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Financing Decisions

BMA Ch 14

- Financing Math and NPV
- Financing and Investment Decisions Compared
- Financial Market Efficiency
- Six Lessons of Market Efficiency

Financing Math and NPV

Ex: Guaranteed (Subsidized) Student Loan

The government facilitates your borrowing \$100,000 at below market rates to finance your masters degree.

Term: 10 years

Rate: 3%, with annual interest payments

Repayment: on maturity (no amortization)

What is the value of the subsidized loan, if alternative (market rate) financing costs 10%?

$$\text{NPV} = \text{amount borrowed} - \text{PV of interest pmts} \\ - \text{PV of loan repayment}$$

Financing and Investment Decisions Compared

- Optimization of right side of B.S.
 - Financing decisions easier because of efficient capital markets
 - Efficient capital markets imply zero NPV transactions
 - Financing decisions can be reversed easily
- Searching for capital market inefficiencies
 - Information asymmetry
 - Transactions costs
 - Taxes
 - Other subsidies

Financial Market Efficiency

Random Walk Theory

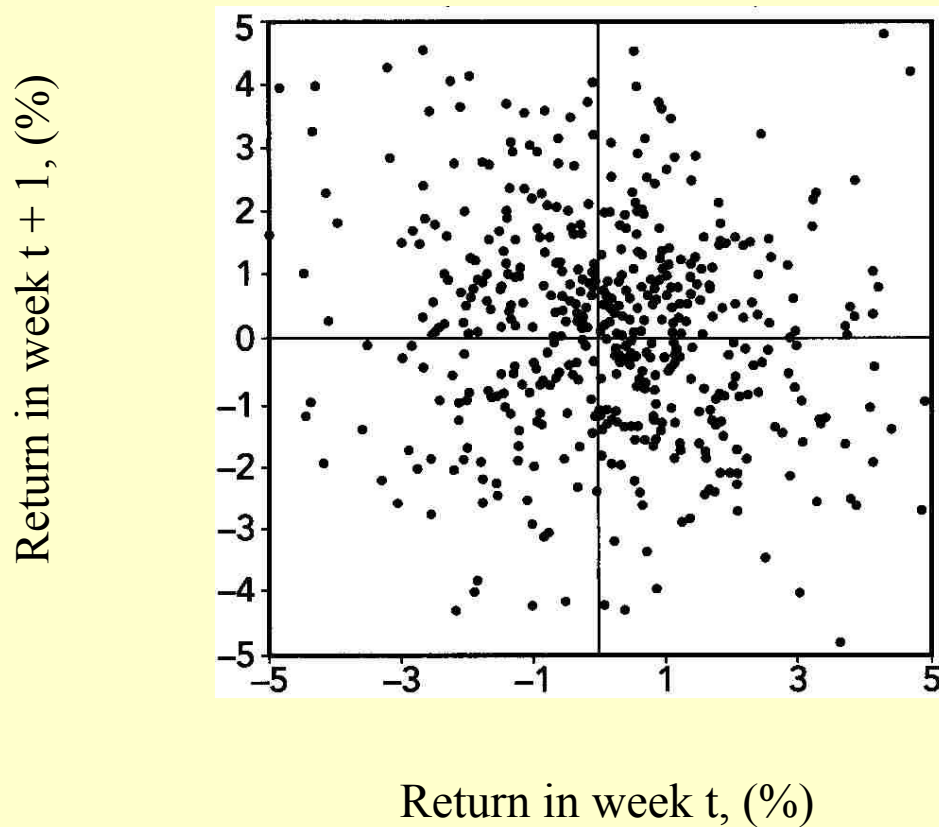
- The movements of stock prices from day to day DO NOT reflect any pattern
- Statistically speaking, the movement of stock prices is random (*skewed positive over the long term*).

Financial Market Efficiency

Random Walk Theory

S&P Composite

(correlation = $-.07$)



Source: Undetermined

Financial Market Efficiency

- **Weak Form Efficiency**
 - Market prices reflect all historical information
- **Semi-Strong Form Efficiency**
 - Market prices reflect all publicly available information
- **Strong Form Efficiency**
 - Market prices reflect all information, both public and private

Lessons of Market Efficiency

- ⇒ Markets have no memory
- ⇒ Trust market prices
- ⇒ Read the entrails
- ⇒ There are no financial illusions
- ⇒ The *do it yourself* alternative
- ⇒ Seen one stock, seen them all

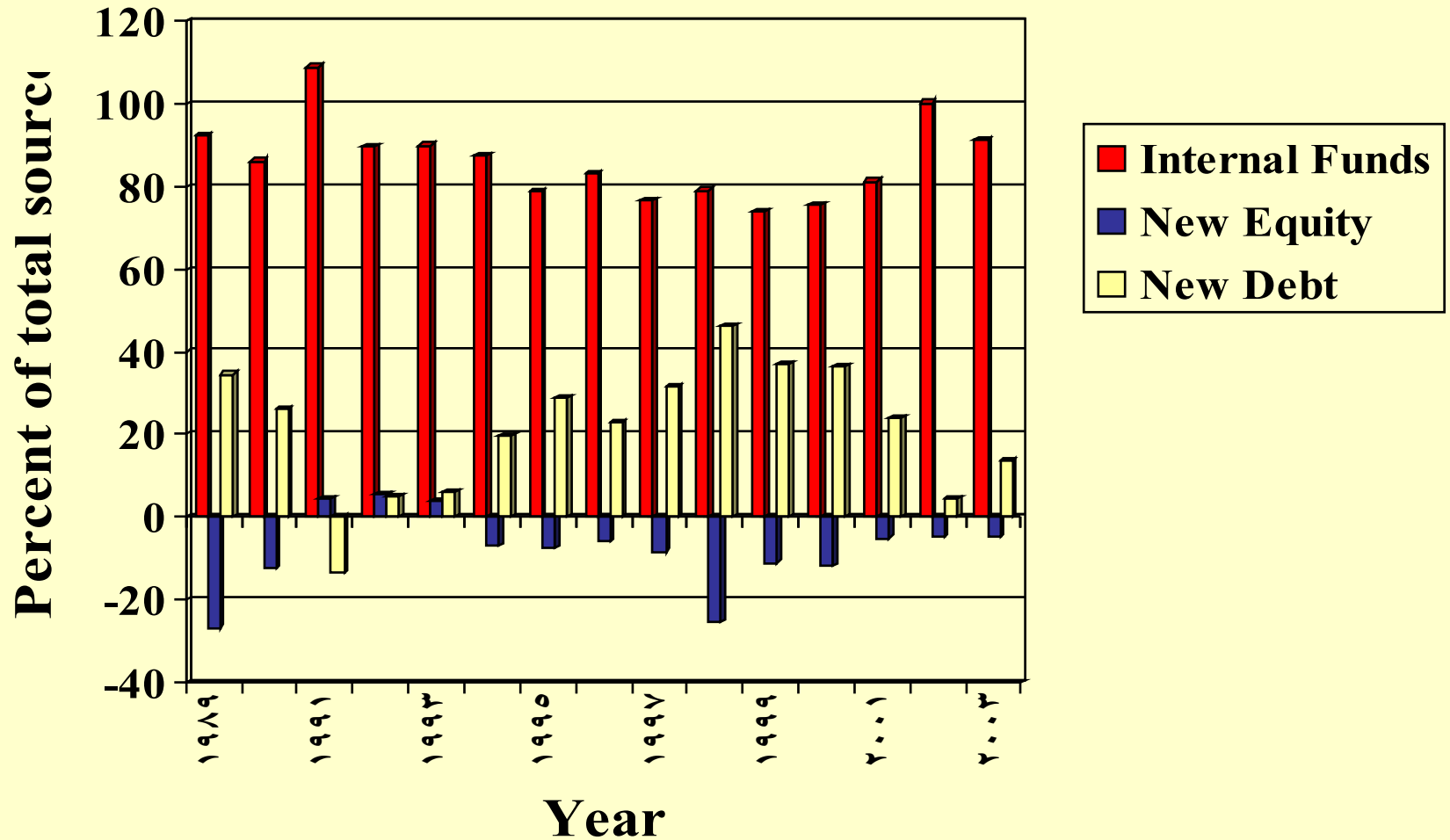
Corporate Financing Overview

- Patterns of Corporate Financing
 - Equity
 - Debt
- Financial Markets
- Financial Institutions

Patterns of Corporate Financing

- Internal sources
 - Profits from operations, net of dividends
 - Retained Earnings = Profits – Dividends
- External sources
 - Equity – stock sales
 - Debt – other people's money

Patterns of Corporate Financing



Patterns of Corporate Financing

Consolidated Balance Sheet

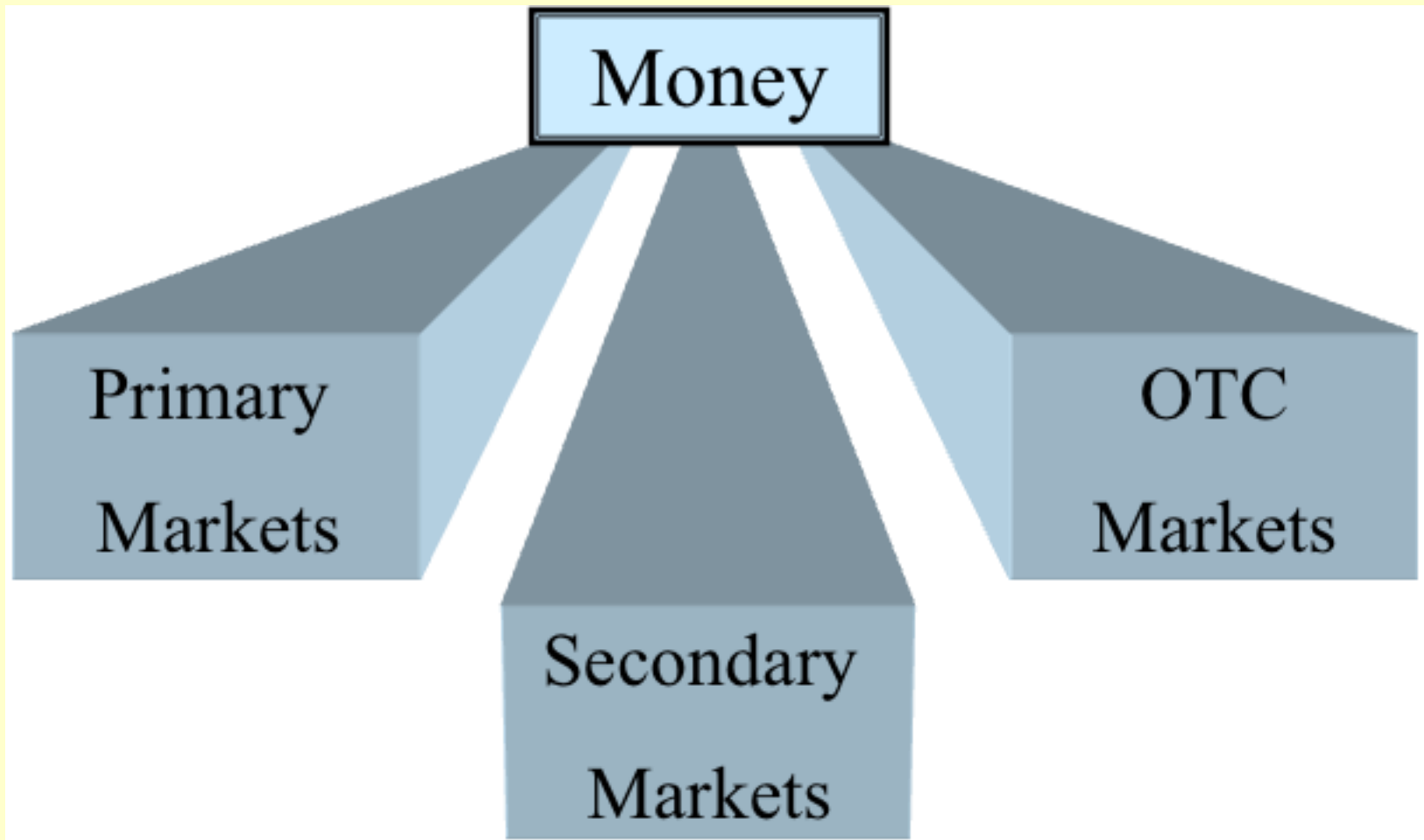
Merck & Co., Inc. and Subsidiaries

December 31

(\$ in millions)

	2004	2003
Assets	\$42,572.8	\$40,587.5
Liabilities and Stockholders' Equity		
Current Liabilities		
Loans payable and current portion of long-term debt	\$ 2,181.2	\$ 1,700.0
Trade accounts payable	421.4	735.2
Accrued and other current liabilities	5,288.1	3,772.8
Income taxes payable	3,012.3	2,538.9
Dividends payable	841.1	822.7
Total current liabilities	11,744.1	9,569.6
Long-Term Debt	4,691.5	5,096.0
Deferred Income Taxes and Noncurrent Liabilities	6,442.1	6,430.3
Minority Interests	2,406.9	3,915.2
Stockholders' Equity		
Common stock, one cent par value		
Authorized - 5,400,000,000 shares		
Issued - 2,976,230,393 shares	29.8	29.8
Other paid-in capital	6,869.8	6,956.6
Retained earnings	36,626.3	34,142.0
Accumulated other comprehensive (loss) income	(45.9)	65.5
	43,480.0	41,193.9
Less treasury stock, at cost		
767,591,491 shares - 2004		
754,466,884 shares - 2003	26,191.8	25,617.5
Total stockholders' equity	17,288.2	15,576.4
	\$42,572.8	\$40,587.5

Financial Markets



Financial Institutions

Company

Obligations

Funds

Intermediaries

Banks

Insurance Cos.

Brokerage Firms

Financial Institutions

Intermediaries

Obligations

Funds

Investors

Depositors

Policyholders

Investors

Debt

- Patterns of Corporate Financing
- Characteristics of Debt
 - Maturity
 - Repayment Provisions
 - Seniority
 - Flexibility
 - Security
 - Fixed v. Floating Rates
 - Cost
 - Risk to Lender
- Selecting a Debt Instrument
- Debt Market Processes
- Other Debt Terminology
- Debt Ownership Distribution

Patterns of Corporate Financing

Consolidated Balance Sheet

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Characteristics of Debt Maturity

- Short term ($T < 1$ yr)
 - Non-interest bearing
 - Interest bearing
 - Bank Loan
 - Bank credit agreement
 - Commercial paper
 - To finance current assets
- Intermediate term ($1 \text{ yr} < T < 10 \text{ yrs}$)
 - Often available in pools
 - Variable rates
 - To finance equipment

Characteristics of Debt Maturity

- Long term ($T > 10$ yrs)
 - Conventional mortgage
 - Public bonds
 - Private placement
 - For permanent financing
 - Building
 - Other long term assets

Characteristics of Debt Repayment Provisions

- Level payment amortization on single note
- Balloon payment
 - Interest-only loans
 - Other funky opportunities
- Bond Series
 - See Revenue Bond description (later)

Characteristics of Debt Seniority

- Place in cash flow queue
 - Senior debt
 - Subordinated debt
- Pecking order for cash - expanded
 - Employees
 - Utilities
 - Government
 - Critical vendors
 - Senior debt
 - Subordinated debt
 - Other vendors
 - Preferred stockholders
 - Common stockholders

Characteristics of Debt Flexibility of Contract

- Call option – repay early (option to buy)
- Asset maintenance
- Additional parity indebtedness
- Restrictions on leasing
- Required reserves - debt service reserve fund
- Operating requirements
 - Debt service coverage ratio
 - Other financial ratios

Characteristics of Debt Other

- Security - what pledged to lenders
 - mortgage
 - unsecured
- Fixed v. floating rates
- Cost - effective interest rate
 - IRR

Characteristics of Debt

Risks to Lenders

- “Default Risk” is the term used to describe the likelihood that a firm will walk away from its obligation, either voluntarily or involuntarily
- “Bond Ratings” are issued on debt instruments to help investors assess the default risk of a firm
 - Investment Grade
 - Moody’s: Baa or above
 - S&P: BBB or above
 - Speculative Grade (Junk)
 - Lower than Baa or BBB

Characteristics of Debt Risks to Lenders

- Interest rate risk
 - Prevailing rates can rise
 - Firm-specific causes
 - General market causes
 - Inflation
 - Federal Reserve Board action
 - Bond prices fall
- Compensation for risk
 - Higher interest rate (risk premium)
 - Security pledge
 - Covenants and other restrictions on management

Selecting a Debt Instrument

Criteria

- True borrowing cost
 - Effective interest rate
- Payback period (term) compared to period financing needed
- Flexibility of contract terms

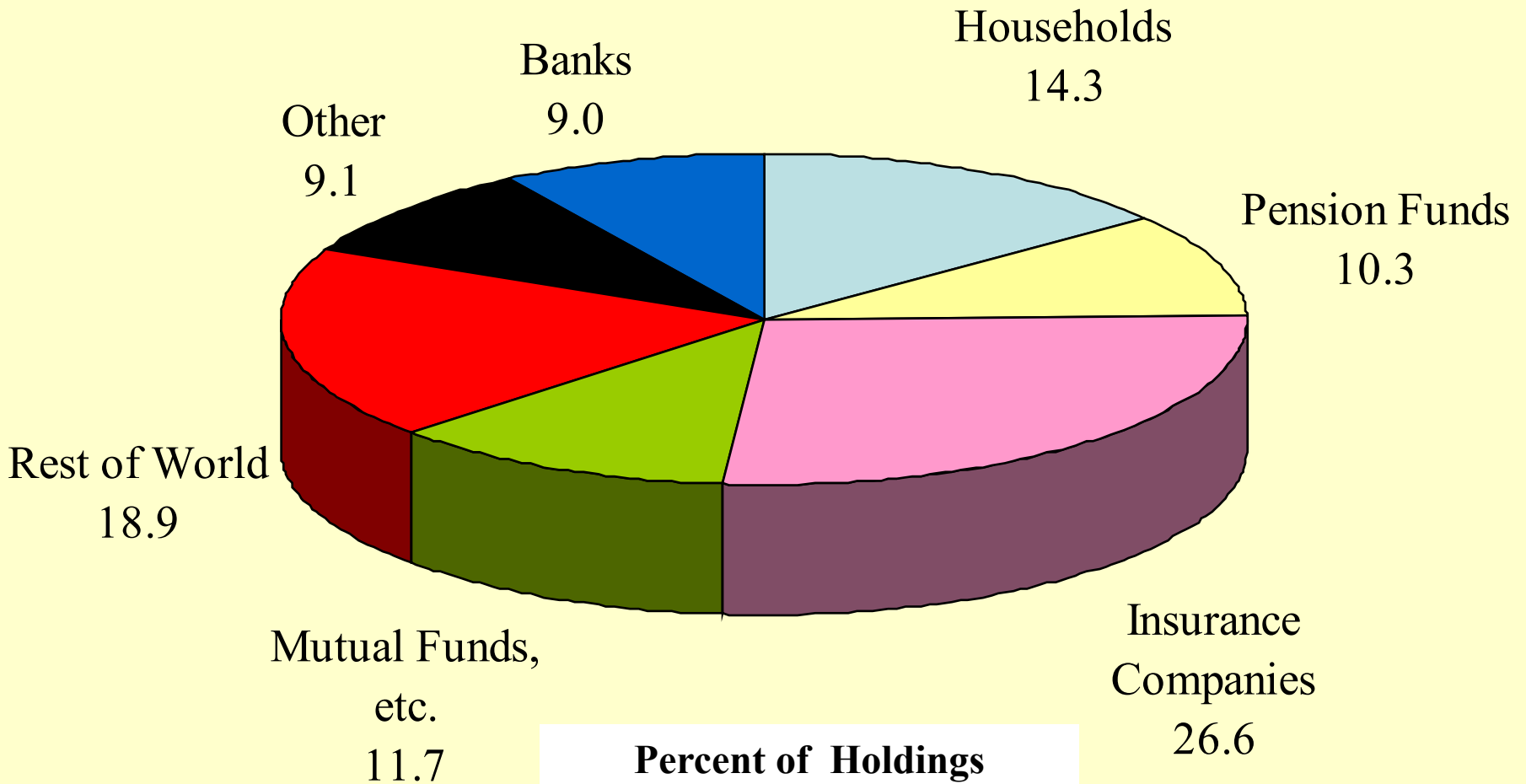
Debt Market Processes

- See NFP Revenue Bond description

Other Debt Terminology

- Prime Rate - Benchmark interest rate charged by banks to best credit risks
- Funded Debt - Debt with more than 1 year remaining to maturity
- Sinking Fund - Fund established to retire debt before maturity
- Private Placement - Sale of securities to a limited number of investors without a public offering
- Convertible Bond - Bond that the holder may exchange for a specified amount of another security

Debt Ownership Distribution (2004)



Equity

- Patterns of Corporate Financing
- Equity on Balance Sheet
- Common Stock
- Preferred Stock
- Equity Ownership Distribution
- Ownership Sequence
- Other Equity Terminology

Patterns of Corporate Financing

Consolidated Balance Sheet

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Equity on the Balance Sheet

- Common stock at par
- Additional paid-in capital
- Retained earnings
- Preferred stock
- Book Value v. Market Value

Equity on the Balance Sheet

Merck, December 31, 2004

Book Value

Common Stock

2.976 B shares

Par \$.01 \$ 29.8 M

Add'l paid-in cap. 6,869.8 M

Retained earnings 36,626.3 M

Accum. other loss (45.9 M)

Less: treas. Stock (26,191.8 M)

Total Book Value \$17,288.2 M

Market Value

(2.976 – 0.768)

= 2.208 B shares

Price per share \$46

Total Market Value

\$101,568 M

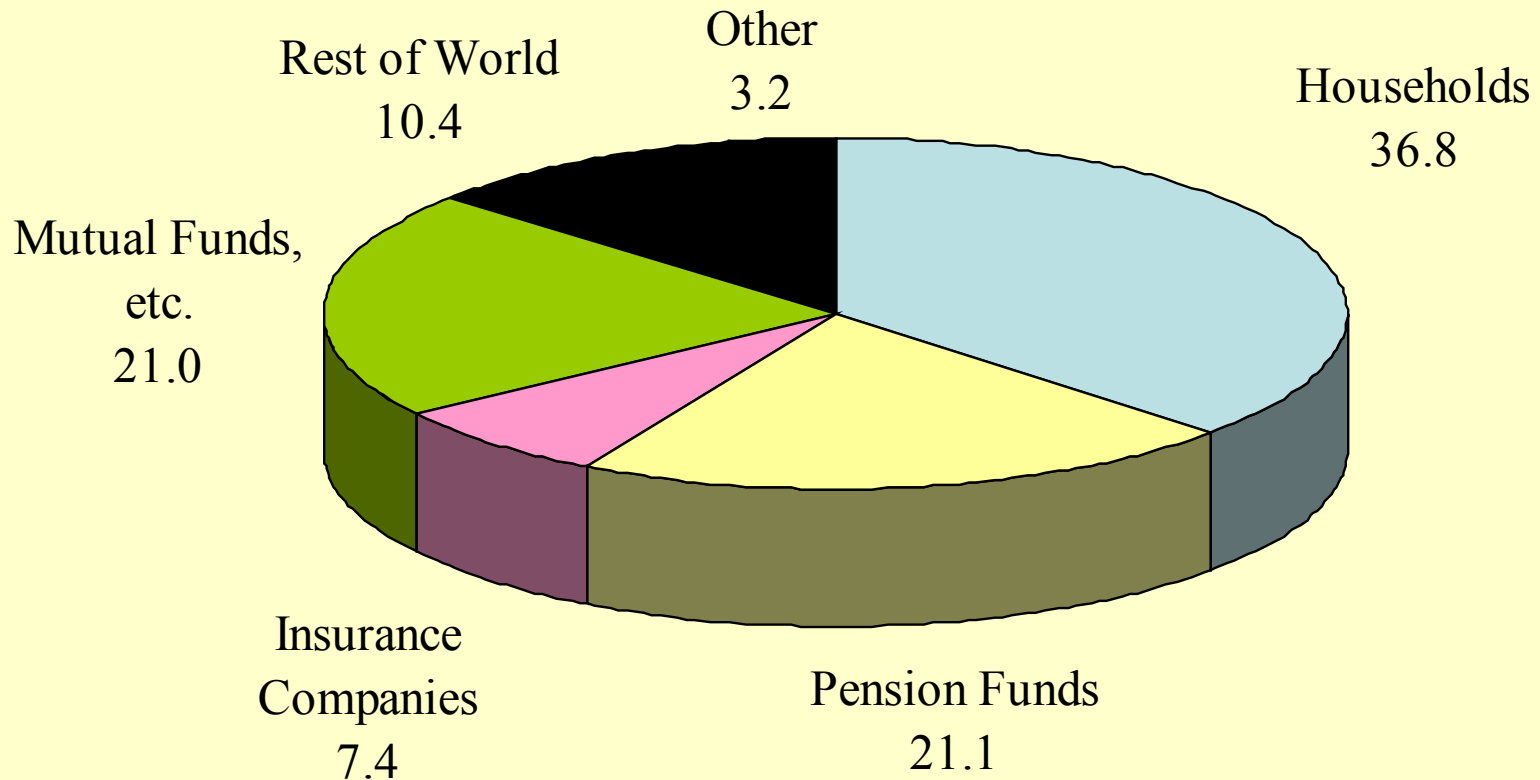
Common Stock

- Share in ownership of firm
 - Vote in affairs of firm
 - Receive dividends – last claim on cash flows
- Value
 - Book Value
 - capital the firm has raised from shareholders in the past over history of firm
 - Market Value
 - depends on the future dividends (and share price appreciation) that shareholders expect to receive

Preferred Stock

- Fixed dividends
- Priority in dividend payment over common stock
- No voting rights
- Quasi-debt
- Net Worth - Book value of common shareholder's equity plus preferred stock

Equity Ownership Distribution Holdings of Corp Equities (2004)



Percent of Holdings

Ownership Sequence

- Founders
- Venture Capitalists
- Public

Ownership Sequence

From Founders to VCs

First Stage Market Value Balance Sheet (\$mil)

Assets		Liabilities and Equity	
Cash from new equity	1.0	New equity from venture capital	1.0
Other assets	1.0	Your original equity	1.0
Value	2.0	Value	2.0

Ownership Sequence

Additional VC Financing

Second Stage Market Value Balance Sheet (\$mil)

Assets		Liabilities and Equity	
Cash from new equity	4.0	New equity from 2nd stage	4.0
Fixed assets	1.0	Equity from 1st stage	5.0
Other assets	9.0	Your original equity	5.0
Value 14.0		Value 14.0	

Ownership Sequence

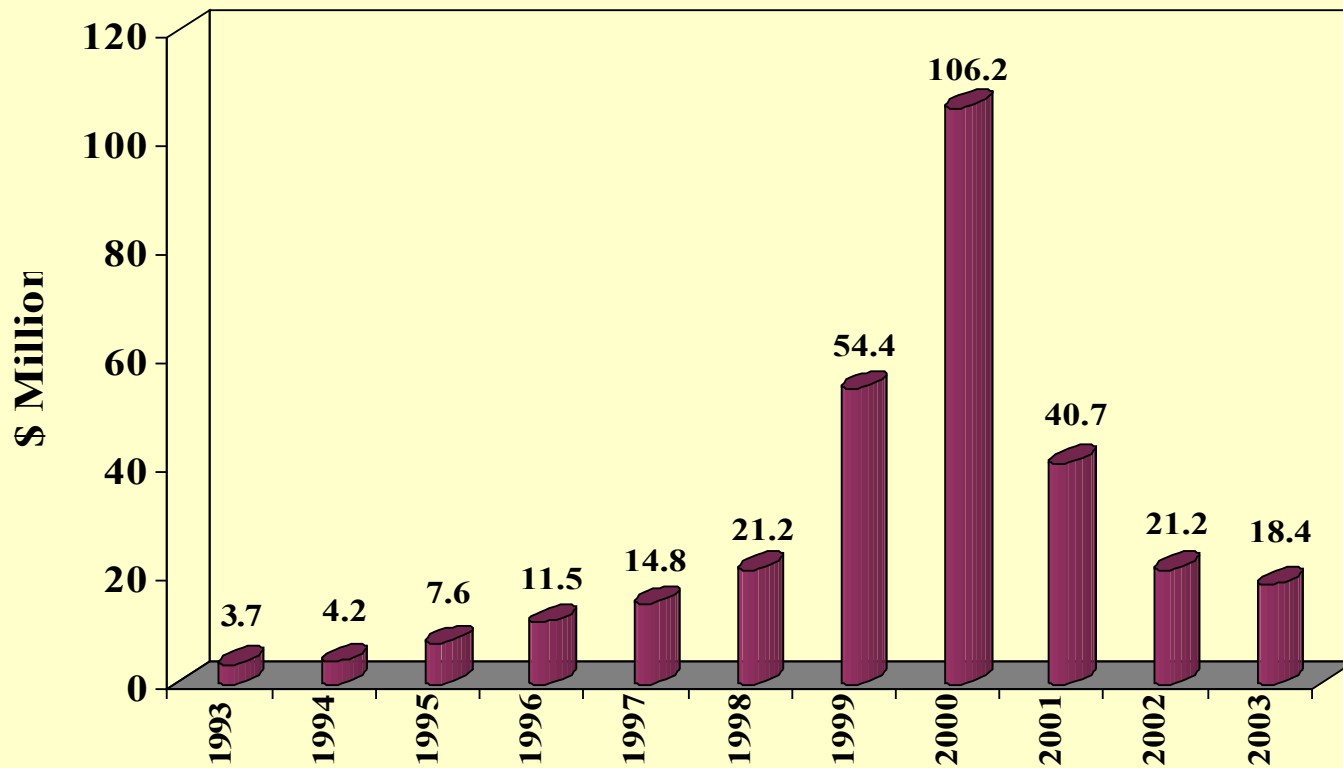
Initial Public Offering

- Initial Public Offering (IPO) - First offering of stock to the general public
- Underwriter - Firm that buys an issue of securities from a company and resells it to the public
- Spread - Difference between public offer price and price paid by underwriter
- Public offer price depends on
 - Firm's future earning potential
 - Number of shares
 - Percentage of firm going into hands of public
- Prospectus - Formal summary that provides information on an issue of securities
- Successful IPO
 - Market value of shares is established
 - Founders get rich
 - Firm is underway



Ownership Sequence

U.S. Venture Capital Investments



Other Equity Terminology

- Seasoned Offering - Sale of securities by a firm that is already publicly traded
- General Cash Offer - Sale of securities open to all investors by an already public company
- Rights Issue - Issue of securities offered only to current stockholders
- Private Placement - Sale of securities to a limited number of investors without a public offering

Not-for-Profit Equity

- See Cherry Community Hospital



Dividend Policy

- Choice of Payout Policy
- Types of Payout
- How Dividends are Determined in Practice
- Payout Controversy
 - Irrelevant
 - Decrease value
 - Increase value
- Taxes and Dividend Policy

Choice of Payout Policy

- Payout is capital structure decision
- Criterion for payout decision should be effect on value of firm
- Does a dividend payment increase or decrease the value of the firm to its owners?

Types of Payout

- Cash Dividend – Firm pays cash to shareholders
 - Regular cash dividend
 - Special cash dividend

Market value of equity (share price)
declines proportionally

Types of Payout

- Stock Dividend or Split – Firm issues additional shares to shareholders

No effect on market value of equity

Share price declines proportionally

Types of Payout

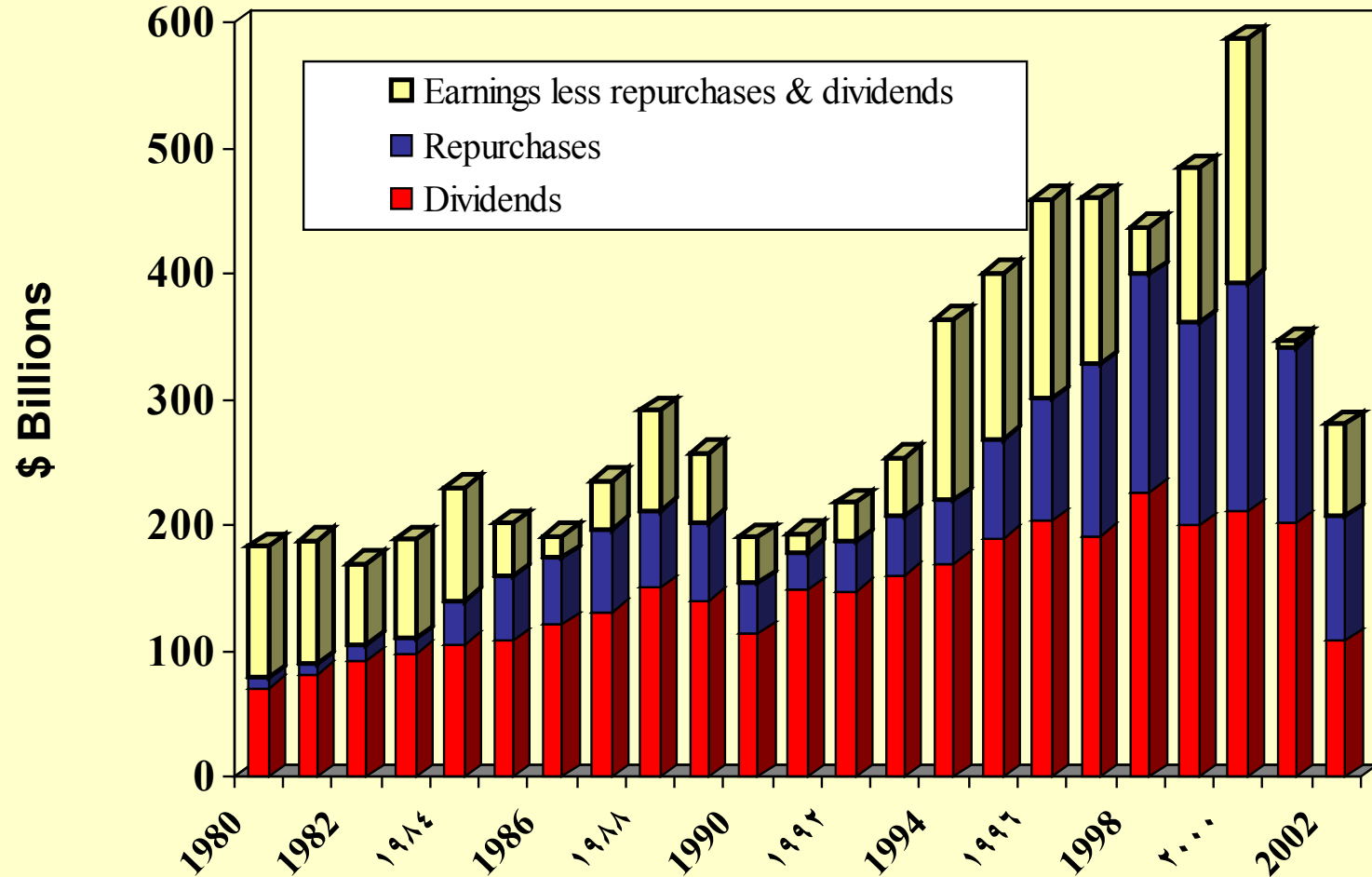
- Stock Repurchase – Firm buys back stock from shareholders (treasury shares)
 1. Buy shares on the market
 2. Tender offer to shareholders
 3. Dutch auction
 4. Private negotiation

Market value of outstanding equity declines

Can increase share price

Types of Payout

U.S. Data 1980 - 2002



How Dividends are Determined in Practice

Lintner's "Stylized Facts"

1. Firms have longer term target dividend payout ratios.
2. Managers focus more on dividend changes than on absolute levels.
3. Dividend changes follow shifts in long-run, sustainable levels of earnings rather than short-run changes in earnings.
4. Managers are reluctant to make dividend changes that might have to be reversed.
5. Firms repurchase stock when they have accumulated a large amount of unwanted cash or wish to change their capital structure by replacing equity with debt.

Payout Controversy: Dividend Policy is Irrelevant

- Perfect capital markets
 - No transactions costs
 - No taxes
 - Good information
 - No other imperfections
- Since investors do not need dividends to convert shares to cash, they will not pay higher prices for firms with higher dividend payouts.
- Dividend policy will have no impact on the value of the firm.

Payout Controversy: Dividends Increase Value

Transactions Costs and Clientele Effect

- There are natural clients for high-payout stocks.
- They want cash flow, and they want to avoid the transactions cost associated with selling shares to get cash.
- These clients increase the price of the stock through their demand for a dividend paying stock.

Payout Controversy: Dividends Increase Value

Information and Dividends as Signals

- Dividend increases send good news about cash flows and earnings. Dividend cuts send bad news.
- Because a high dividend payout policy will be costly to firms that do not have the cash flow to support it, dividend increases signal a company's good fortune and its manager's confidence in future cash flows.

Payout Controversy: Dividends Decrease Value

Tax Consequences

- Companies can convert dividends into capital gains by reducing dividend payout.
- If dividends are taxed more heavily than capital gains, taxpaying investors should welcome such a move and value the firm more favorably.
- In such a tax environment, the total cash flow retained by the firm and/or held by shareholders will be higher than if dividends are paid.

Taxes and Dividend Policy

- If capital gains are taxed at a lower rate than dividend income, companies should pay the lowest dividend possible.
- Dividend policy should adjust to changes in the tax code.

Taxes and Dividend Policy

In U.S., shareholders are taxed twice (figures in dollars)

	<i><u>Cash Flow</u></i>
Operating Income	100.00
Corporate tax at 35%	35.00
After Tax income (paid as div)	65.00
Income tax paid by investors at 15.0%	9.75
Cash to Shareholder	55.25

Counterpoint: Are corporations not separate entities from their owners?

Capital Structure

- Capital Structure Criteria
- Financial Leverage
- The Magic of Financial Leverage
- M+M Propositions
- Selecting a Capital Structure
- Benefit of Debt
- Cost of Debt – Financial Distress
- Optimal Capital Structure

Capital Structure Criteria

- Structure that minimizes overall cost of financing
 - WACC
 - Structure that maximizes value of firm
 - Relevant Question: What is effect of change in financing mix on firm value? Is there an optimal capital structure?

Financial Leverage

- Definition:
 - Use of relatively cheap debt to increase expected ROE
- Measurement:
 - Debt Financing Ratio
 - $D/(D+E)$
 - Long-Term Debt to Capitalization
 - $LTD/(LTD+E)$

Note: Market (not book) values of debt and equity correctly determine capital structure

The Magic of Leverage

Macbeth Spot Removers: A Tale of Two Capital Structures

<u>Capital Structure</u>	All Equity				Half Debt ($r_D=.1$)			
Shares	1000				500			
Price per share	10				10			
Equity value	10000				5000			
Debt value	0				5000			
Asset value	10000				10000			
 <u>Operating Result</u>	likely				likely			
Net income before interest	0.0	1.0	1.0	2.0	0.0	1.0	1.0	2.0
Interest expense	0.0	0.0	0.0	0.0
Net income	0.0	1.0	1.0	2.0	.	0.0	1.0	1.0
Earnings per share	0.0	1.0	1.0	2.0	0.0	1.0	2.0	3.0
Return on equity	0.0	0.1	0.1	0.2	0.0	0.1	0.2	0.3

Effects of Financial Leverage:

1. Increases ROE for likely business result
2. Increases variability in ROE (financial risk)
3. Effect on firm value depends on whether r_D and r_E rise with leverage

M+M Propositions

- Proposition 1 - In perfect capital markets

- No taxes

- No transactions costs

- Free information

- No other imperfections

firm value is determined by left side of B.S.
(asset structure), not by $D/(D+E)$

- Proposition 2 - Required rate of return on equity increases in proportion to $D/(D+E)$

- Implications

1. In PCM, there is no optimal capital structure

2. To find optimal capital structure, find imperfections

M+M Propositions

Math Proof

$$\text{Expected return on assets} = r_A = \frac{\text{expected operating income}}{\text{market value of all securities}}$$

$$r_A = \left(r_D \times \frac{D}{D + E} \right) + \left(r_E \times \frac{E}{D + E} \right)$$

$$r_E = r_A + (r_A - r_D) * \frac{D}{E}$$

M+M Propositions

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Earnings per share	0.0	1.0	1.0	2.0	0.0	1.0	2.0	3.0
Return on equity	0.0	0.1	0.1	0.2	0.0	0.1	0.2	0.3
r_A	0.1				0.1			
r_D	0.1				0.1			
r_E	0.15				0.2			
WACC	0.15				0.15			

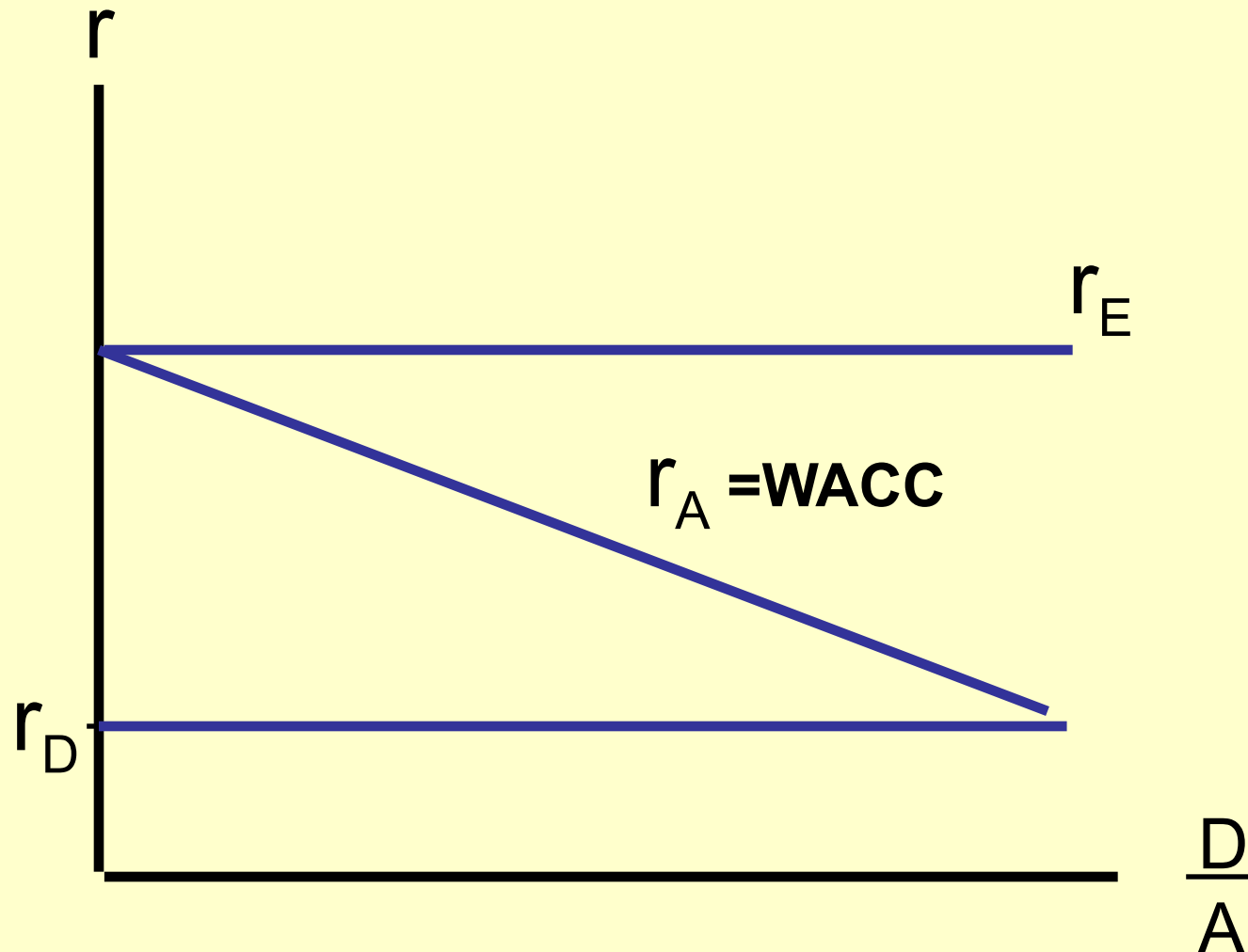
Results: r_E increases with leverage

WACC is independent of leverage

Firm value is unaffected by financial structure

Selecting a Capital Structure

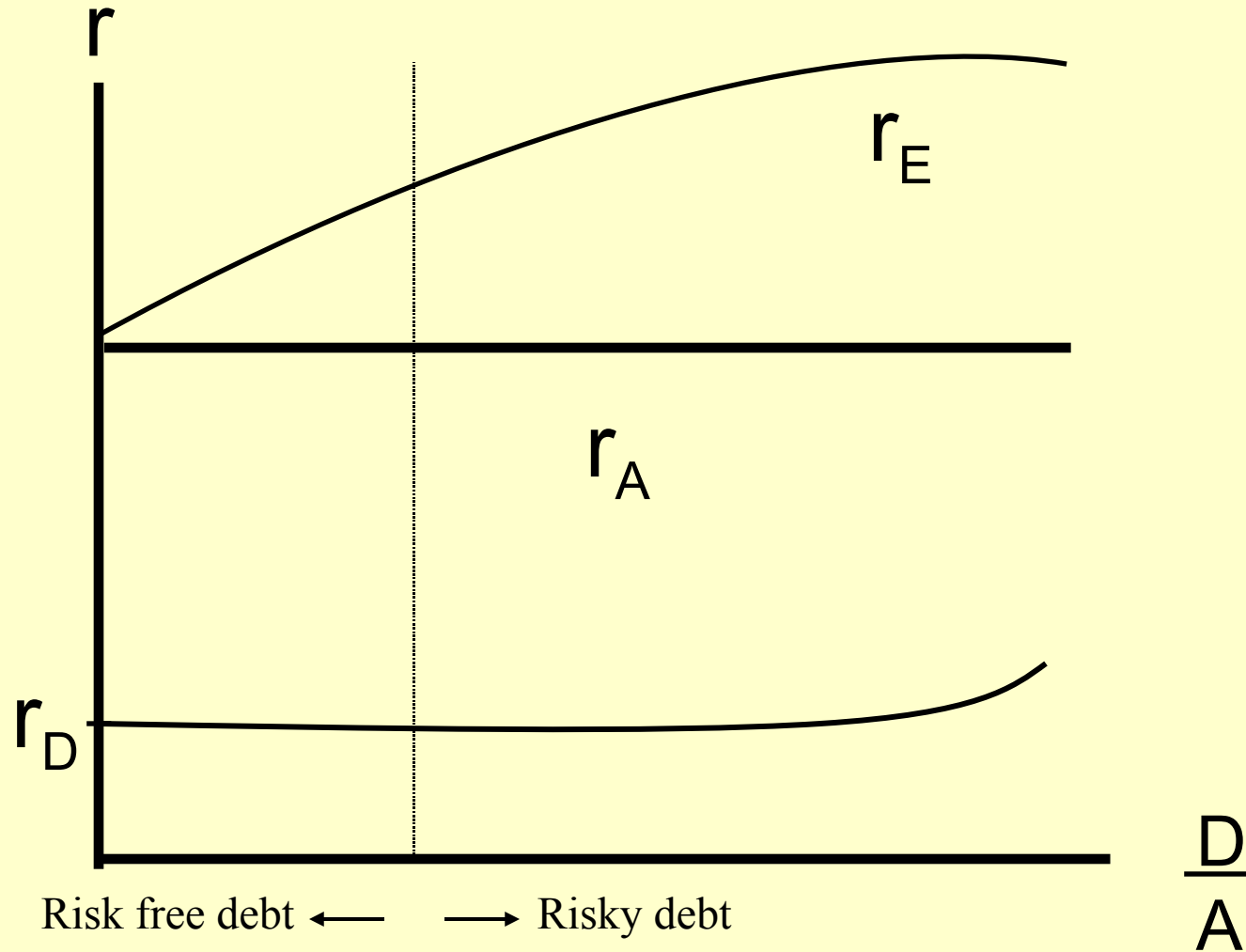
Naïve View of Leverage and WACC



Financing cost can be minimized (and firm value can be maximized) through full use of debt.

Selecting a Capital Structure

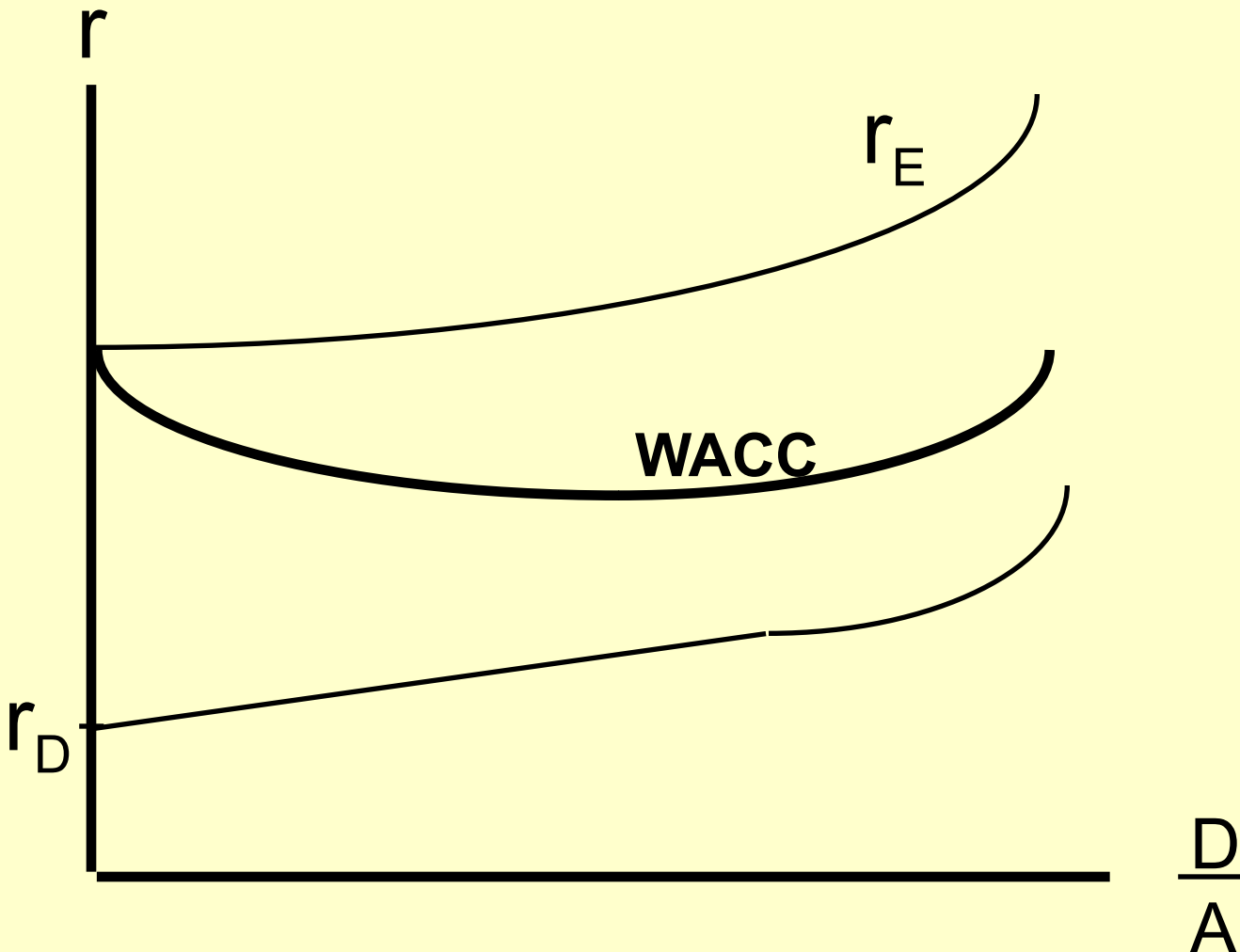
M+M View of Leverage and WACC



Financing cost (and firm value) are unaffected by use of debt.

Selecting a Capital Structure

Traditional View of Leverage and WACC



Financing cost can be reduced (and firm value can be increased) through judicious use of debt.

Selecting a Capital Structure

- More debt - debt subsidies
 - Income tax deductibility of interest expense
 - Access to tax-exempt debt
- Less debt
 - More likely financial distress – higher business risk
 - More severe financial distress – fewer assets that can be monetized

Benefit of Debt

Income Tax Deductibility of Interest Expense

- Lowers WACC because of lower net cost of debt (net interest rate on debt) to the borrower

$$WACC = r_D \times (1 - mtr) \times \left(\frac{D}{A} \right) + \left(r_E \times \frac{E}{A} \right)$$

- Lower financing cost increases firm value

Benefit of Debt

Income Tax Deductibility of Interest Expense

- Creates Interest Tax Shield - Tax savings resulting from deductibility of interest payments

$$\text{Tax Shield} = r_D * \text{mtr} * D$$

- Increases value of firm by

$$\text{PV(TS)} = (r_D * \text{mtr} * D) / r_D$$

- Firm Value = Value of All Equity Firm + PV Tax Shield
- Implication: Firms with higher tax rates (and other debt subsidies) should use more debt

Cost of Debt

Financial Distress

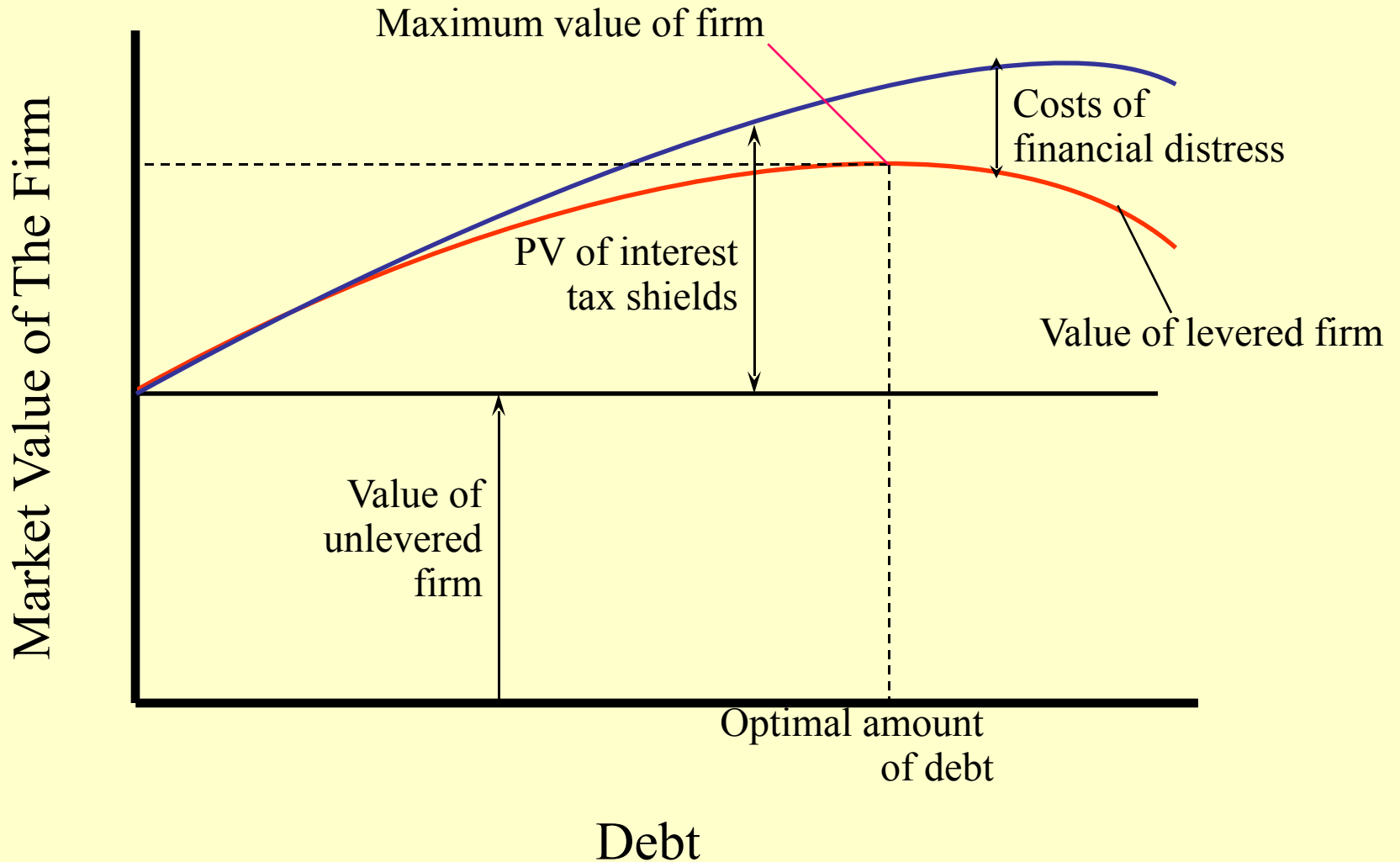
- Definition
 - Bankruptcy
 - “Skating on thin Ice” - insufficient cash to meet short term obligations
 - Payroll
 - Debt service
- Causes
 - Business risk – in product (or factor) market where cash flows uncertain
 - Financial risk – high debt financing ratio (D/A)

Cost of Debt

Financial Distress

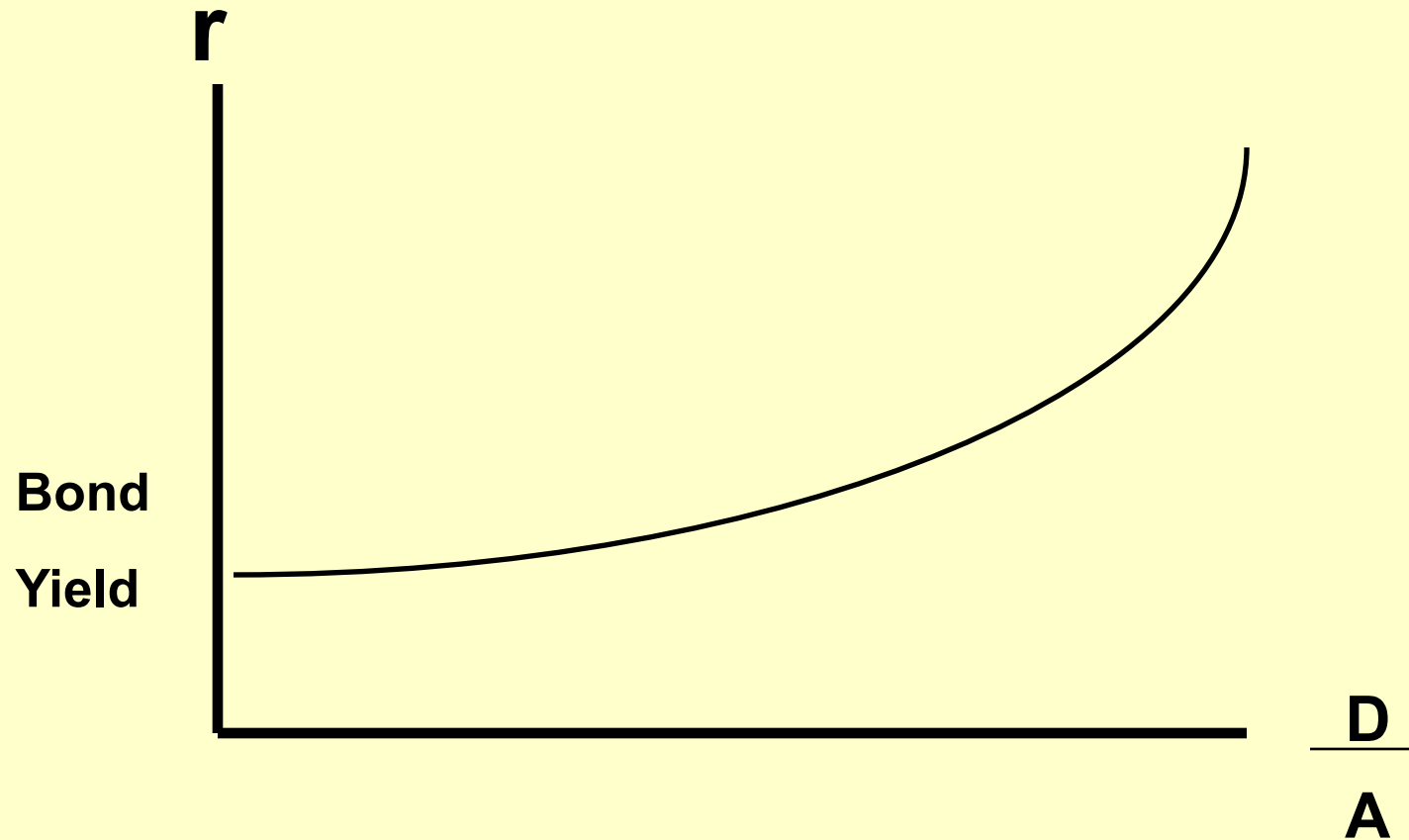
- Costs
 - Distorted business decisions
 - Covenants imposed by lenders
 - Control over additional indebtedness
 - Maintenance of cash reserves
 - Maintenance of asset value
 - Control over business decisions
 - Higher interest rates
- Implications:
 - Firms with higher business risk should use less debt
 - Firms with lesser ability to monetize assets should use less debt

Optimal Capital Structure



Optimal Capital Structure

Structure of Bond Yield Rates



Optimal Capital Structure Health Care Organizations

– HMOs and financing firms

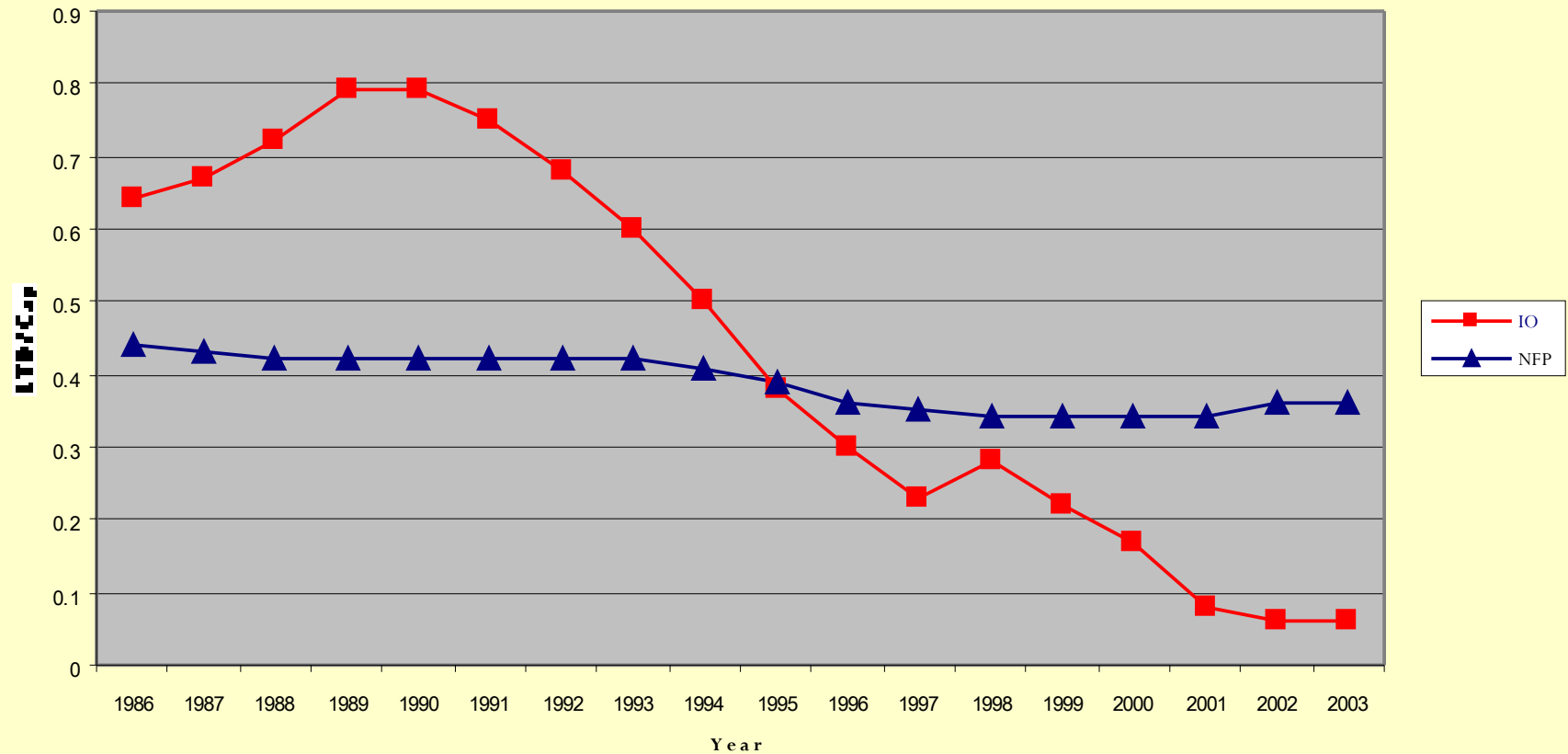
- No assets
- No CBR
- Many taxable
- High business risk

– Hospitals and nursing homes

- Some assets
- Some CBR
- Some taxable
- Low business risk

Optimal Capital Structure Hospitals

Long Term Debt to Capitalization



Why did they do that?

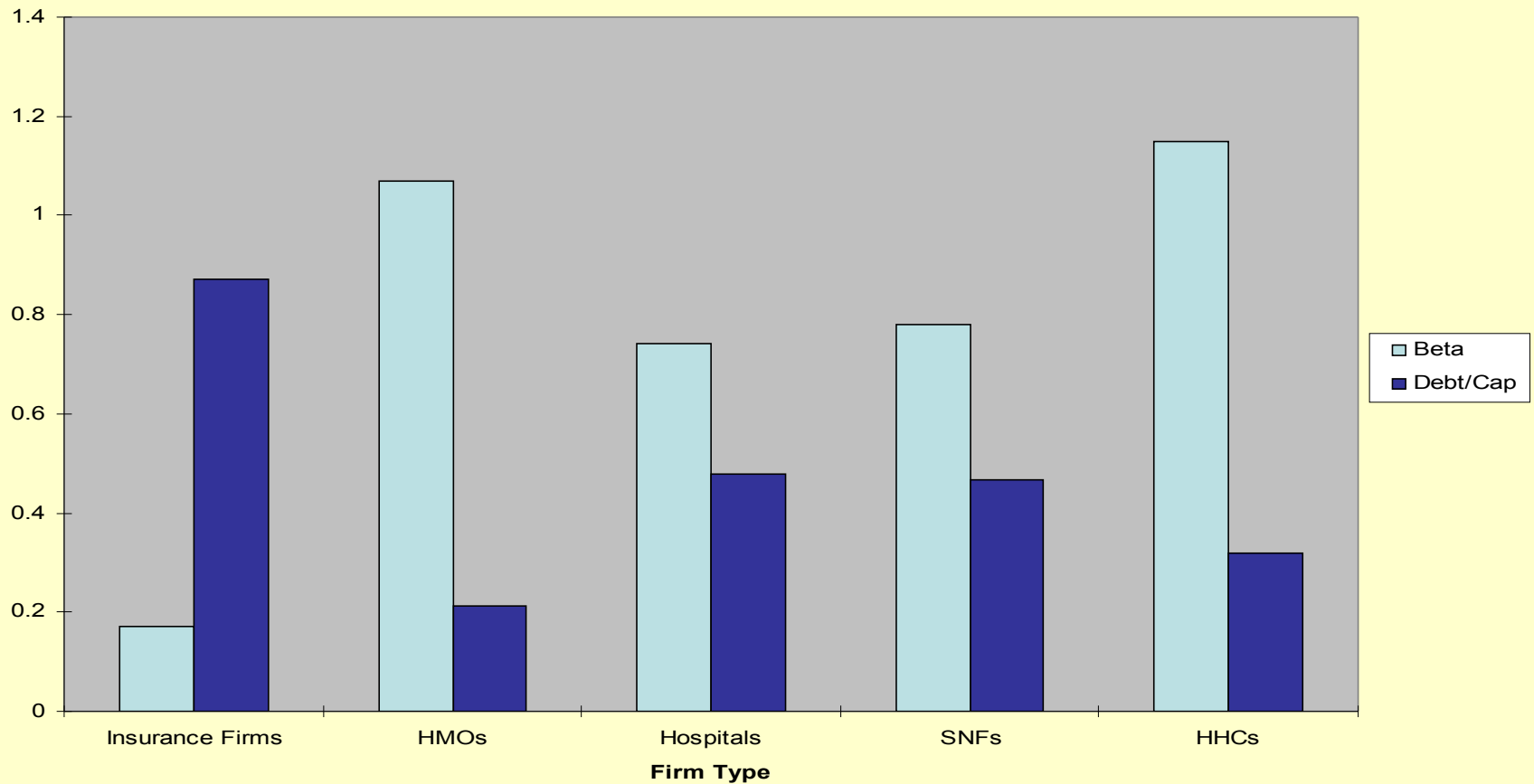
- Reduced subsidies for debt
 - Increasing net interest rates as Capital Cost-Based Reimbursement is eliminated
- Higher business risk
 - Lenders require higher interest rates

How did they do that?

- Investor-owned have the advantage
 - Sell stock
 - Make higher profits
- NFPs suffer from lesser access to equity
 - Demise of health care philanthropy
 - Pressure on profits

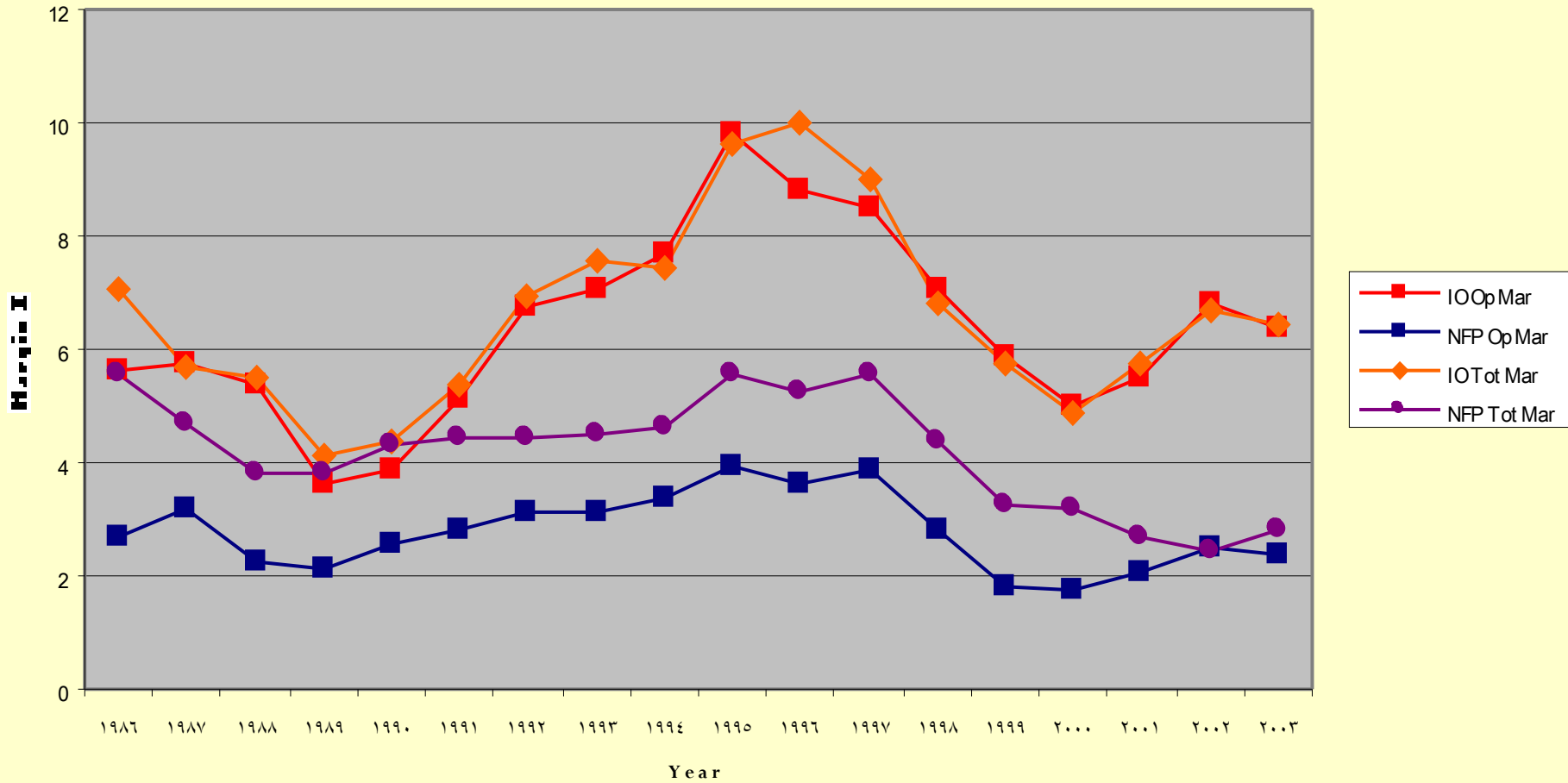
IO Firms Adjust Leverage

Capital Structure and Risk



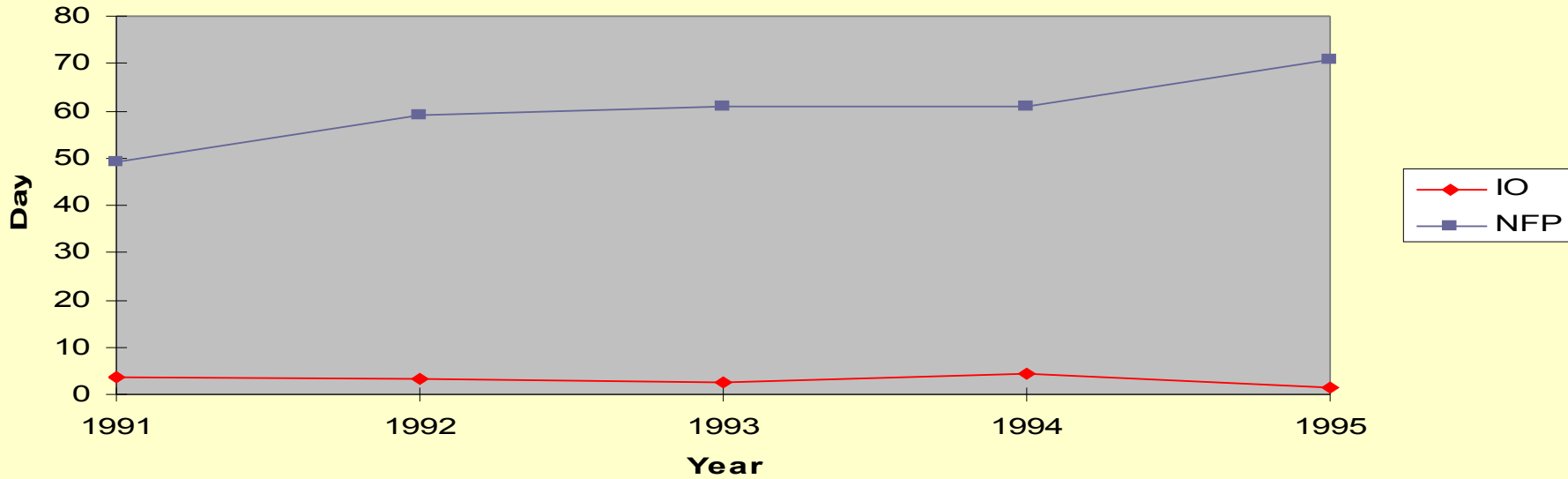
IOs make more money

Hospital Profits



NFPs protect themselves (with cash, of course)

Days Cash on Hand



Credit Rating Criteria

(Moody's Investors Service, etc.)

- Strategy is paramount (tie to financial plan)
- Management (and governance): development of new skills and understanding over time (learning organization)
- Medical staff: strategies to link medical staff and patients to hospitals
- Services and service area:
 - Attractiveness of services array to purchasers
 - Low-cost alternatives

Credit Rating Criteria

(cont.)

- Competition:
 - For physicians
 - Market share of clinical services (pick winners)
 - For covered lives
- Financial performance
 - Cash was king
 - Focus on balance sheet
 - Still important
 - Cash flow is now king
 - Focus on operations (income statement)
 - Revenue pressure from payers

The Keys to Good Credit Ratings

(from interviews with CFOs)

- Management of the balance sheet.
- Management of the income statement. This is seen as increasingly difficult by several systems, because of market pressures.
- Management of relations with the credit community.

“We have a AA balance sheet, and a B income statement. So, we have a A- credit rating.”

Optimal Capital Structure

Trade-off Theory - Capital structure is based on a trade-off between benefits (tax savings) and costs (distress) of debt.

Pecking Order Theory - Firms have ordered preference for financing

1. internal sources (profits)
2. debt
3. external equity

Lease Financing

- Lease Financing Defined
- Reasons to Consider Leasing
- Financial v. Operating Leases
- Accounting Treatment of Leases
- Lease Contract
- Valuing Financial Leases
- Leasing and Adjusted Present Value

Lease Financing Defined

- Means by which firm can acquire use of an asset for period of time without purchasing asset outright
- Rental agreement extending for year or more and involving series of fixed payments
- One of three basic financing methods
 - Purchase with equity
 - Borrow and purchase
 - Lease – viewed by financial markets as form of debt

Reasons to Consider Leasing (valid)

- May be lower interest rate
- May be income tax advantage (or other subsidy)
- Way to avoid risk of technological change
- Way to avoid transactions costs associated with buying and selling
- Way to avoid restrictions (covenants) of debt financing
- Maintenance costs may be included

Reasons to Consider Leasing (specious)

- Way to improve balance sheet
 - off-balance-sheet-financing is limited by accounting rules and unlikely to fool many
- Way to conserve capital
 - borrowing does, too
- Way to avoid expenditure controls
 - Internal
 - External

Financial v. Operating Leases

Financial: Noncancelable contractual commitment on part of lessee to make series of payments to lessor for use of asset, and one of the following applies:

- Lease transfers title to lessee before lease expires
- Lease has option to purchase at bargain
- Lease period exceeds 75 percent of asset life
- PV of lease payments exceeds 90 percent of value

If these conditions met, most of economic value of asset transferred to lessee

Operating: Cancelable at option of lessee or none of the above conditions holds. Most of economic value retained by lessor

Accounting Treatment of Leases

- **Financial (Capital) Leases**
 - Leased asset reported as fixed asset
 - PV of future lease payments reported as liability - “Obligations Under Capital Leases”
- **Operating Leases**
 - Footnote disclosure

Lease Contract

- Basic lease period (not cancelable)
- Timing and amounts of payments during blp
- Option to renew lease or purchase asset at end of blp
- Provision for payment of cost of maintenance, repairs, taxes, insurance, utilities, etc.
 - Net - lessee pays
 - Full Service or Rental - lessor pays

Valuing Financial Leases

What: Compare financing provided by lease to financing provided by equivalent loan

Why: Leasing is commitment for fixed payments similar to debt

How: Discount lease cash flows at net after-tax (and other subsidies) interest rate firm would pay on equivalent loan

$$\text{NPV} = \text{Initial Financing Provided} + (\text{LCF}_t)/(1-r_D)^t$$

where LCF =

- lease pmt
- + tax shield of lease pmt
- depn tax shield lost



Net interest rate

Valuing Financial Leases

Example

Asset cost = \$200,000

T = 10 years

No salvage value

Lease payment = \$27,000 (pd at beginning of yr)

Debt int rate = .10

mtr = .3 (effect is at end of year)

No difference in operating costs

Leasing and Adjusted Present Value

Some Rules:

1. Keep financing and investment analyses separate
2. When financing and investment decisions interact, the analysis needs to reflect the effect on value of both the investment and financing aspects of the decision

$APV = \text{basic (investment) NPV} + \text{NPV of financing caused by project}$

Leasing and Adjusted Present Value

- Positive NPV of lease means if you acquire asset lease financing is advantageous (less costly than debt financing)
- It does not, however, mean you should acquire asset
- In general, asset acquisition depends on (investment) NPV of project
- But favorable lease terms can sometimes rescue negative NPV project by creating a positive APV

Leasing and Adjusted Present Value Example

- Assume the NPV of acquiring the asset in the previous example, employing your firm's overall cost of capital of .09 (after tax) was determined to be -\$3000.
- You therefore should tentatively make the decision not to purchase it.
- If, however, the seller offers to lease the asset to you at the terms in the example, which imply a lower cost of financing (again after tax) than your typical interest rate
- Then, the whole activity takes on a positive APV:

$$\begin{aligned} \text{APV} &= \text{NPV of project} \\ &+ \text{NPV of lease} \\ &= -\$3000 + \$11,838 = \$8838 \end{aligned}$$

Financial Analysis and Planning

- Purpose of the Financial Plan
- Contents of the Financial Plan
- Steps in Financial Plan Development
 - Assess Financial Position
 - Define Debt Policy
 - Determine Asset Requirements
 - Evaluate Financing Options
 - Integrate into Management Control Structure

Purpose of the Financial Plan

- Assuring that the strategic plan of the organization is achieved
- Analyzing interactions of financing and investment choices open to firm
- Projecting future consequences of present decisions
- Deciding which alternatives to undertake to as part of the financial plan
- Measuring subsequent performance against goals

Contents of the Financial Plan

1. Pro Forma Financial Statements
 - A. Balance Sheet
 - B. Income Statement
 - C. Cash Statement
2. Capital Expenditure and Business Strategy
3. Planned Financing

Steps in Financial Plan Development

1. Assess Financial Position
2. Define Debt Policy
3. Determine Asset Requirements
4. Evaluate Financing Options
5. Integrate into Management Control Structure

1. Assess Present Financial Position

- Financial Ratio Analysis
 - Capital Structure
 - Profitability
 - Efficiency or Productivity
 - Liquidity
 - Market Value
- Long Run Viability Analysis (Dupont Analysis)
 - Focus on ROE
 - Disaggregated into important components

Return on Equity

- $ROE = \text{Net Income} / \text{Equity} = (\text{EBIT} - \text{int} - \text{tax}) / \text{equity}$
- Profitability ratio
- ROE = rate of growth in equity
- ROE is key to financial (and therefore operational and strategic) success
- If the firm can grow equity, then
 - It qualifies to borrow (can raise debt funds) on good terms
 - It can purchase necessary assets
 - It can provide the services consistent with its mission and strategic plan

Leverage Ratio

- $LR = \text{Assets}/\text{Equity}$
- Capital structure ratio
- Shows benefit of using financial leverage in multiplying an operating result
- Inverse of EFR (= $\text{Equity}/\text{Assets}$)
 - EFR = percent of assets financed by equity
 - EFR is complement of DFR (= $\text{Debt}/\text{Assets}$)
 - EFR and DFR are important determinants of firm's access to debt

Asset Turnover

- $TAT = \text{Sales (or Revenue)} / \text{Assets}$
- Efficiency or productivity ratio
- Indicates the productivity of assets in generating revenue
 - Dollars of revenue produced per dollar of assets employed
- Age of Assets
 - Accumulated Depreciation/Depreciation Expense
 - Older assets can increase TAT

Profit Margin

- $PM = \text{Net Income} / \text{Sales}$
 - $(\text{EBIT} - \text{tax}) / \text{Sales}$
 - Profit to all investors
 - $(\text{EBIT} - \text{interest} - \text{tax}) / \text{Sales}$
 - Profit to equity investors
- Profitability ratio
- Percent of revenues converted to profit

Debt Burden

- $DB = (EBIT - \text{taxes} - \text{interest}) / (EBIT - \text{taxes})$
- Capital structure ratio
- Shows extent to which profits reduced by debt (interest expense)
- Times Interest Earned
 - $EBITDA / \text{Interest Expense}$
 - Indicates cash flow available to cover interest payment

Return on Assets

- $ROA = (EBIT - \text{taxes}) / \text{Assets}$
- Profitability measure
- Return on investment to all investors
 - Equity investors
 - Debt investors

Market Value Ratios

- Stock Price = $\text{EPS (or DIV)}/(r-g)$
- Market to Book = Stock Price/Book Equity per Share
 - Extent to which book value understates market value
 - Extent to which firm value has increased since stock sales to owners
- Price Earnings Ratio = Stock Price/Earnings per Share
 - Conceptual inverse of market capitalization rate (r_E)

Other Ratios

- **Current Ratio = Current Assets/Current Liabilities**
 - CA = assets converted to cash within a year
 - CL = debts to be paid off within a year
 - CR = dollars in CA per dollar of CL
 - Liquidity ratio
 - Indicates short term solvency
- **Payout Ratio = Dividends/Earnings**
 - Percent of net income paid out as dividends
 - Plowback Ratio = 1-Payout Ratio
 - Equity Growth from Plowback
= (Earnings-Dividends)/Earnings

Dupont Analysis

Executive Paper

Dupont Analysis

Return on equity (ROE)	0.14
Leverage ratio	2.69
Asset turnover	1.55
Profit margin	0.05
Debt burden	0.64
ROE calculated	0.14

2. Define Debt Policy

Equity Financing Ratio = .4

Current Ratio = 2.0

3. Determine Asset Requirements

Fixed Asset Additions:	\$ 1,300,000,000
Less Depreciation and Write-offs:	(250,000,000)
Additional Working Capital Needed:	<u>200,000,000</u>
Net Add'l Capital Requirements:	\$1,250,000,000

4. Evaluate Financing Options

- Additional Equity (15% per year)
 - Retained earnings \$540M
 - Stock sales?
- Additional Debt
 - Long term \$620M
 - Short term \$90M
- Feasibility of Financial Plan
 - Depends on equity growth rate
 - Revision options
 - Slower asset growth
 - Higher debt financing

5. Integrate into Management Control Structure

- ROE (req'd) from LRFP informs the r_E in the WACC
- Proposed projects evaluated at WACC (with appropriate risk adjustment)
- If NPV positive, project generates enough cash to
 - Cover operating costs
 - Cover debt service
 - Grow equity at rate sufficient to make the Financial Plan work

WOW! That's fairly cool!

Statement of Cash Flows (Review) (AICPA)

- Purposes
 - Rationalize accruals measures to cash
 - To show where cash came from and where it went to
 - To show how to get from one balance sheet to the next
- Cash receipts and cash disbursements are classified into three categories:
 - Operating activities
 - Financing activities
 - Investing activities
- The term cash includes cash equivalents (demand and time deposits)

Equation for Statement of Cash Flows

Basic accounting equation:

$$\text{Assets} = \text{Liabilities} + \text{Net Assets}$$

$$\text{CE} + \text{OA} = \text{L} + \text{NA}$$

where CE = cash and cash equivalents, and

where OA = all other assets

$$\text{CE} = \text{L} + \text{NA} - \text{OA}$$

Equation for Statement of Cash Flows

- Cash Inflows result from an increase in the value of the right-hand side of the equation
 - Increases in Liabilities
 - Increases in Net Assets
 - Decreases in Other Assets
- Cash Outflows result from decreases in value of right-hand side
 - Decreases in Liabilities
 - Decreases in Net Assets
 - Increases in Other Assets

Classification of Cash Flows

- Cash receipts and cash disbursements are classified into three types of economic activity on the statement of cash flows:
 - Operating Activities
 - Investing Activities
 - Financing Activities

Operating Activities

Cash Flow from transactions directly or indirectly related to the provision of patient care and other operating activities

– Change in Net Assets

- Operating Statement - revenue and expense transactions that enter into the determination of the hospital's net income
- Other changes in Net Assets

– Adjustments

- Non-cash expenses
- Entries reflecting Investing and Financing Activities

– Balance Sheet Differences

- Current and Other Assets
- Current and Other Liabilities

Investing Activities

Cash Flow from transactions related to the purchase and sale of financial securities (that are not cash equivalents) and plant assets

- Investments (financial assets)
 - Purchases
 - Sales
- Plant and Capital Equipment (real assets)
 - Acquisitions
 - Sales

Financing Activities

Cash Flow from transactions related to the acquisition and repayment of funding obtained through intermediate-term and long-term borrowings

- Acquisition of financing
 - New Bonds Payable
 - New Mortgages Payable
 - New Lease Financing Obligations
- Repayment of financing
 - Repayment of loans
 - Principal payments
 - Lease obligation reductions

(interest payments on these debts are treated as cash outflows related to operating activities)

Form and Content of the Statement of Cash Flows

Sample Hospital Financials (again)

- Statement of Operations
- Balance Sheet
- Statement of Changes in Net Assets
- Statement of Cash Flows
- Notes

Form and Content of the Statement of Cash Flows

Note from BS that the cash balance falls over the year by \$1119. Where did this cash go?

- Increase from operating activities of \$9,978
- Decrease from investing activities of \$8,497
- Decrease from financing activities of \$2,600

Cash From Operating Activities

Key Sources

- Net Income
- Depreciation Expense (main non-cash expense)
- Other non-cash gains and losses
- Other changes in net assets
- Decreases in current and other assets
- Increases in current and other liabilities

Information on Cash Statement

- Where is cash coming from and going to?
- Was there enough cash from operations to support capital expenditures?
- How are we choosing to finance our capital expenditures?
 - Debt
 - Operating cash flows

Working Capital Management

- Working Capital Definitions
- Credit Management
- Accounts Receivable Management
- Cash Management

Working Capital Definitions

- Net Working Capital
 - Current assets minus current liabilities
 - Often called working capital.
- Cash Conversion Cycle - Period between firm's payment for materials and collection on its sales.
- Carrying Costs - Costs of maintaining current assets, including opportunity cost of capital.
- Shortage Costs - Costs incurred from shortages in current assets.

Credit Management

Credit Policy - Standards set to determine the amount and nature of credit to extend to customers.

Benefits of Credit Extension

- Increased sales

- Interest on loan

Costs of Credit Extension

- Financing costs

- Costs of credit department

- Costs of collections department

- Bad debts expense

Accounts Receivable Management

- Tracking AR
 - Days AR
 - Aging of Receivables
 - Writing off AR (bad debts recognition)
- Factoring AR
- Selling AR

Cash Management

- Optimal Cash Balances
 - Carrying Cost
 - Transactions Cost
- Static cash balance models
- Variable cash balance models

Cash Budget

Purpose: To project the stock of cash on hand in each time period

Method: Convert accruals measures of revenues and expenses to cash inflows and outflows

Rule: Focus on large items

Steps:

- Convert revenues to cash inflows - AR cycle

- Convert expenses to cash outflows

 - Payroll

 - Other scheduled cash payments

Revenues to Cash Inflows

- Aging of accounts receivable
- Timing of payment receipt
- Cash receipts analysis

Expenses to Cash Outflows

- Cash basis payroll expense
- Operating cash disbursements