

Sonnenschein

***A Roadmap
for Corporate Finance,
Part II***

Prof Ian Giddy
New York University

What the Module is About...

- 
- Part I
 - ◆ Corporate finance: investment, financing and risk management
 - ◆ Corporate investment decisions
 - ◆ Corporate valuation
 - ◆ Mergers & acquisitions
 - Part II
 - ◆ Corporate financing choices
 - ◆ Equity and debt choices
 - ◆ Risk Management
 - ◆ Structured finance

Tuesday

- *Corporate finance goals*
- *Setting performance criteria*
- *Investment decisions and valuation*
- *M&A*
- *Conrail Case*

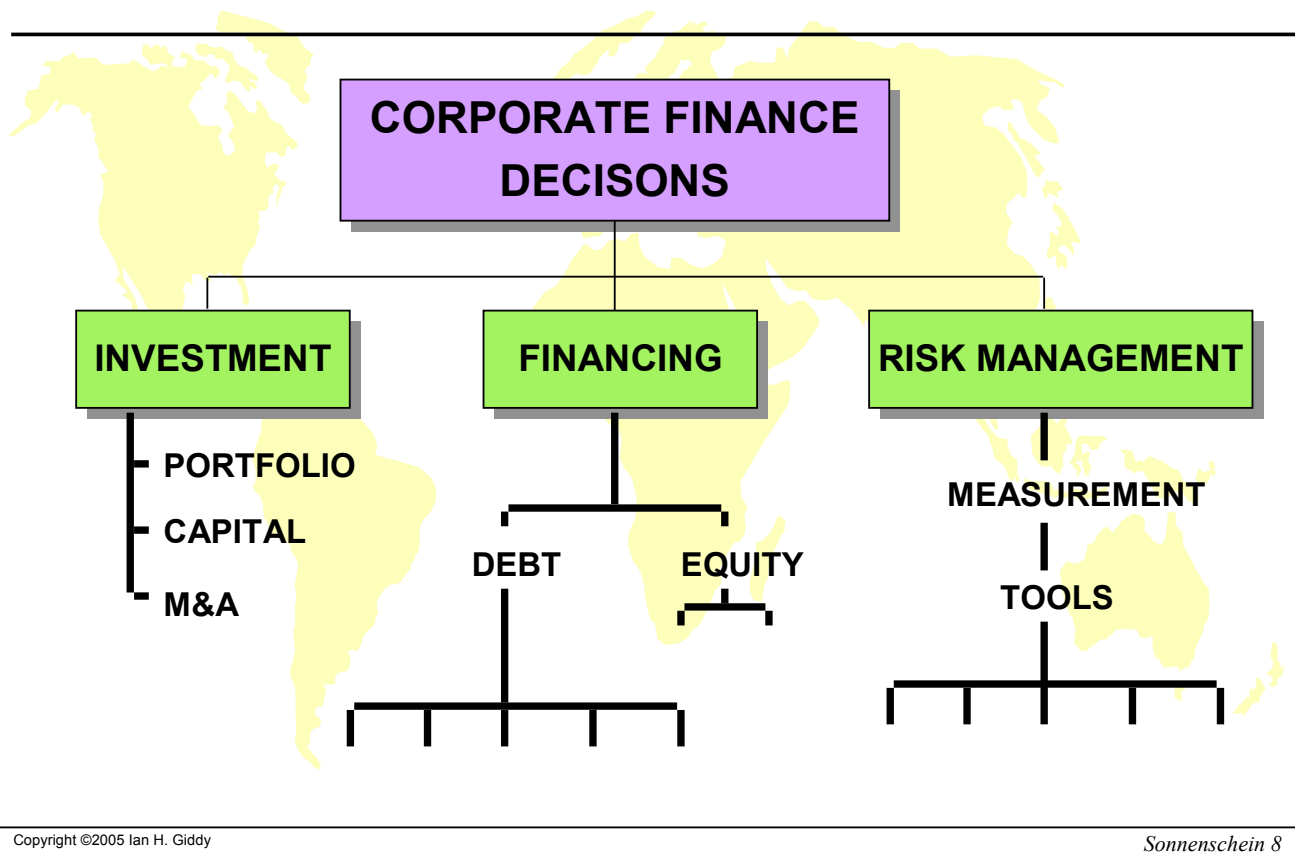
Wednesday

- *Corporate financing choices: debt vs equity*
- *Raising new equity*
- *Corporate debt choices*
- *Financial risk management*
- *Structured financing*
- *“A Day in the Life” exercise*

***Corporate Financing
Decisions***

Prof. Ian Giddy
New York University

Corporate Finance



Corporate Financing Choices

- Do financing choices matter?
- Debt or equity?
- What kind of debt?

Certain kinds of *market imperfections* allow corporations to reduce costs by improving the financing mix

Is There an Optimal Capital Structure?

Assets' value is the present value of the cash flows from the real business of the firm

Value of the firm
 $= PV(\text{Cash Flows})$

Debt

Equity

Value of the firm
 $= D + E$

Does Capital Structure Matter?

Assets' value is the present value of the cash flows from the real business of the firm

Value of the firm
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Debt

Equity

Value of the firm
 $= D + E$

***You cannot change the value of the real business just by shuffling paper
- Modigliani-Miller***

Is There an Optimal Capital Structure?

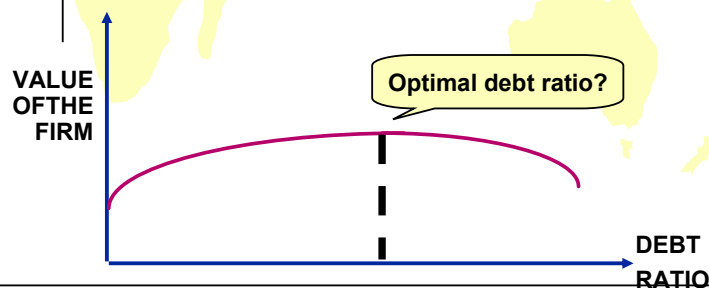
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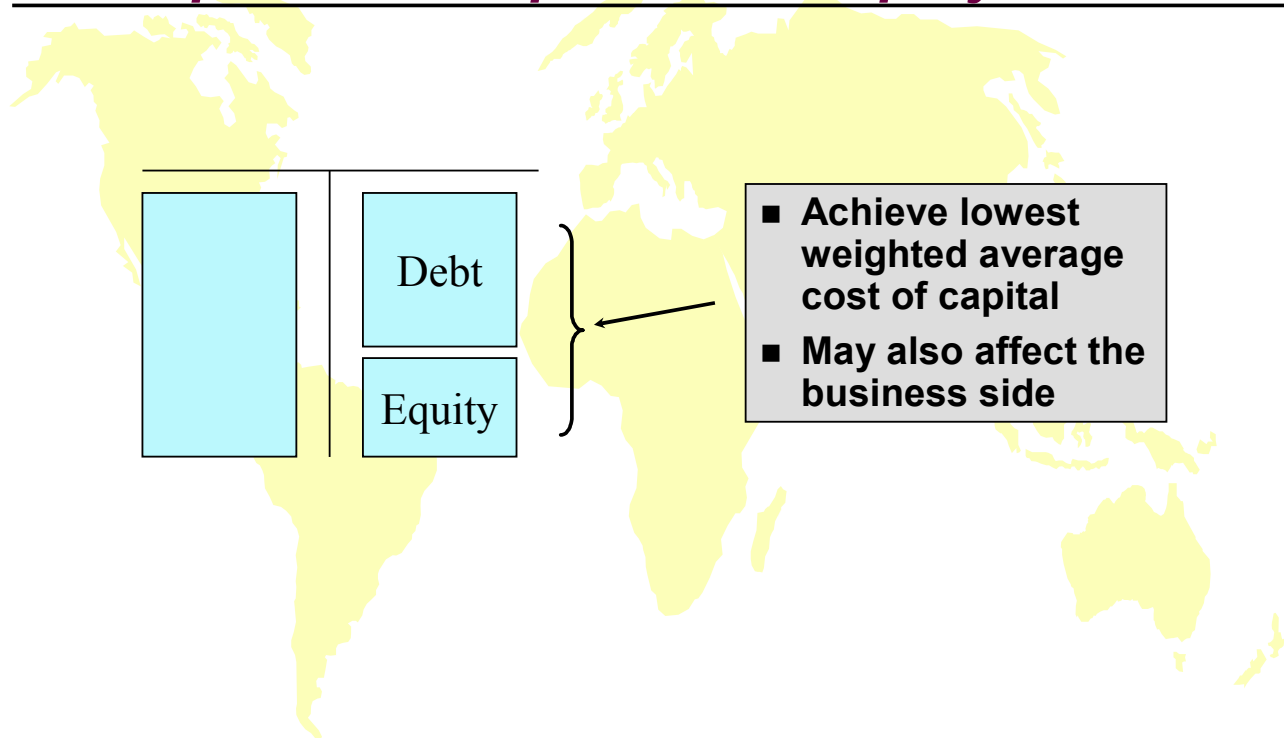
Equity

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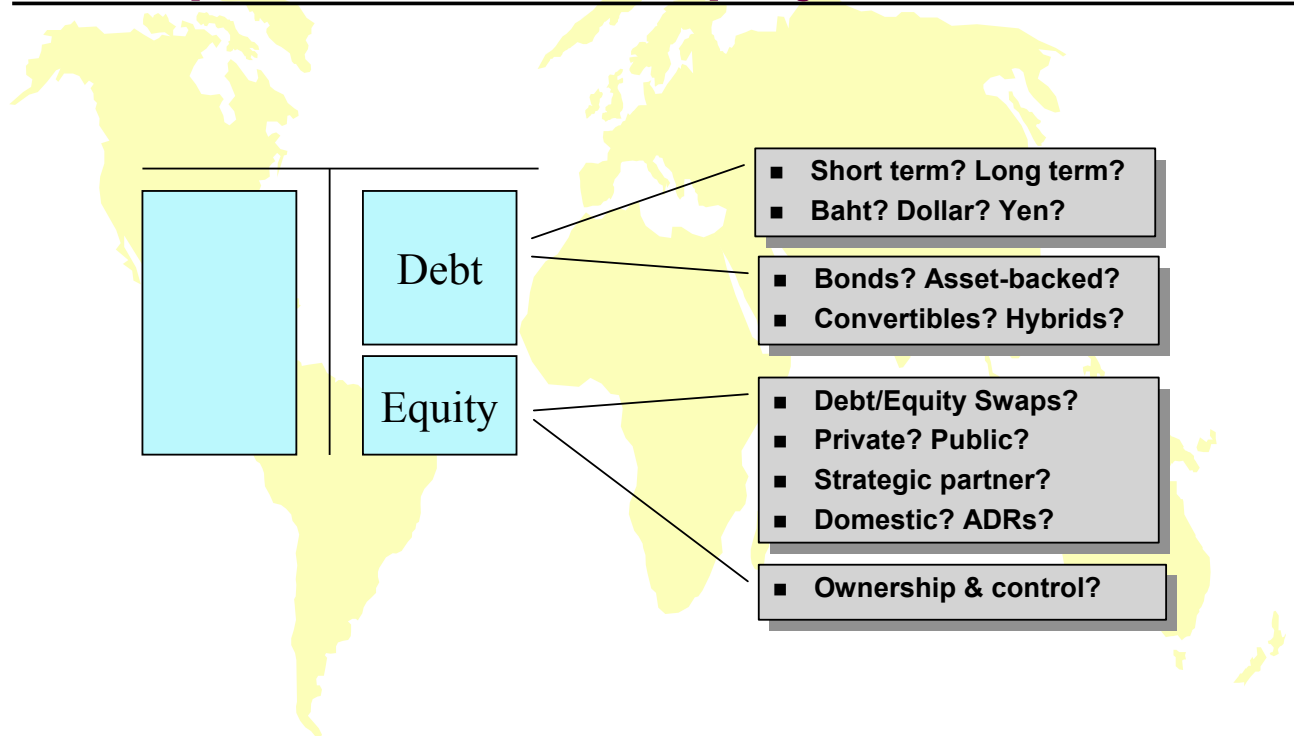
Getting the Financing Right

Step 1: The Proportion of Equity & Debt



Getting the Financing Right

Step 2: The Kind of Equity & Debt



***Cost of Capital
and Capital Structure***

Prof. Ian Giddy
New York University

Case Study: Motorola



Motorola's Leverage

Valuation [more >>](#)

01-26-04

	Stock	Industry	S&P 500
Price/Earnings	68.9	35.1	23.1
Forward P/E	82.1	23.3	20.0
Price/Book	3.4	5.4	3.9
Price/Cash Flow	16.8	15.0	15.7
Price/Sales	1.5	2.9	2.3
Dividend Yield %	0.9	1.1	1.4

S&P 500 data through 01-21-04

Growth [more >>](#)

01-21-04

	1 Year%	3 Year%	S&P 500
Sales	-10.7	-6.9	5.3
Net Income	NMF	NMF	8.2
EPS	NMF	NMF	8.6
Equity/Share	-20.4	-16.9	10.8
Dividends	0.0	0.0	7.4

S&P 500 data - 3 Year%

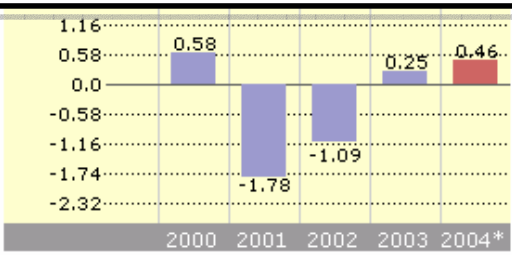
Profitability [more >>](#)

12-31-02

	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	269.4	---	---
\$Thousands			

Earnings Trends [more >>](#)

01-26-04

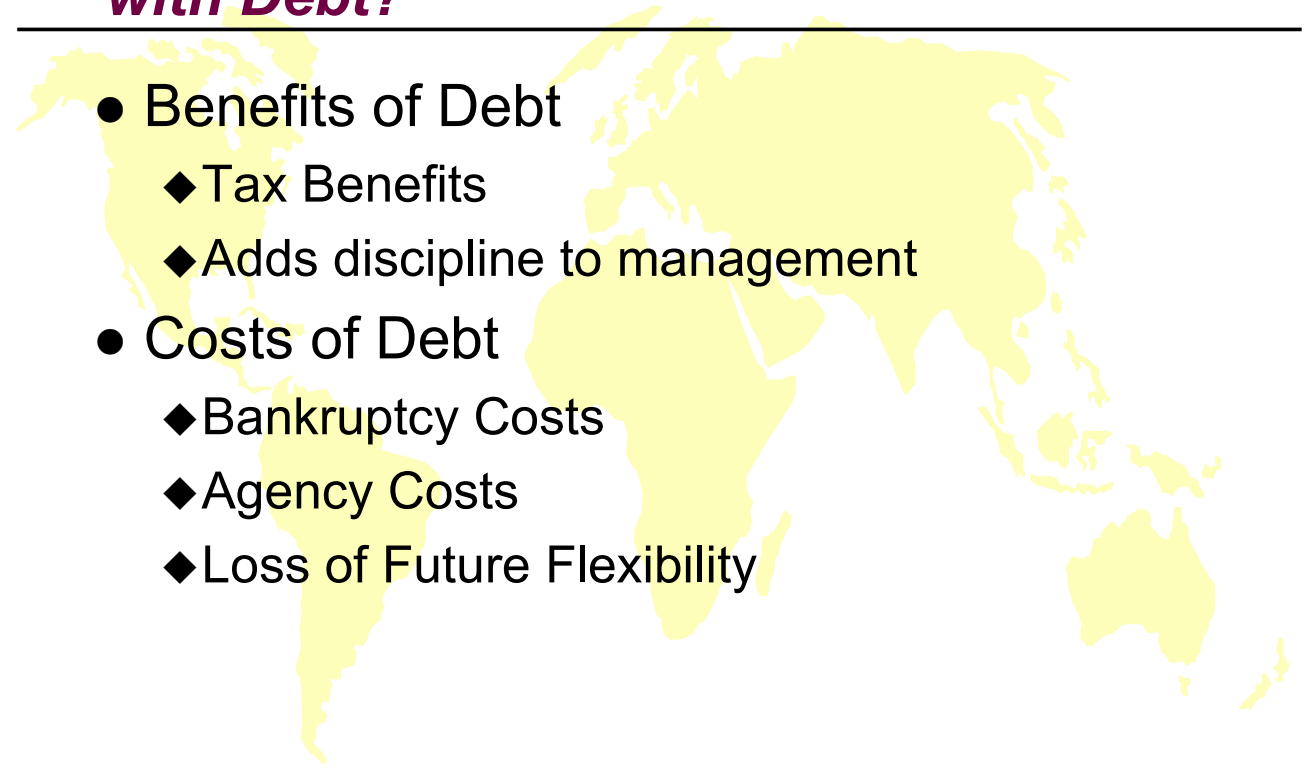


Stock uses trailing 12 months. Industry and S&P 500 use fiscal year-end.

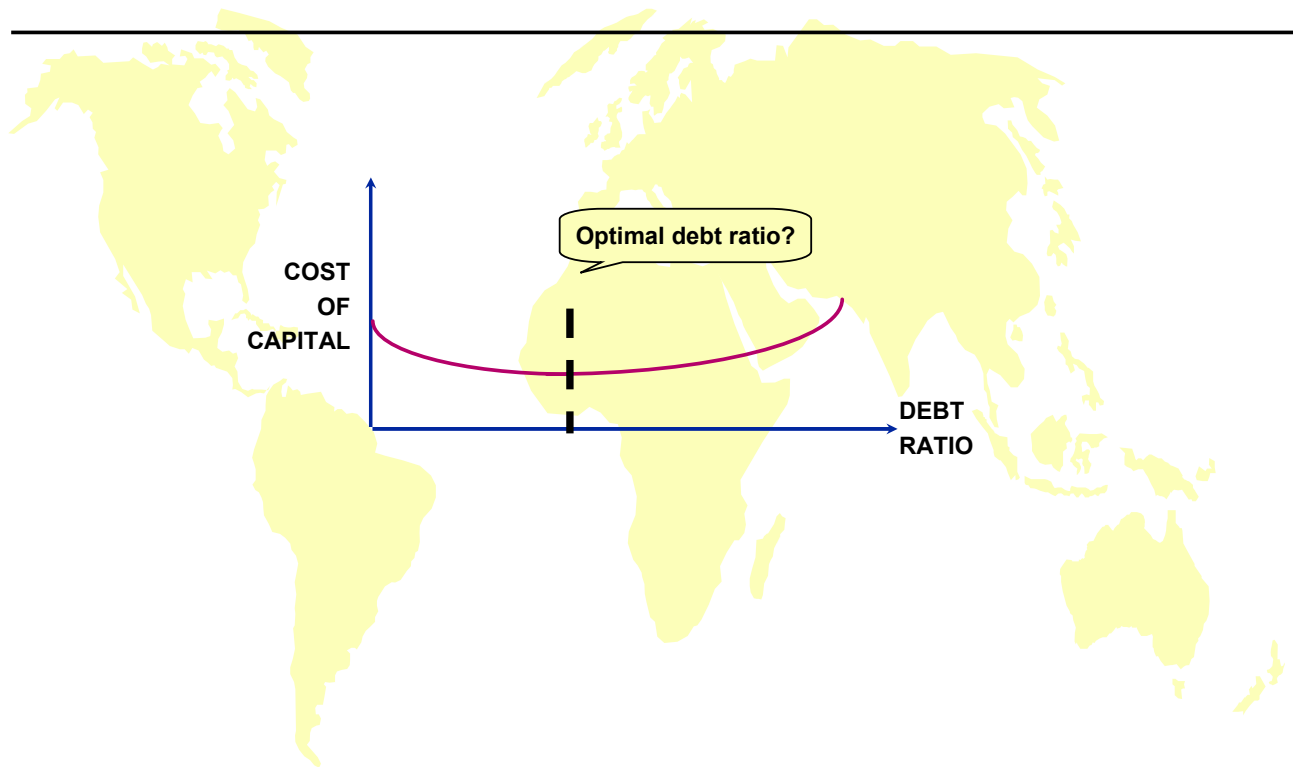
historical years use fiscal year-end.

Source: morningstar.com

Should Motorola Finance its Growth with Debt?

- 
- Benefits of Debt
 - ◆ Tax Benefits
 - ◆ Adds discipline to management
 - Costs of Debt
 - ◆ Bankruptcy Costs
 - ◆ Agency Costs
 - ◆ Loss of Future Flexibility

Capital Structure: Where is Motorola?



Y! Key Statistics for MOTOROLA INC - Yahoo! Finance - Netscape

http://finance.yahoo.com/q/ks?s=MOT

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Financials
[Income Statement](#)
[Balance Sheet](#)
[Cash Flow](#)

Profitability

Profit Margin (ttm):	3.30%
Operating Margin (ttm):	4.01%

Management Effectiveness

Return on Assets (ttm):	2.91%
Return on Equity (ttm):	7.56%

Income Statement

Revenue (ttm):	27.06B
Revenue Per Share (ttm):	11.42
Revenue Growth (1fy) ² :	-11.10%
Gross Profit (ttm) ² :	8.74B
EBITDA (ttm):	1.08B
Net Income Avl to Common (ttm):	893.00M
Diluted EPS (ttm):	0.372
Earnings Growth (1fy) ² :	N/A

Balance Sheet

Total Cash (mrq):	8.02B
Total Cash Per Share (mrq):	3.44
Total Debt (mrq) ² :	8.06B
Total Debt/Equity (mrq):	0.635
Current Ratio (mrq):	1.898
Book Value Per Share (mrq):	5.442

Cash Flow Statement

From Operations (ttm) ² :	2.39B
Free Cashflow (ttm) ² :	1.69B

Share Statistics

Average Volume (3 month):	15,264,308
Average Volume (10 day):	13,764,000
Shares Outstanding:	2.33B
Float:	2.30B
% Held by Insiders:	1.00%
% Held by Institutions:	63.57%
Shares Short (as of 9-Feb-04):	43.62M
Daily Volume (as of 9-Feb-04):	N/A
Short Ratio (as of 9-Feb-04):	2.824
Short % of Float (as of 9-Feb-04):	1.89%
Shares Short (prior month):	43.97M

Dividends & Splits

Annual Dividend:	0.16
Dividend Yield:	0.95%
Dividend Date:	15-Apr-04
Ex-Dividend Date:	11-Mar-04
Last Split Factor (new per old) ² :	3:1
Last Split Date:	02-Jun-00

52-Week Change: 110.70%
52-Week Change (relative to S&P500): 50.76%
52-Week High (1-Mar-04): 18.90
52-Week Low (16-Apr-03): 7.587
50-Day Moving Average: 16.62
200-Day Moving Average: 12.62

View Financials (provided by EDGAR Online):
[Income Statement](#) - [Balance Sheet](#)
[Cash Flow](#)

More from Reuters
Reuters offers more in-depth [Company Research](#).

Source: biz.yahoo.com

Minimizing the Cost of Capital

Choice

1. Equity
 - Retained earnings
 - New stock issues
 - Warrants

Cost of equity = riskless rate + beta * risk premium

2. Debt

- Bank borrowing
- Bond issues

Cost of debt = Borrowing rate (1 - tax rate)

Debt + equity =
Capital

Cost of capital = $k_d [D/(D+E)] + k_e [E/(D+E)]$

Cost

Cost of equity

- depends upon riskiness of the stock
- will be affected by level of interest rates

Cost of debt

- depends upon default risk of the firm
- will be affected by level of interest rates
- provides a tax advantage because interest is tax-deductible

Cost of capital = Weighted average of cost of equity and
cost of debt; weights based upon market value.

Estimating the Cost of Debt

- If the firm has bonds outstanding, and the bonds are traded, the yield to maturity on a long-term, straight (no special features) bond can be used as the interest rate.
- If the firm is rated, **use the rating and a typical default spread on bonds with that rating to estimate the cost of debt.**
- If the firm is not rated,
 - ◆ and it has recently borrowed long term from a bank, use the interest rate on the borrowing or
 - ◆ estimate a synthetic rating for the company, and use the synthetic rating to arrive at a default spread and a cost of debt
- The cost of debt has to be estimated in the same currency as the cost of equity and the cash flows in the valuation.

Ratings and Spreads

Corporate bond spreads: basis points over Treasury curve								
Rating	1 year	2 year	5 year	10 year	30 year	Typical Int Coverage R		
Aaa/AAA	40	45	60	85	96	>8.50		
Aa1/AA+	45	55	70	95	106	6.50-8.50		
Aa2/AA	55	60	75	105	116	6.50-8.50		
Aa3/AA-	60	65	85	117	136	6.50-8.50		
A1/A+	70	80	105	142	159	5.50-6.50		
A2/A	80	90	120	157	179	4.25-5.50		
A3/A-	90	100	130	176	196	3.00-4.25		
Baa1/BBB	105	115	145	186	208	2.50-3.00		
Baa2/BBB	120	130	160	201	221	2.50-3.00		
Baa3/BBB	140	145	172	210	232	2.50-3.00		
Ba1/BB+	225	250	300	350	440	2.00-2.50		
Ba2/BB	250	275	325	385	540	2.00-2.50		
Ba3/BB-	300	350	425	460	665	2.00-2.50		
B1/B+	375	400	500	610	765	1.75-2.00		
B2/B	450	500	625	710	890	1.50-1.75		
B3/B-	500	550	750	975	1075	1.25-1.50		
Caa/CCC	600	650	900	1150	1300	0.80-1.25		

The Cost of Equity

- Standard approach to estimating cost of equity:
Cost of Equity = R_f + Equity Beta * ($E(R_m)$ - R_f)

where,

R_f = Riskfree rate

$E(R_m)$ = Expected Return on the Market Index
(Diversified Portfolio)

- In practice,
 - ◆ Long term government bond rates are used as risk free rates
 - ◆ Historical risk premiums are used for the risk premium
 - ◆ Betas are estimated by regressing stock returns against market returns

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Data provided by [Reuters](#), except where noted.

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MOTOROLA

VALUATION MEASURES

Market Cap (intraday):	39.43B
Enterprise Value (11-Mar-04) ² :	39.47B
Trailing P/E (ttm, intraday):	45.54
Forward P/E (fye 31-Dec-05) ¹ :	27.32
PEG Ratio (5 yr expected) ¹ :	3.84
Price/Sales (ttm):	1.46
Price/Book (mrq):	3.11
Enterprise Value/Revenue (ttm) ² :	1.46
Enterprise Value/EBITDA (ttm) ² :	36.41

FINANCIAL HIGHLIGHTS

Fiscal Year

Fiscal Year Ends:	31-Dec
Most Recent Quarter (mrq):	31-Dec-03

Profitability

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TRADING INFORMATION

Stock Price History

Beta:	1.371
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Source: biz.yahoo.com

Cost of Capital and Leverage: Method

Equity

Estimated Beta
With current leverage
From regression

Unlevered Beta
With no leverage
 $B_u = B_l / (1 + D/E(1-T))$

Levered Beta
With different leverage
 $B_l = B_u(1 + D/E(1-T))$

Cost of equity
With different leverage
 $E(R) = R_f + B_l(R_m - R_f)$

Debt

Leverage, EBITDA
And interest cost

Interest Coverage
 $EBITDA / \text{Interest}$

Rating
(other factors too!)

Cost of debt
With different leverage
 $\text{Rate} = R_f + \text{Spread} + ?$

Next, Minimize the Cost of Capital by Changing the Financial Mix

- The first step in reducing the cost of capital is to **change the mix of debt and equity** used to finance the firm.
- Debt is always cheaper than equity, partly because it lenders bear less risk and partly because of the tax advantage associated with debt.
- But taking on debt increases the risk (and the cost) of both debt (by increasing the probability of bankruptcy) and equity (by making earnings to equity investors more volatile).
- The net effect will determine whether the cost of capital will increase or decrease if the firm takes on more or less debt.

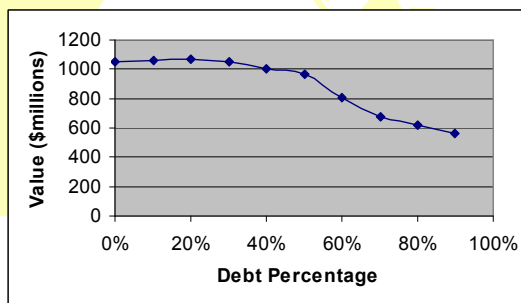
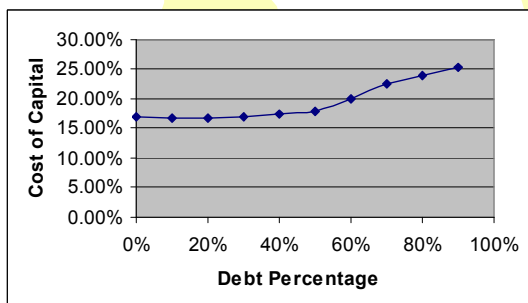
SteelCo: Optimal Debt Ratio

Debt Ratio	Beta	Cost of Equity	Bond Rating	Interest rate on debt	Tax Rate	Cost of Debt (after-tax)	WACC	Firm Value (G)
0%	0.68	16.95%	AAA	11.55%	33.45%	7.69%	16.95%	\$1,046
10%	0.73	17.76%	AA	11.95%	33.45%	7.95%	16.78%	\$1,064
20%	0.80	18.77%	A-	12.75%	33.45%	8.49%	16.71%	\$1,071
30%	0.88	20.07%	B+	14.25%	33.45%	9.48%	16.90%	\$1,052
40%	0.99	21.81%	B-	16.25%	33.45%	10.81%	17.41%	\$1,001
50%	1.14	24.24%	CCC	17.25%	33.45%	11.48%	17.86%	\$961
60%	1.44	29.16%	CC	18.75%	25.67%	13.94%	20.02%	\$803
70%	1.95	37.29%	C	20.25%	20.38%	16.12%	22.47%	\$674
80%	2.93	52.94%	C	20.25%	17.83%	16.64%	23.90%	\$615
90%	5.86	99.87%	C	20.25%	15.85%	17.04%	25.32%	\$565

Question: If SteelCo's current debt ratio is 60%, what do you recommend?

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Next, Financing a Company

IRIDIUM LLC : Company History

- **1987** The concept for the Iridium system is proposed by Motorola engineers Ray Leopold, Ken Peterson, and Bary Bertiger. They envision a constellation of low orbiting satellites. Research and development begins.
- **1990** The Iridium system is announced at simultaneous press conferences in Beijing, London, Melbourne, and New York City. Iridium is a satellite-based global mobile communication system. Iridium's mission: to link existing terrestrial telephone networks with satellite-based mobile communication products for the global marketplace.
- **1992** Iridium signs a license with Motorola. Motorola becomes the primary manufacturer of Iridium system.
- **1993** Iridium completes its first satellite launch.
- **1994** Iridium, Inc. successfully raises US\$1.6 billion in debt financing.
- **1995** Iridium files a reorganization plan with the bankruptcy court. The board of directors adds Ray Leopold as CEO.
- **1996** US\$315 million in debt financing is secured. Iridium selects Chase Bank as its primary bank credit facility.
- **1997** Iridium places 40 million shares in an initial public offering. Iridium World Communications Ltd. (IWC) is established. Iridium LLC is established. Iridium LLC completes US\$800 million in debt financing, representing full funding through the beginning of commercial operation.
- **1998** An additional US\$350 million in high yield bonds is secured. After extensive testing, the Iridium system enters commercial service on November 1.
- **1999** Iridium LLC announced that it is pursuing a comprehensive financial restructuring through a voluntary Chapter 11 filing in the United States Bankruptcy Court in Delaware. The major stakeholders in this restructuring -- banks, bondholders and Iridium's strategic partners -- have voiced support for this course of action.



Financing Iridium

IRIDIUM LLC : Company History

- **1987** The concept for the Iridium system is proposed by Motorola engineers Ray Leopold, Ken Peterson, and Bary Bertiger. They envision a constellation of low orbiting satellites. Research and development begins.
- **1990** The Iridium system is announced at simultaneous press conferences in Beijing, London, Melbourne, and New York City. Iridium unveils its revolutionary concept for global personal communications: to link existing terrestrial telephone networks, using the Iridium satellite constellation as a base.
- **1992** Iridium signs a US\$3.37 billion contract with Motorola for system development, construction, and delivery. Motorola becomes the prime contractor supplying satellites, gateways, and communication products for the Iridium system.
- **1993** Iridium completes the first round of financing, securing US\$800 million in equity.
- **1994** Iridium, Inc. successfully completes the second round of equity financing, bringing the total raised capital to US\$1.6 billion.
- **1995** Iridium files a registration statement with the U.S. Securities and Exchange Commission. The Iridium board of directors adopts the Iridium Global Ownership program.
- **1996** US\$315 million in additional investor funding is secured, bringing the total project support to US\$1.9 billion. Iridium selects Chase and BZW banks as arrangers of senior credit facilities, and to help complete a US\$750 million bank credit facility.
- **1997** Iridium places 47 satellites into orbit successfully. Iridium offers a total of US\$240 million in stock through an initial public offering. Iridium World Communications Ltd. (NASDAQ: IRID) is established. Iridium LLC completes US\$800 million in debt financing, representing full funding through the beginning of commercial operation.
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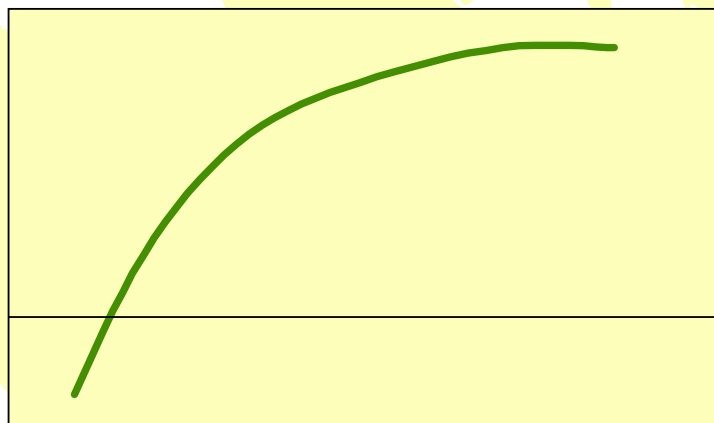


Firm Characteristics as Growth Changes

Variable	High Growth Firms tend to	Stable Growth Firms tend to
Risk	be above-average risk	be average risk
Dividend Payout	pay little or no dividends	pay high dividends
Net Cap Ex	have high net cap ex	have low net cap ex
Return on Capital	earn high ROC (excess return)	earn ROC closer to WACC
Leverage	have little or no debt	higher leverage

Earnings

0



Gearing

Financing Motorola

Cash Flows											
										As originally reported	
Cash Flows From Operating Activities \$Mil											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	TTM
Net Income	1,022.0	1,560.0	1,781.0	1,154.0	1,180.0	(962.0)	891.0	1,318.0	(3,937.0)	(2,485.0)	578.0
Depr & Amort	1,196.0	1,547.0	1,931.0	2,316.0	2,339.0	2,208.0	2,254.0	2,522.0	2,552.0	2,108.0	1,743.0
Deferred Taxes	50.0	(177.0)	(55.0)	(160.0)	(98.0)	(933.0)	(443.0)	239.0	(2,273.0)	(1,570.0)	(519.0)
Other	46.0	(419.0)	(392.0)	880.0	(825.0)	708.0	(562.0)	(5,243.0)	5,634.0	3,286.0	589.0
Cash from Operations	2,314.0	2,511.0	3,265.0	4,190.0	2,596.0	1,021.0	2,140.0	(1,164.0)	1,976.0	1,339.0	2,391.0
Cash Flows From Investing Activities \$Mil											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	TTM
Cap Ex	(2,061.0)	(3,137.0)	(4,236.0)	(2,731.0)	(2,550.0)	(2,714.0)	(2,388.0)	(3,957.0)	(1,307.0)	(464.0)	(561.0)
Purchase of Business	---	---	---	---	---	---	---	---	---	---	(184.0)
Other	(446.0)	(831.0)	(343.0)	(175.0)	(75.0)	(251.0)	1,428.0	(134.0)	3,784.0	25.0	411.0
Cash from Investing	(2,507.0)	(3,968.0)	(4,579.0)	(2,906.0)	(2,625.0)	(2,965.0)	(960.0)	(4,091.0)	2,477.0	(439.0)	(334.0)
Cash Flows From Financing Activities \$Mil											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	TTM
Net Issuance of Stock	113.0	1,102.0	71.0	7.0	137.0	99.0	1,028.0	383.0	362.0	401.0	198.0
Net Issuance of Debt	447.0	(158.0)	777.0	18.0	210.0	480.0	454.0	1,185.0	3,862.0	(235.0)	(983.0)
Dividends	(120.0)	(149.0)	(236.0)	(261.0)	(286.0)	(288.0)	(291.0)	(333.0)	(356.0)	(364.0)	(370.0)
Other	(38.0)	517.0	686.0	(260.0)	(100.0)	1,627.0	(403.0)	3,884.0	(5,688.0)	(286.0)	(152.0)
Cash from Financing	402.0	1,312.0	1,298.0	(496.0)	(39.0)	1,918.0	788.0	5,119.0	(1,820.0)	(484.0)	(1,307.0)
Currency Adj	---	---	---	---	---	34.0	(33.0)	(100.0)	148.0	9.0	54.0
Change in Cash	209.0	(145.0)	(16.0)	788.0	(68.0)	8.0	1,935.0	(236.0)	2,781.0	425.0	804.0
Free Cash Flow \$Mil											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	TTM
Cash from Operations	2,314.0	2,511.0	3,265.0	4,190.0	2,596.0	1,021.0	2,140.0	(1,164.0)	1,976.0	1,339.0	2,391.0
Cap Ex	(2,061.0)	(3,137.0)	(4,236.0)	(2,731.0)	(2,550.0)	(2,714.0)	(2,388.0)	(3,957.0)	(1,307.0)	(464.0)	(561.0)
Free Cash Flow	253.0	(626.0)	(971.0)	1,459.0	46.0	(1,693.0)	(248.0)	(5,121.0)	669.0	875.0	1,830.0

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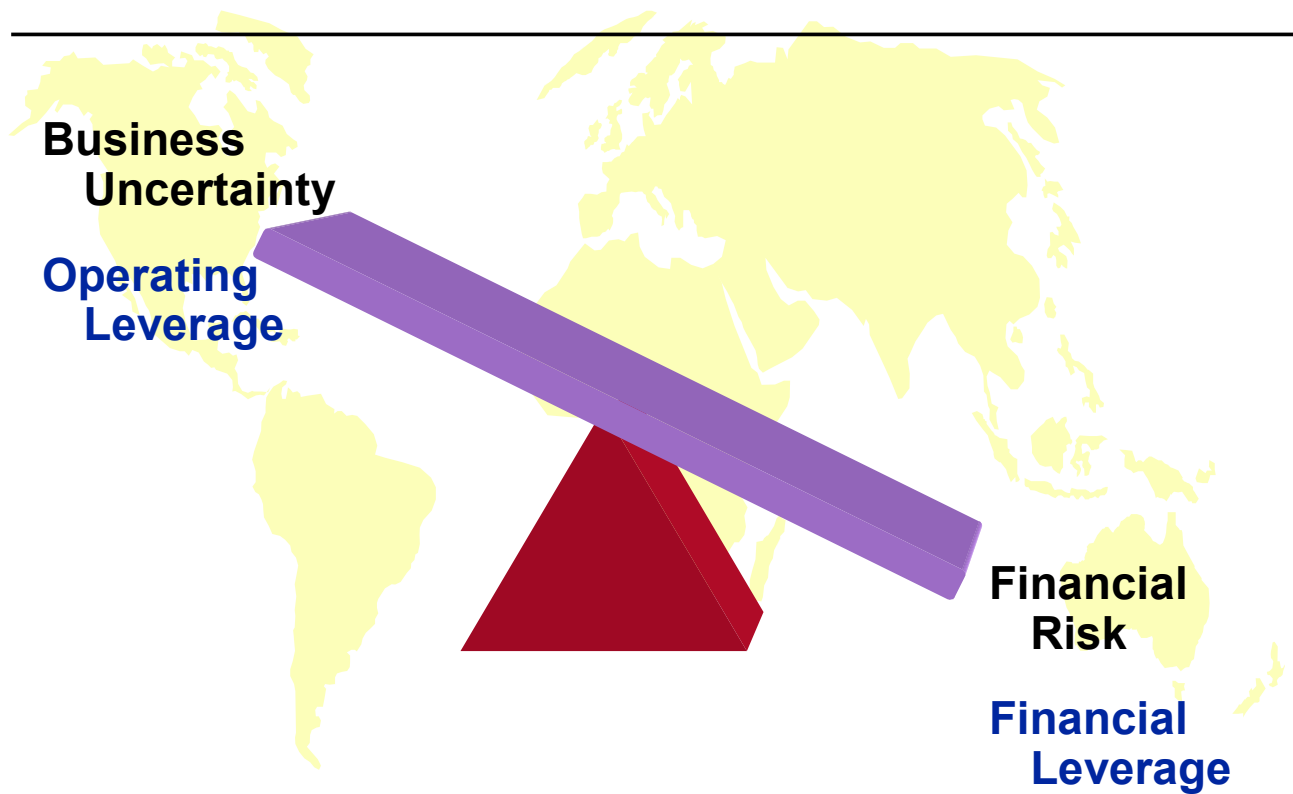
Sonnenschein 37

Source: morningstar.com

Case Study: Photonics

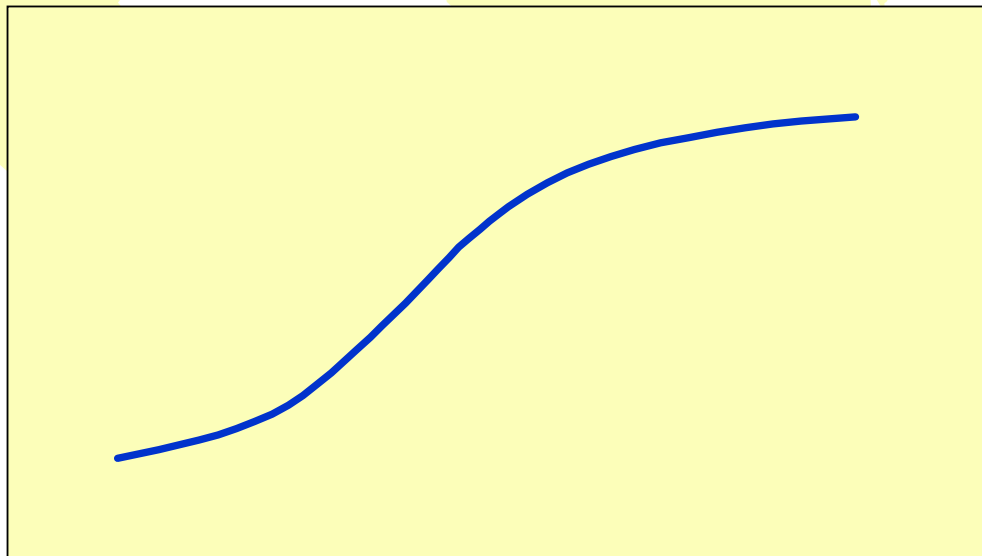


Consideration 1: Operating Leverage



Consideration 2: Maturity

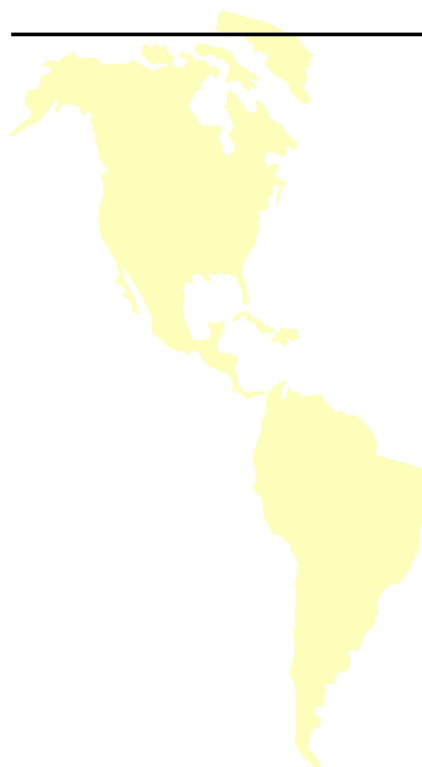
Leverage



Growth companies

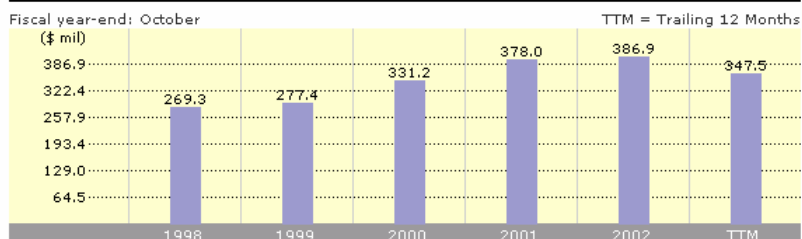
Mature companies

Photronics



Source: morningstar.com

Income Statement



	1998	1999	2000	2001	2002	TTM
Sales \$Mil	269	277	331	378	387	347
Operating Income \$Mil	45	27	21	7	8	---
Income Tax \$Mil	16	8	5	-3	-7	---
Net Income \$Mil	27	14	10	-4	-5	-62
Earnings/Share \$	0.92	0.51	0.34	-0.13	-0.16	-1.93
EPS (Cont Ops) \$	0.92	0.51	0.34	-0.13	-0.16	-1.93
Dividends/Share \$	0.00	0.00	0.00	0.00	0.00	0.00
Total Shares Mil	28	28	29	31	30	32

Cash Flow \$Mil

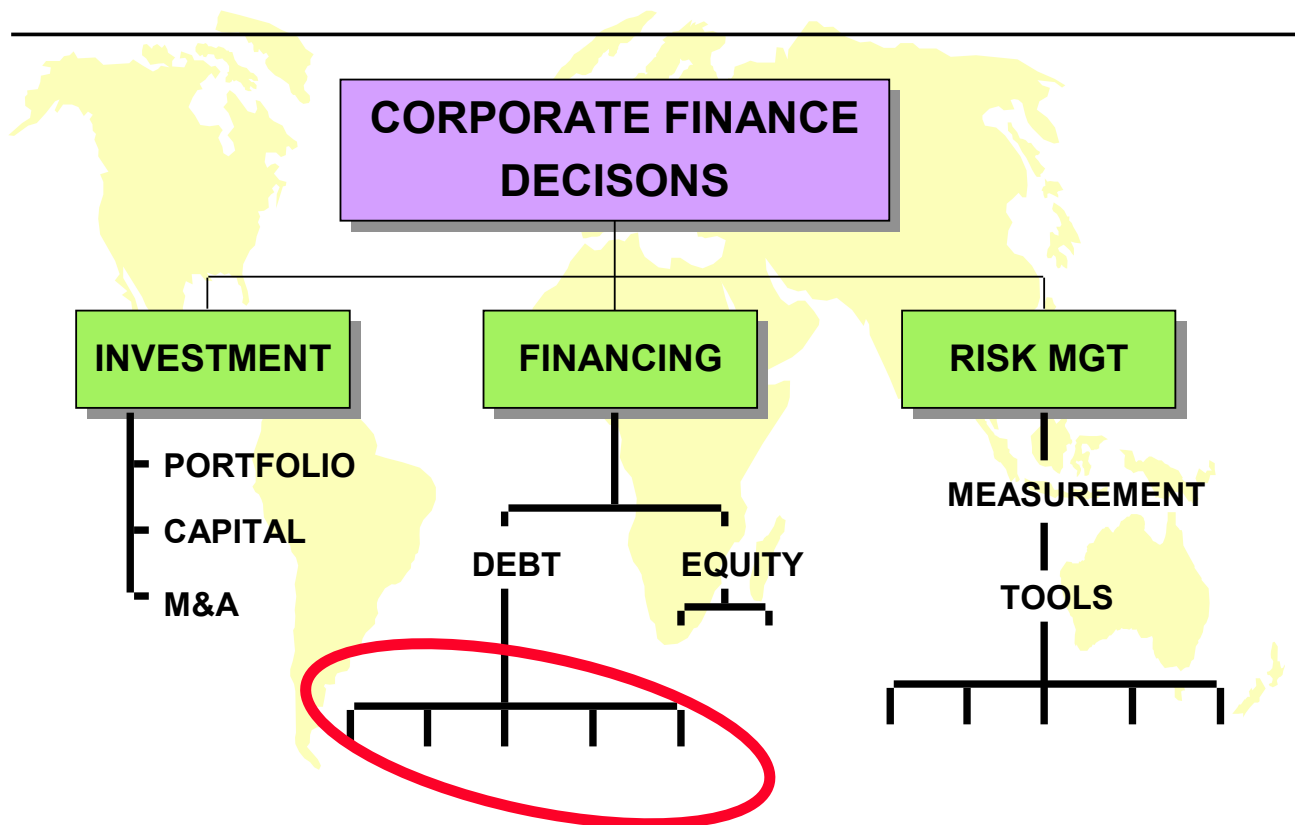
Fiscal year-end: October TTM = Trailing 12 Months

	2000	2001	2002	TTM
Operating Cash Flow	50	114	136	109
- Capital Spending	44	49	126	73
= Free Cash Flow	6	65	10	36

Balance Sheet

Assets	\$Mil	Liabilities and Equity	\$Mil
Cash	211.4	Current Liabilities	77.8
Other Current Assets	112.7	Long-Term Liabilities	477.3
Long-Term Assets	528.2	Shareholders' Equity	297.2
Total	852.3	Total	852.3

Corporate Finance

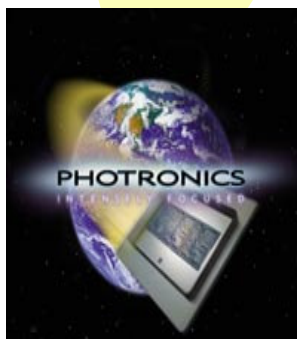


Corporate Financing Choices: What Kind of Debt?

- 
- Fixed/floating
 - Currency of denomination
 - Maturity or availability
 - Domestic/Euro
 - Public/private
 - Asset-based
 - Credit enhanced
 - Swapped
 - Equity-linked

Currency of Denomination of Photronics' Debt? What Should It Be?

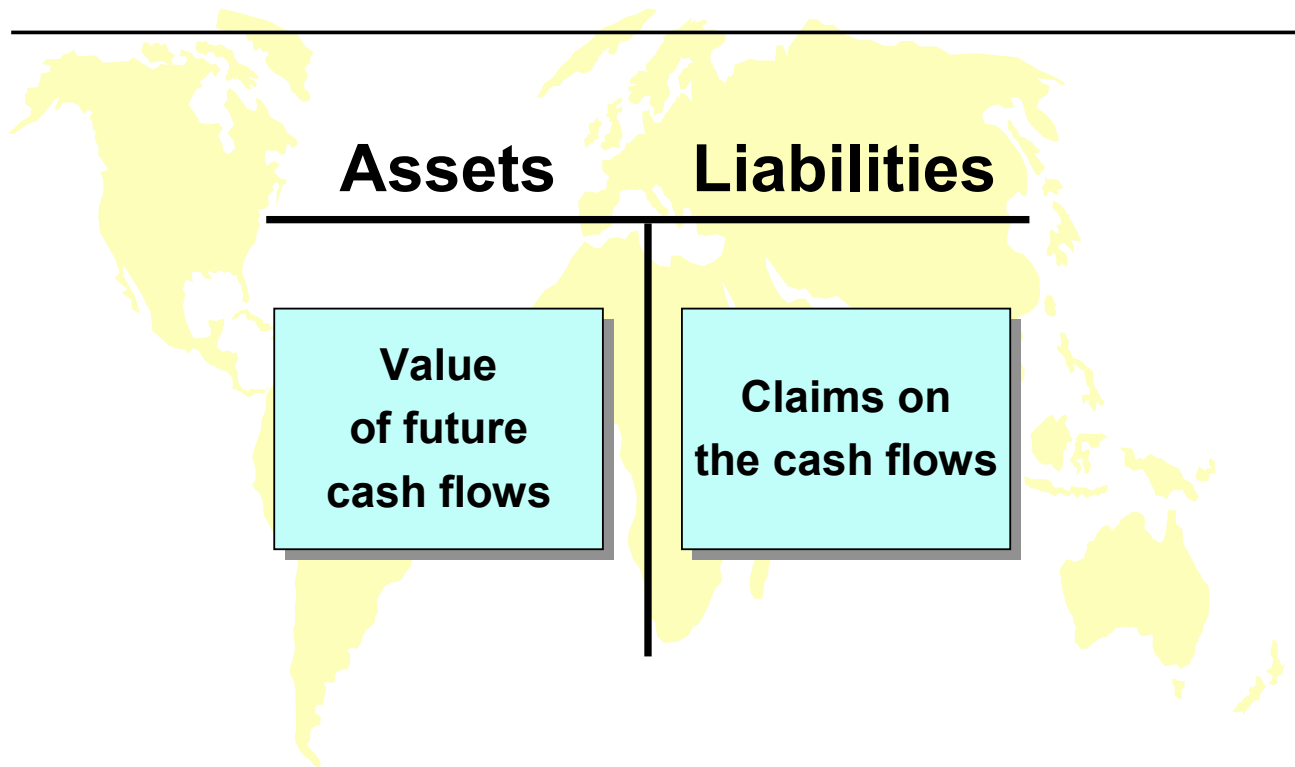
- Geographic location of sales and capital assets.
- Currency distribution of sales.
- Nature of the company's businesses



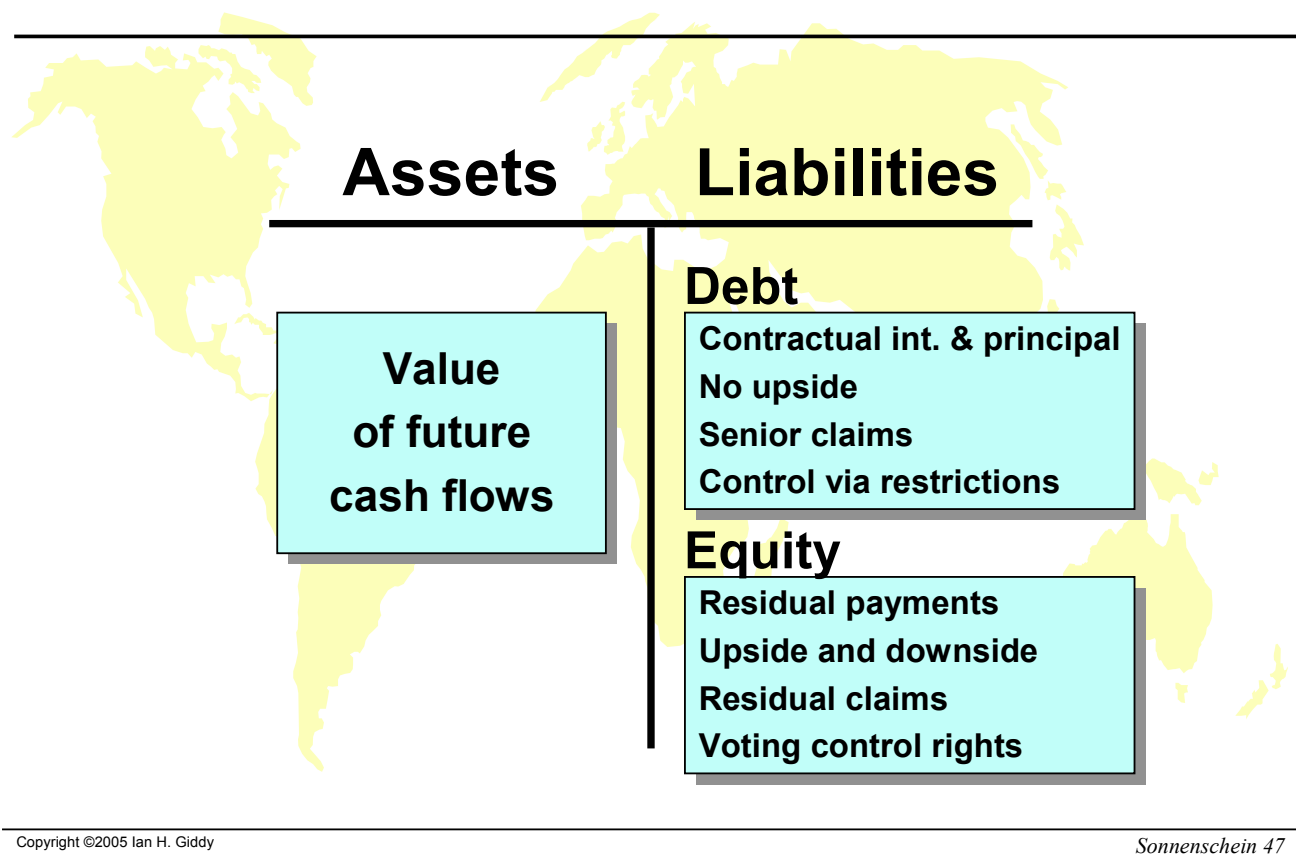
What Kind of Debt? Some Considerations

- Fixed/floating:
 - ◆ How certain are the cash flows? Are operating profits linked to interest rates or inflation?
- Currency:
 - ◆ Consider currency of the assets: currency of denomination vs. currency of location vs. currency of determination.
- Maturity or availability:
 - ◆ Are the assets short term or long term? Should the firm assume ease of refinancing, or buy an option on access to financing?

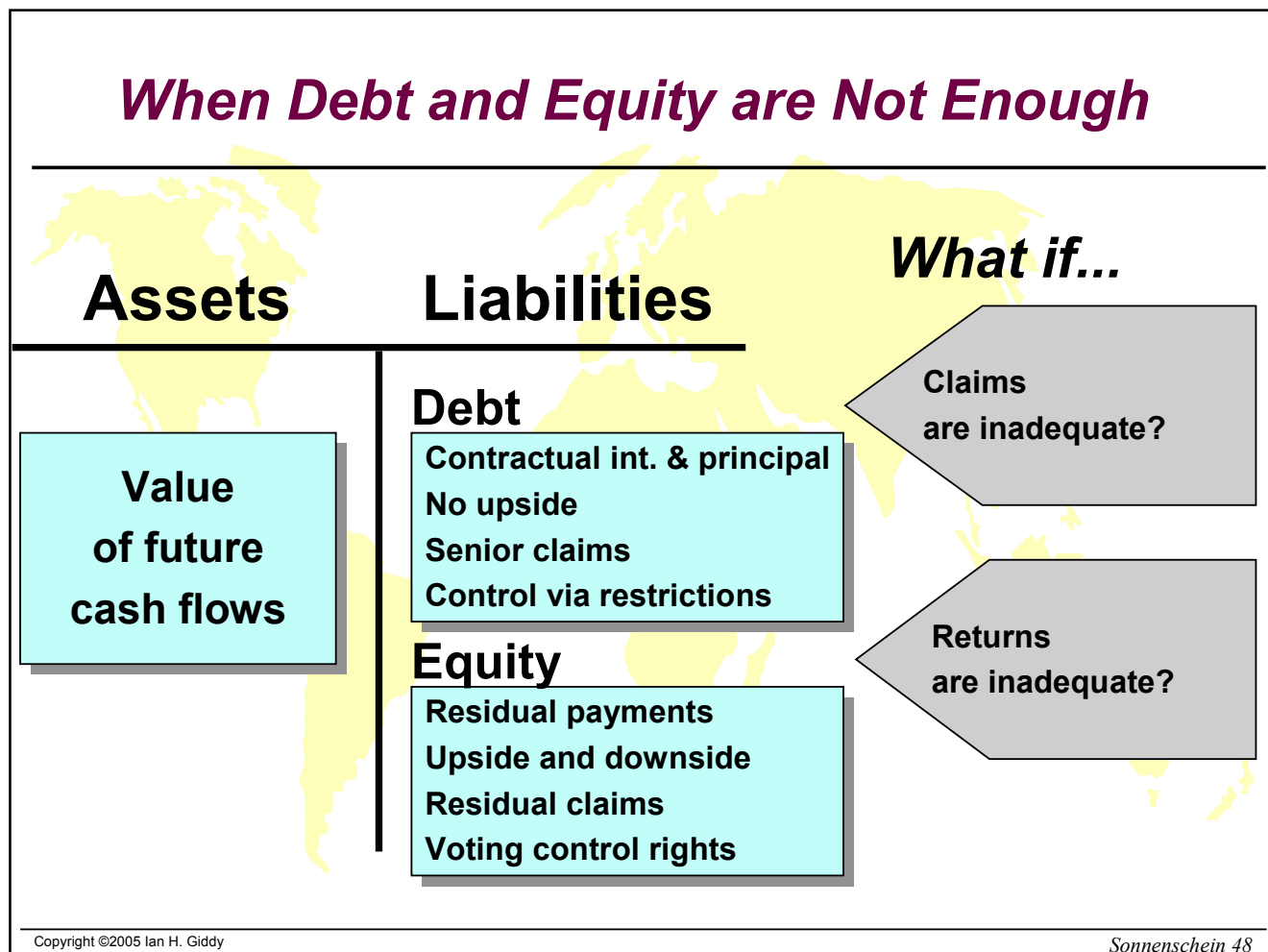
When Debt and Equity are Not Enough



When Debt and Equity are Not Enough



When Debt and Equity are Not Enough



When Debt and Equity are Not Enough

Assets

Value
of future
cash flows

Liabilities

Debt

Contractual int. & principal
No upside
Senior claims
Control via restrictions

Equity

Residual payments
Upside and downside
Residual claims
Voting control rights

Alternatives

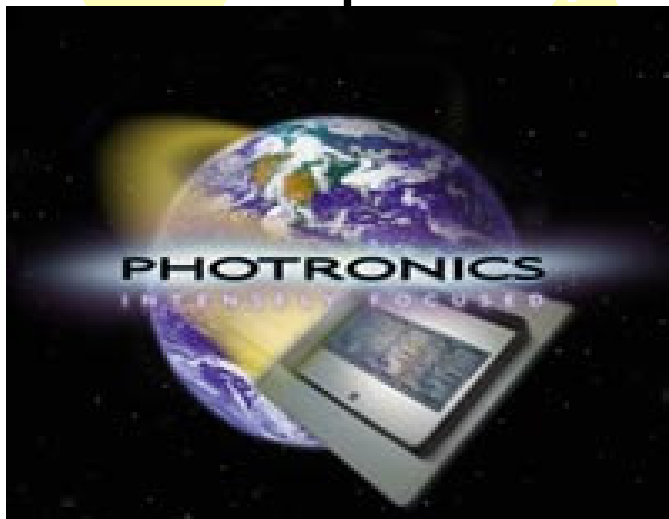
- Collateralized
- Asset-securitized
- Project financing

- Preferred
- Warrants
- Convertible

What Suits Photronics?

Assets

Liabilities



- Collateralized
- Asset-securitized
- Project financing

- Preferred
- Warrants
- Convertible

Photronics Debt (From SEC Filing)

NOTE 4 - LONG-TERM DEBT

On April 15, 2003, the Company sold \$150.0 million, 2.25% convertible subordinated notes due 2008 in a private offering pursuant to SEC Rule 144A. Those notes are convertible into the Company's common stock at a conversion price of \$15.89 per share. Net proceeds from the issuance amounted to approximately \$145.2 million. On June 2, 2003, a portion of the net proceeds was used to redeem the \$62.1 million of the Company's outstanding 6% convertible subordinated notes due 2004. Pursuant to the terms of the related indenture, the 6% convertible subordinated notes were redeemed at 100.8571% of the principal amount plus accrued interest of \$1.9 million for an aggregate redemption price of \$64.5 million, including a premium of \$0.5 million. An early extinguishment charge of \$0.9 million was incurred on the redemption of the 6% convertible subordinated notes. This charge included the aforementioned \$0.5 million premium and \$0.4 million of unamortized deferred financing costs which were expensed at the time of redemption.

The Company's \$100 million revolving credit facility, which expires in July 2005, was amended April 9, 2003 to relax certain financial covenants and definitions as a result of the Company's March 2003 consolidation plan and April 2003 issuance of \$150.0 million convertible subordinated notes.

Source: photronics.com

PROSPECTUS

Subject to Completion Dated January 26, 2004

\$150,000,000

Photronics, Inc.

**2¹/₄% Convertible Subordinated Notes due 2008
and
Common Stock Issuable Upon Conversion of the Notes**

We issued the notes in a private placement on April 15, 2003. This prospectus will be used by selling security holders to resell their notes and the common stock issuable upon conversion of their notes.

The notes bear interest at an annual rate of 2¹/₄% from April 15, 2003. We will pay interest on April 15 and October 15 of each year, beginning October 15, 2003, to record holders at the close of business of the preceding April 1 and October 1, as the case may be.

We may not redeem the notes prior to maturity.

The notes are subordinated to all of our existing and future senior indebtedness and are effectively subordinated to all debt and other liabilities of our subsidiaries. As of August 3, 2003, we had \$12.9 million principal amount of senior indebtedness outstanding and, as of that date, we estimate that our subsidiaries had approximately \$118.2 million of liabilities outstanding, excluding liabilities owed to us, and there were \$51.5 million of minority interests held by third parties in the equity of our two non-wholly owned subsidiaries.

The registration statement of which this prospectus forms a part covers resales of up to 9,440,640 shares of our common stock, which is the total number of shares issuable upon conversion of \$150,000,000 aggregate principal amount of the notes based on the initial conversion rate of 62.9376 shares per \$1,000 principal amount of the notes. The initial conversion rate is subject to adjustment in connection with stock splits and other corporate events and transactions under the anti-dilution provisions described in this prospectus. Holders may convert the notes until April 15, 2008, subject to prior redemption of the notes upon a fundamental change.

Our common stock is quoted on the Nasdaq National Market under the symbol "PLAB." On January 23, 2004, the last reported sale price of the common stock on the Nasdaq National Market was \$21.26 per share. The notes are not listed on any national securities exchange or quoted on any automated quotation system.

Source: photronics.com

The Offering

Securities Offered	\$150,000,000 principal amount of 2 ¹ / ₄ % Convertible Subordinated Notes due 2008.
Maturity Date	April 15, 2008.
Interest	2 ¹ / ₄ % per annum on the principal amount from April 15, 2003, payable semi-annually in arrears in cash on April 15 and October 15 of each year, beginning October 15, 2003.
Conversion	You may convert the notes into shares of our common stock at a conversion rate of 62.9376 shares per \$1,000 principal amount of notes, subject to adjustment, prior to the final maturity date.
Subordination	<p>The notes are subordinated to all of our existing and future senior indebtedness and are effectively subordinated to all debt and other liabilities of our subsidiaries. As of August 3, 2003, we had \$12.9 million principal amount of senior indebtedness outstanding and, as of that date, we estimate that our subsidiaries had approximately \$118.2 million of liabilities outstanding, excluding liabilities owed to us, and there were \$51.5 million of minority interests held by third parties in the equity of our two non-wholly owned subsidiaries. The foregoing amount of subsidiary liabilities excludes \$11.0 million of bank revolving credit debt borrowed by one of our subsidiaries, which is guaranteed by us and included in our outstanding senior indebtedness. In the event of the liquidation of one of our subsidiaries, the creditors of that subsidiary would have claims against the subsidiary's assets that ranked ahead of the claims of the subsidiary's equity holders, including us and any minority shareholders. In the event of the liquidation of one of our non-wholly owned subsidiaries, we and the minority shareholders would be entitled to share, pro rata based on our respective equity interests, in the net assets of the subsidiary remaining after payment of all of the subsidiary's liabilities. The holders of the notes have no direct claim on the assets of any of our subsidiaries.</p>

The notes rank equally with our existing 4 ³/₄% convertible subordinated notes due 2006. As of May 4, 2003, we had \$62.1 million of 6% convertible subordinated notes due 2004 outstanding and \$200.0 million of 4 ³/₄% convertible subordinated notes outstanding. On June 2, 2003, we redeemed our 6% convertible subordinated notes. Neither we nor any of our subsidiaries are prohibited from incurring debt, including senior indebtedness, under the indentures governing the notes and our other convertible

Source: photronics.com

Costs of Issuance

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The following table sets forth the costs and expenses, payable by us in connection with the distribution of the securities being registered. All of the amounts shown are estimates, except the Securities and Exchange Commission registration fee.

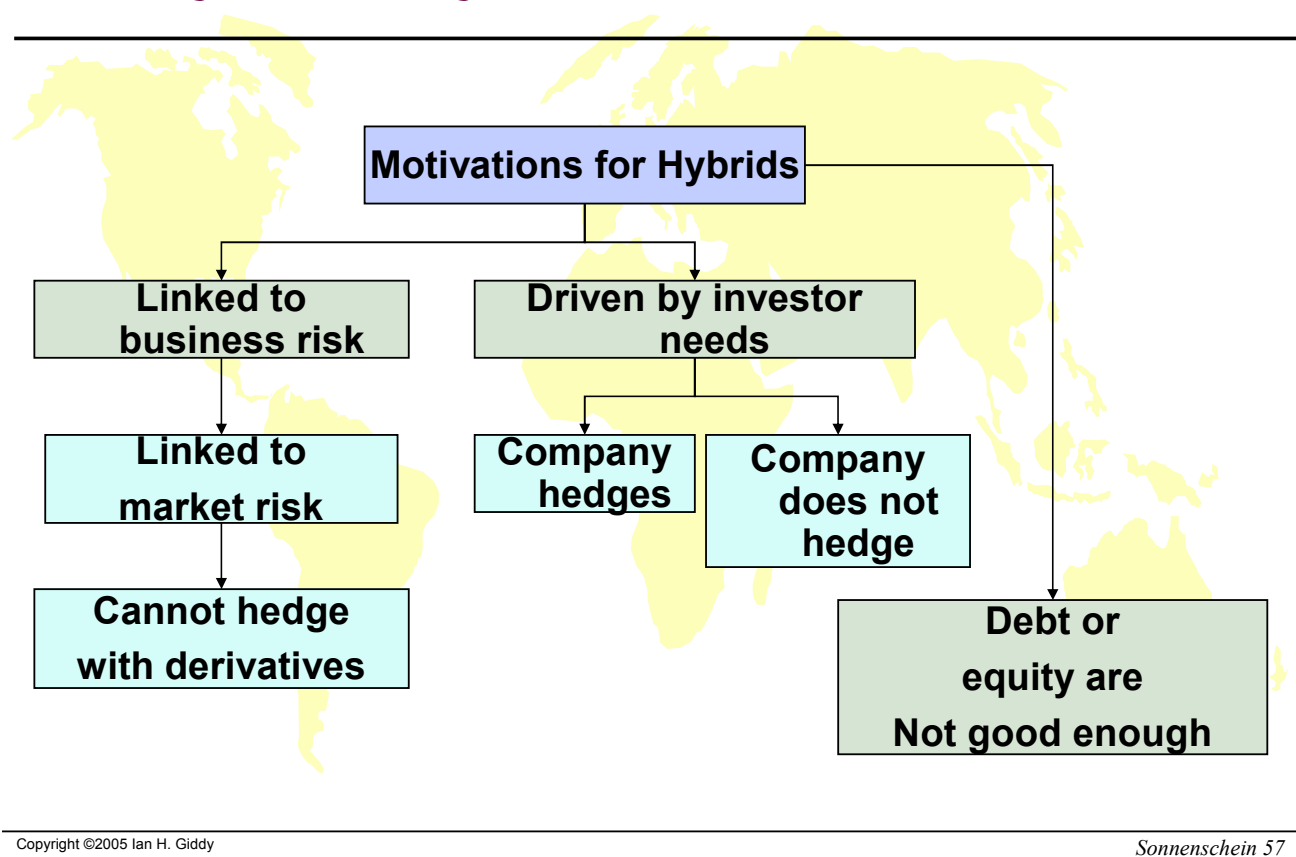
Securities and Exchange Commission registration fee	\$12,135
Printing and engraving fees	70,000
Accountants' fees and expenses	95,000
Legal fees and expenses	300,000
Trustee fees and expenses	10,000
Miscellaneous expenses	12,865
Total	500,000

Source: photronics.com

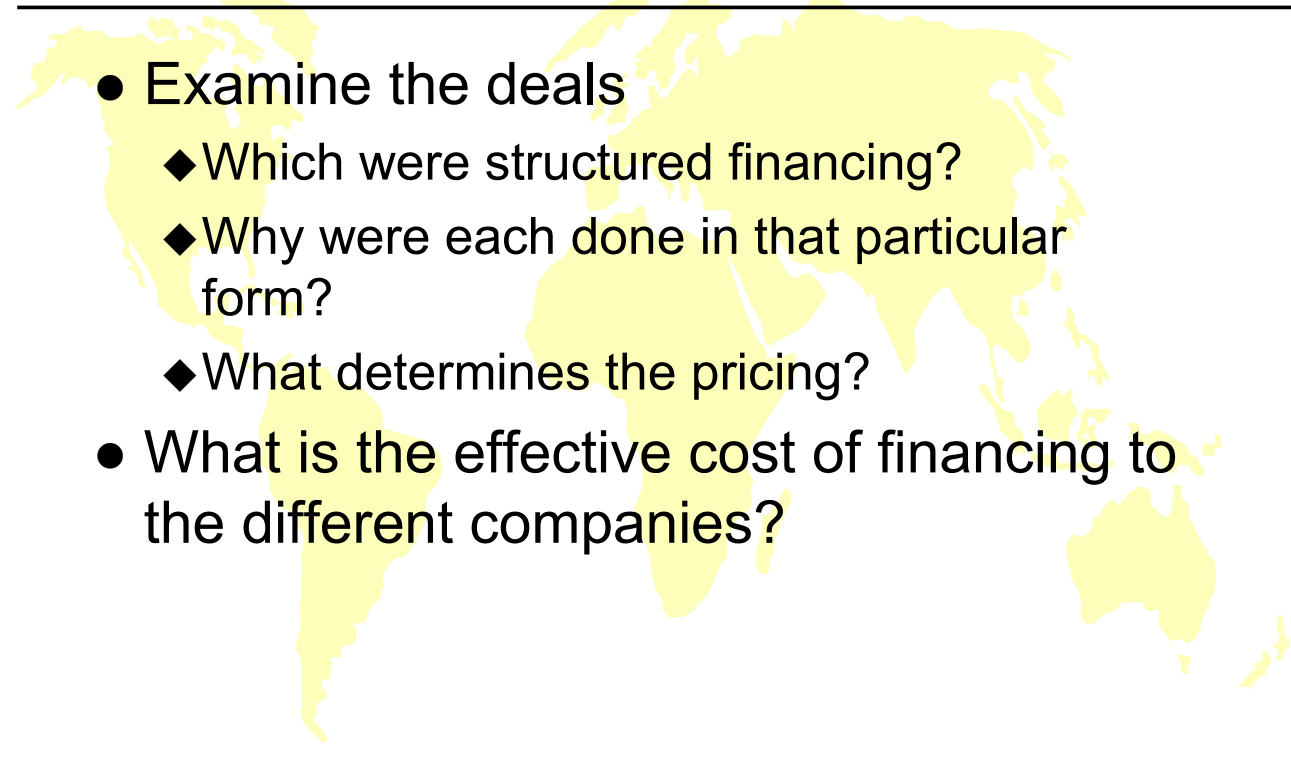
Structured Finance

Prof. Ian Giddy
New York University

Why Use a Hybrid?



A Day in the Life of the Eurobond Market

- 
- Examine the deals
 - ◆ Which were structured financing?
 - ◆ Why were each done in that particular form?
 - ◆ What determines the pricing?
 - What is the effective cost of financing to the different companies?

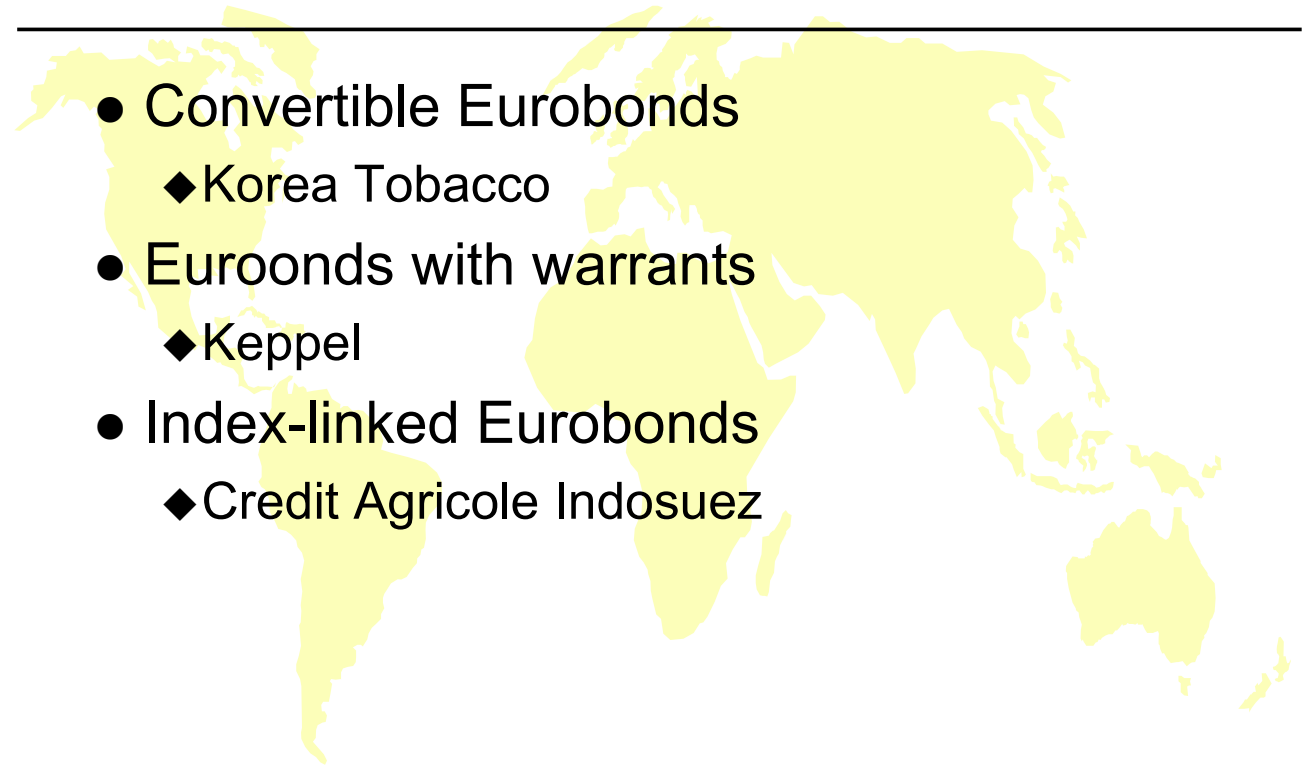
A Day in the Life...



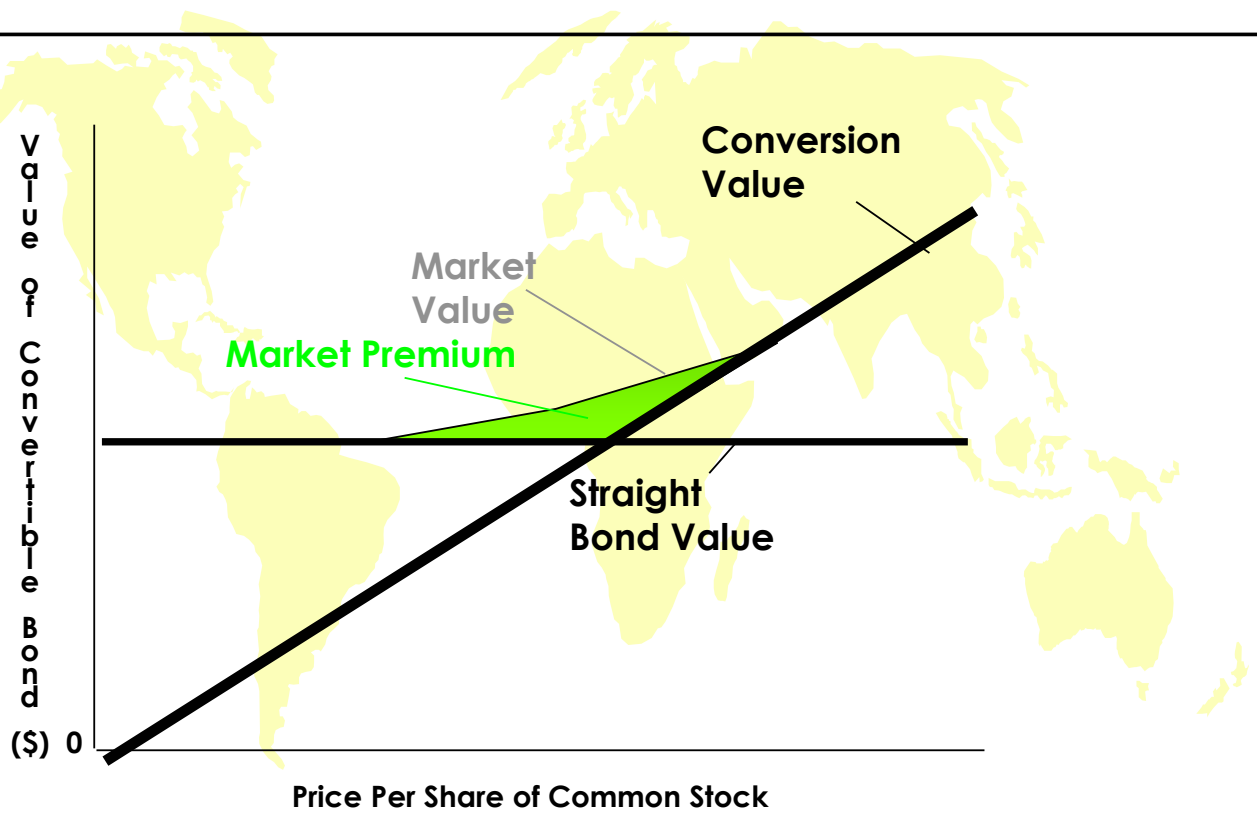
NEW INTERNATIONAL BOND ISSUES

Borrower	Amount m.	Coupon %	Price	Maturity	Moody's/S&P Ratings	Fees	Bookrunner
Celworks Trust 2001-1 (a)	US\$250	4.325	99.80	Mar 2008	Aaa/AAA	0.30	JP Morgan/SSB
Korea Tobacco, Ginseng(b)**	US\$200	(2-2.50)#	100	Oct 2006	BB2/BB	1.75	CSFB/UBS Warburg
Absolute Fdg Srl, Cls A(c)	€765	(c1)	100	Sep 2010	Aa1/AAA	0.15	Deutsche/SG/UBM
ING Groep NV (S)	€600	6.50	100	undated	A1/A	undiscl	ING Barings-BEL
SNCF (d,e)	€750	4 1/2	98.55	Nov 2007	Aa1/AAA	0.07	CCF
Cofiroute	€300	5.875	99.11R	Oct 2016	-/AA-	0.40	BNP Paribas
Holderbank	€150	6.125	100.125	Dec 2004	Aa3/AA-	0.22	CSFB
Hansabank ***	EEK100	7.625	101 3/8	Sep 2004	Aa2/AA	0.35	Deutsche
Keppel Telekom*	S\$150m	2.125	100	Sep 2003	B3/B-	undiscl	DBS Bank
C. Agricole Indosuez (f) ***	A\$15bn	0	100 3/4	Mar 2003	-/-	0.75	CAI, HSEC

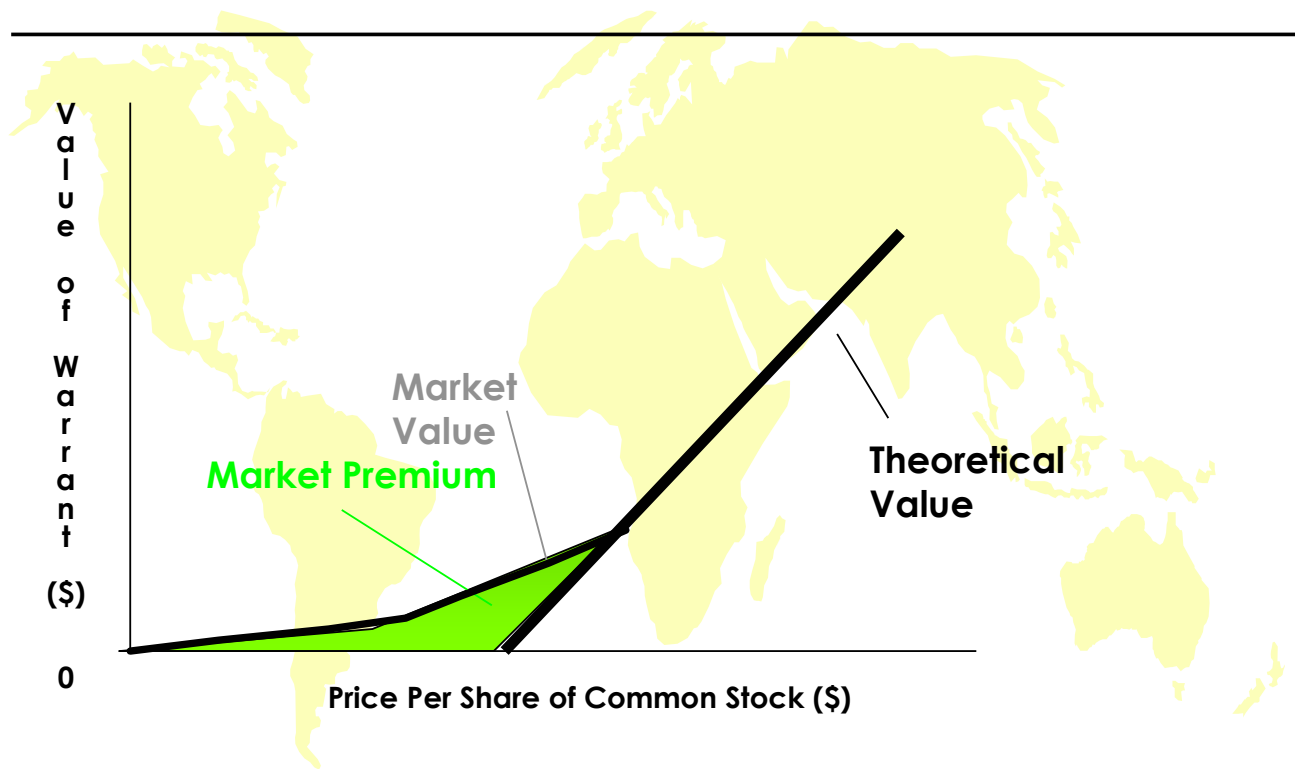
Equity-Linked Eurobonds

- 
- Convertible Eurobonds
 - ◆ Korea Tobacco
 - Eurobonds with warrants
 - ◆ Keppel
 - Index-linked Eurobonds
 - ◆ Credit Agricole Indosuez

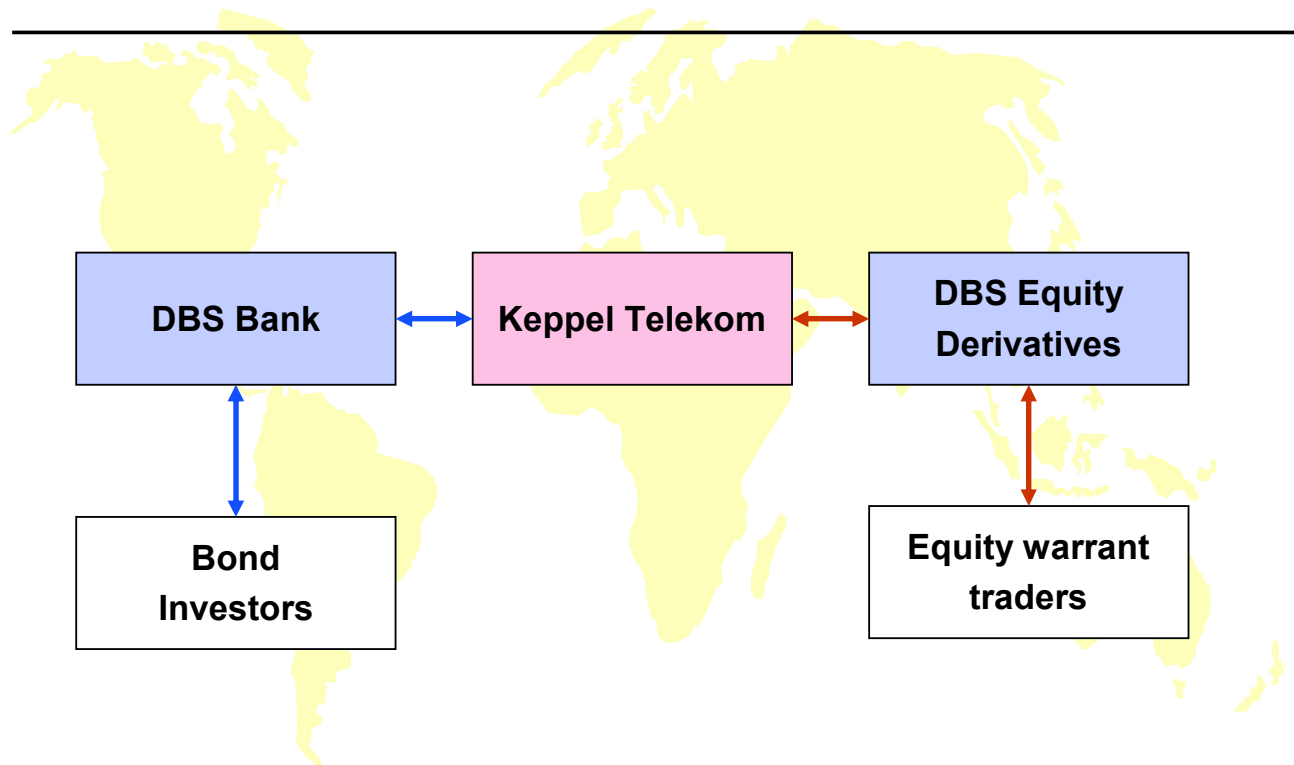
Convertibles



Warrants

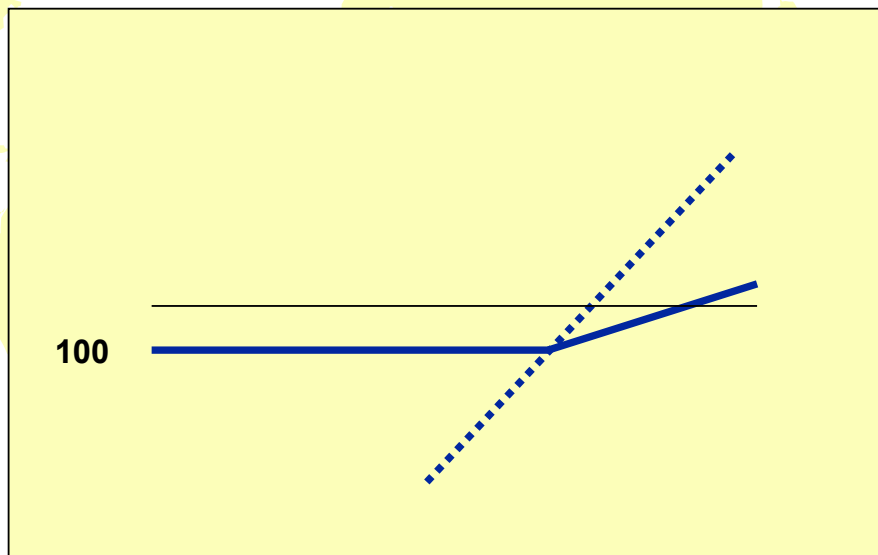


Keppel Telekom Warrant Bond



Hedge Fund Linked

Principal
Repayment



Hedge Fund Performance

Structured Notes

- Bundling and unbundling basic instruments
- Exploiting market imperfections (sometimes temporary)
- Creating value added for investor and issuer by tailoring securities to their particular needs

Key: For the innovation to work, it must provide **value added** to both issuer and investor.

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

Further Reading

- Books:
 - ◆ Finance for Executives
 - ◆ Applied Corporate Finance, Damodaran on Valuation
 - ◆ DePamphilis: Mergers, Acquisitions, and Other Restructuring Activities
- Web Sites:
 - ◆ Applied Finance for Lawyers
 - ◆ www.giddy.org
 - ◆ Damodaran Online: <http://pages.stern.nyu.edu/~adamodar>
- Cheat sheets: www.barcharts.com

FINANCE		
CORPORATION A corporation is a legal entity that is separate from its owners. It can own property, sue and be sued, and pay taxes. It is owned by shareholders who are not personally liable for the corporation's debts.	FINANCIAL RATIOS Ratios are used to evaluate a company's financial performance. Key ratios include the Current Ratio, Debt to Equity Ratio, and Return on Equity.	THE VALUE OF EQUITY The value of equity is determined by the present value of future cash flows. It is influenced by factors such as growth rate, discount rate, and risk.
ACCOUNTING STATEMENTS The four main accounting statements are the Balance Sheet, Income Statement, Statement of Retained Earnings, and Statement of Cash Flows.	BALANCE SHEET IDENTITY Assets = Liabilities + Equity	INCOME STATEMENT Revenue - Expenses = Net Income
STATEMENT OF RETAINED EARNINGS Beginning Retained Earnings + Net Income - Dividends = Ending Retained Earnings	STATEMENT OF CASH FLOWS Operating Activities, Investing Activities, Financing Activities	CASH FLOW IDENTITY Operating Cash Flow + Investing Cash Flow + Financing Cash Flow = Change in Cash
PROFITABILITY Measures a company's ability to generate profit. Key metrics include Gross Profit Margin, Operating Profit Margin, and Net Profit Margin.	EFFECTIVE ANNUAL RATE (EAR) EAR = (1 + APR/n)^n - 1	ANNUAL PERCENTAGE RATE (APR) APR = EAR / (1 + EAR/n)^n - 1

Contact Info

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<http://giddy.org>

The logo for Giddy.org, featuring the text "Giddy.org" in white on a dark blue rectangular background. A thin red arc is positioned above the "y" in "Giddy".