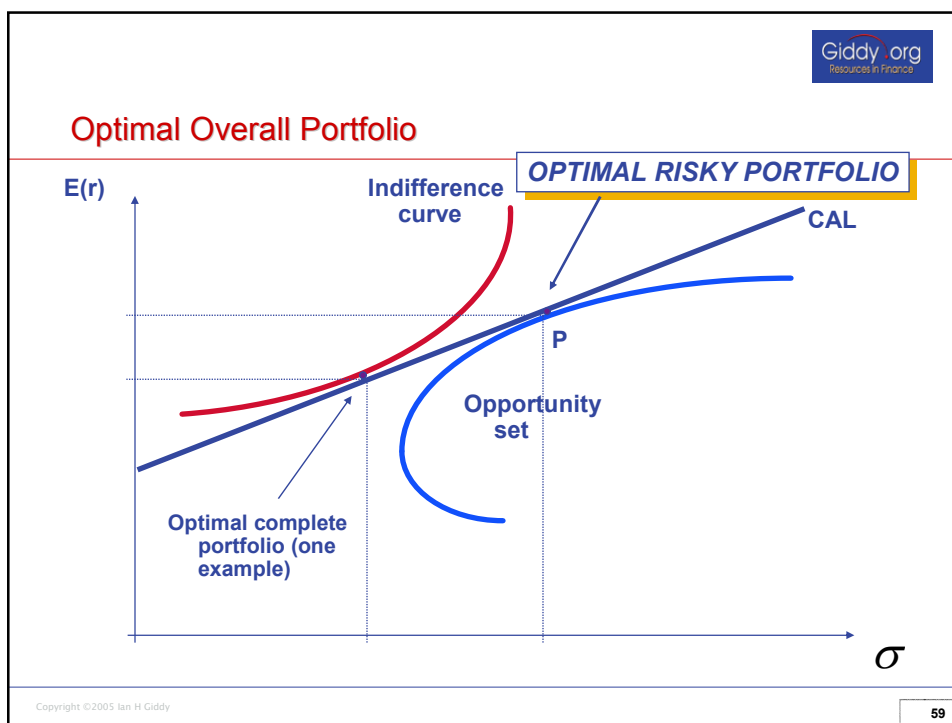
| OPTIMAL PORTFOLIOS | | | | | | | | | |
|--------------------|--------------|----------------|-------------|----------|-------|-----------|-------|-----|------|
| | Given Return | Best Std. Dev. | Composition | | | | | | ATT |
| | | | GPU | Teledyne | Kodak | Thai Fund | Merck | | |
| ALL ATT | 0.1126 | 0.1606 | 0% | 0% | 0% | 0% | 0% | 0% | 100% |
| | 0.115 | 0.1548 | 17% | 0% | 0% | 0% | 0% | 83% | |
| | 0.12 | 0.1494 | 33% | 0% | 5% | 2% | 0% | 60% | |
| MIN RISK | 0.125 | 0.1475 | 36% | 0% | 6% | 6% | 0% | 52% | |
| | 0.1283 | 0.1471 | 38% | 0% | 6% | 9% | 0% | 47% | |
| | 0.13 | 0.1472 | 39% | 0% | 7% | 11% | 0% | 44% | |
| | 0.14 | 0.1509 | 44% | 0% | 9% | 16% | 5% | 25% | |
| | 0.15 | 0.1572 | 50% | 0% | 12% | 20% | 11% | 7% | |
| | 0.16 | 0.168 | 43% | 0% | 11% | 28% | 18% | 0% | |
| | 0.17 | 0.184 | 30% | 0% | 9% | 37% | 24% | 0% | |
| | 0.18 | 0.2045 | 17% | 0% | 7% | 46% | 30% | 0% | |
| | 0.19 | 0.2282 | 4% | 0% | 5% | 55% | 36% | 0% | |
| MAX RETU | 0.2075 | 0.3278 | 0% | 0% | 0% | 100% | 0% | 0% | |
| ORIGINAL | 12.63% | 18.66% | 0% | 25% | 25% | 0% | 0% | 50% | |


Copyright ©2005 Ian H Giddy

54





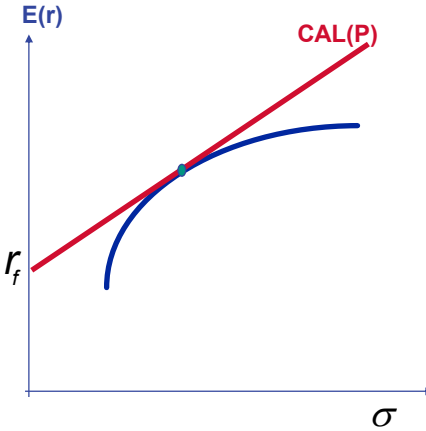





The Capital Asset Pricing Model

CAPM Says:

- The total risk of a financial asset is made up of two components.
 - A. Diversifiable (unsystematic) risk
 - B. Nondiversifiable (systematic) risk
- The only relevant risk is nondiversifiable risk.



Copyright ©2005 Ian H Giddy 61



The Equation for the CAPM

$$r_j = R_F + \beta_j (r_m - R_F)$$

where:

r_j = Required return on asset j;
 R_F = Risk-free rate of return
 β_j = Beta Coefficient for asset j;
 r_m = Market return

The term $[\beta_j(r_m - R_F)]$ is called the risk premium and $(r_m - R_F)$ is called the market risk premium

Copyright ©2005 Ian H Giddy 62

The Capital Asset Pricing Model

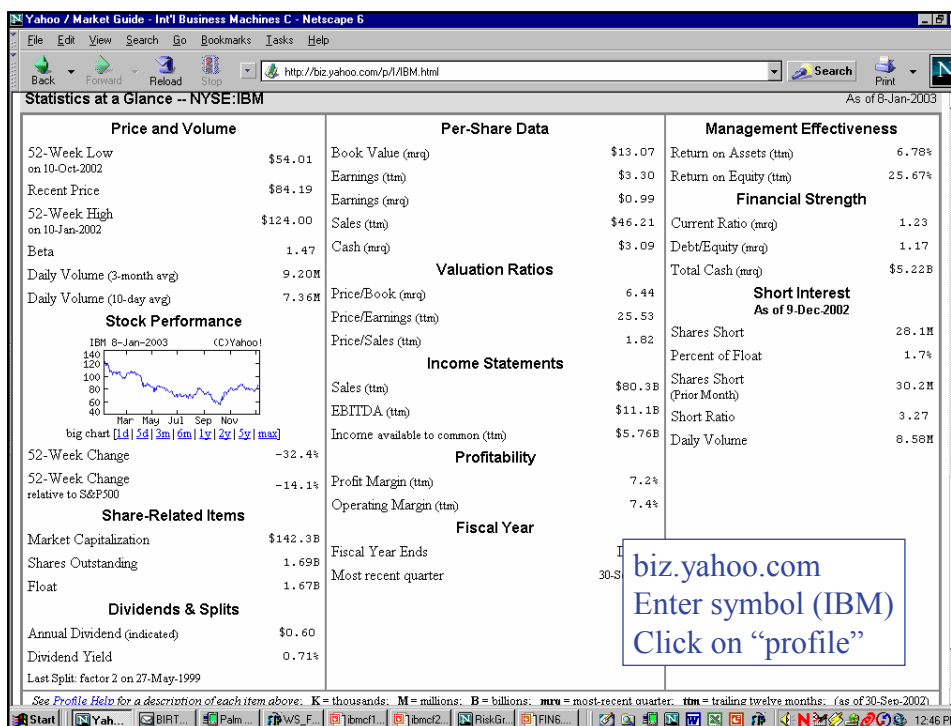
- ❑ Uses variance as a measure of risk
- ❑ Specifies that only that portion of variance that is not diversifiable is rewarded.
- ❑ Measures the non-diversifiable risk with *beta*, which is standardized around one.
- ❑ Translates beta into expected return:

$$\text{Expected Return} = \text{Riskfree rate} + \text{Beta} * \text{Risk Premium}$$

Beta Coefficients for Selected Companies

| | |
|-----------------|------|
| Exxon-Mobil | 0.33 |
| AT&T | 0.84 |
| IBM | 1.47 |
| Wal-Mart | 0.91 |
| GM | 1.19 |
| Microsoft | 1.75 |
| Harley-Davidson | 1.33 |
| AOL | 2.68 |

Source: biz.yahoo.com



Estimating Expected Returns

- IBM's Beta = 1.47
- Riskfree Rate = 5.00% (Long term Government Bond rate)
- Risk Premium = 5.50% (Approximate historical premium)

Expected Return =
 $5.00\% + 1.47(5.50\%) = 13.01\%$

From Cost of Equity to Cost of Capital

- The cost of capital is a composite cost to the firm of raising financing to fund its projects.
- It is the discount rate that will be applied to capital budgeting projects within the firm

Cost of Debt, Based on Bond Yield and Tax Rate

| Corporate Bond Detail | | |
|------------------------------|--------------|------------------------------------|
| INTERNATIONAL BUSINESS MACHS | | Coupon: 7.500 Maturity: 06-15-2013 |
| Non Callable | | |
| Description | | Offering |
| CUSIP | 459200AL5 | Quantity Available |
| Listed? | Yes | Order Quantity |
| Ratings | A1/A+ | Minimum |
| Industry | Industrial | Price |
| Delivery | Reg. & B. E. | Yld to Mat |
| Dated Date | 06-15-1993 | Yld to Call |
| First Coupon | 12-15-1993 | Current Yld |
| Pay Frequency | Semi-Annual | |
| Settlement Date | 01-14-2003 | |
| | | Calculate Reset |

Source: bondsonline.com

| | |
|--------------------|-----------------|
| Income Before Tax | \$2,404,000,000 |
| Income Tax Expense | \$710,000,000 |

← 29%

The Cost of Capital

| Choice | Cost |
|--|---|
| 1. Equity | Cost of equity |
| - Retained earnings | - depends upon riskiness of the stock |
| - New stock issues | - will be affected by level of interest rates |
| - Warrants | |
| Cost of equity = riskless rate + beta * risk premium | |
| 2. Debt | Cost of debt |
| - Bank borrowing | - depends upon default risk of the firm |
| - Bond issues | - will be affected by level of interest rates |
| | - provides a tax advantage because interest is tax-deductible |
| Cost of debt = Borrowing rate (1 - tax rate) | |
| Debt + equity = Capital | Cost of capital = Weighted average of cost of equity and cost of debt; weights based upon market value. |
| Cost of capital = $k_d [D/(D+E)] + k_e [E/(D+E)]$ | |

Estimating Market Value Weights

- Market Value of Equity should include the following
 - Market Value of Shares outstanding
 - Market Value of Warrants outstanding
 - Market Value of Conversion Option in Convertible Bonds
- Market Value of Debt is more difficult to estimate because few firms have only publicly traded debt. There are two solutions:
 - Assume book value of debt is equal to market value
 - Estimate the market value of debt from the book value

Estimating Cost of Capital: IBM

- Equity
 - Cost of Equity = 13.01%
 - Market Value of Equity = \$142 Billion
 - Equity/(Debt+Equity) = 70%
- Debt
 - After-tax Cost of debt = $4.95\% (1-.29) = 3.51\%$
 - Market Value of Debt = \$62 Billion
 - Debt/(Debt +Equity) = 30%
- Cost of Capital = $13.01\%(.70)+3.51\%(.30) = 10.16\%$

Choosing a Hurdle Rate

- Either the cost of equity or the cost of capital can be used as a hurdle rate, depending upon whether the returns measured are to equity investors or to all claimholders on the firm (capital)
- If returns are measured to equity investors, the appropriate hurdle rate is the cost of equity.
- If returns are measured to capital (or the firm), the appropriate hurdle rate is the cost of capital.

First Principles of Corporate Finance

- Invest in projects that yield a return greater than the **minimum acceptable hurdle rate**.
 - **The hurdle rate should be higher for riskier projects and reflect the financing mix used - owners' funds (equity) or borrowed money (debt)**
 - **Returns on projects should be measured based on cash flows generated and the timing of these cash flows; they should also consider both positive and negative side effects of these projects.**
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- If there are not enough investments that earn the hurdle rate, return the cash to stockholders.
 - **The form of returns - dividends and stock buybacks - will depend upon the stockholders' characteristics.**
- Minimize unneeded financial risk.

Summary: Risk and Return

- *Equity risk and bond risk*
- *Risk in a portfolio context*
- *Risk and beta*
- *The required return on investments*



Contact Information

Ian H. Giddy

NYU Stern School of Business

Tel 212-998-0426; Fax 212-995-4233

ian.giddy@nyu.edu

<http://giddy.org>