Market Revelations

Lessons learned, unlearned and relearned from a crisis

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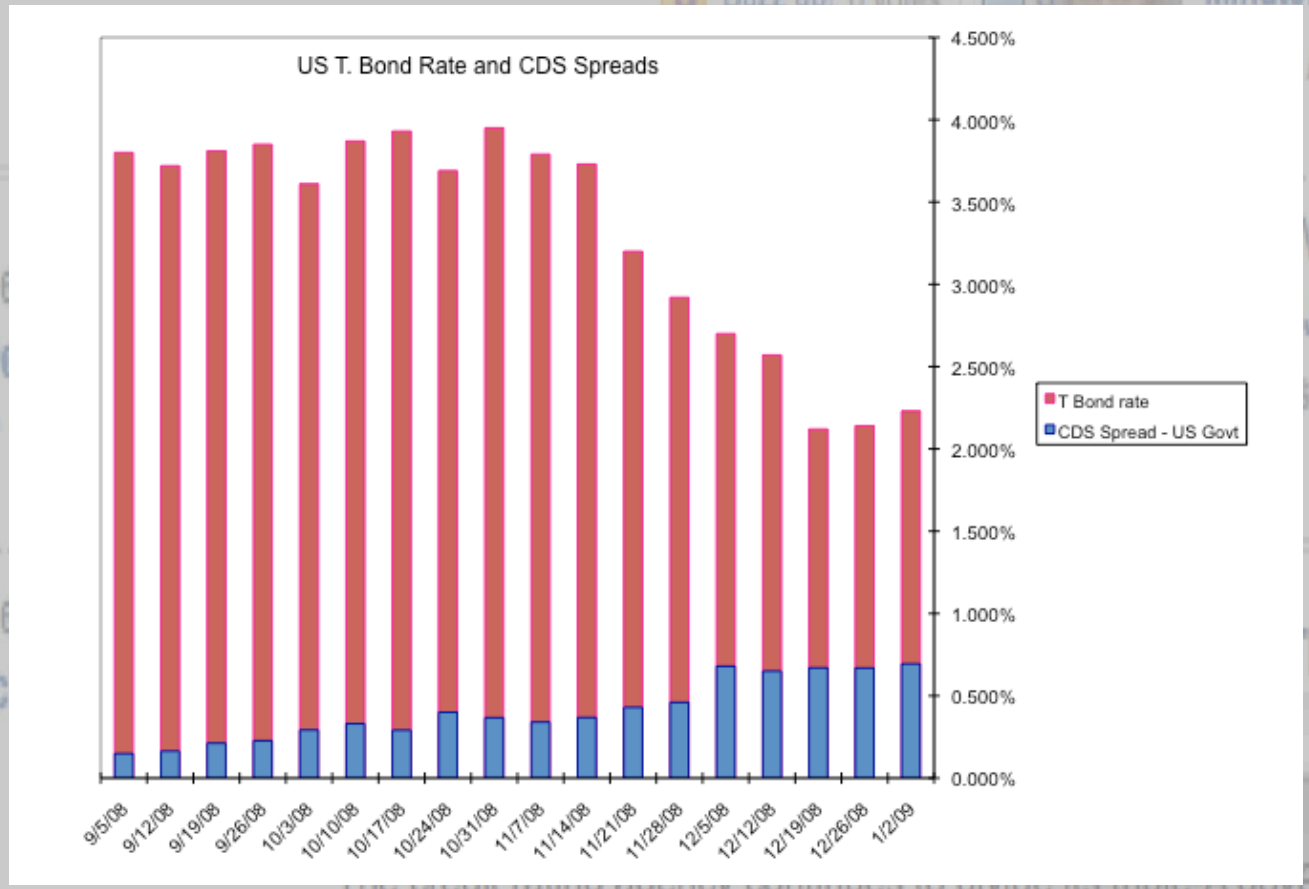
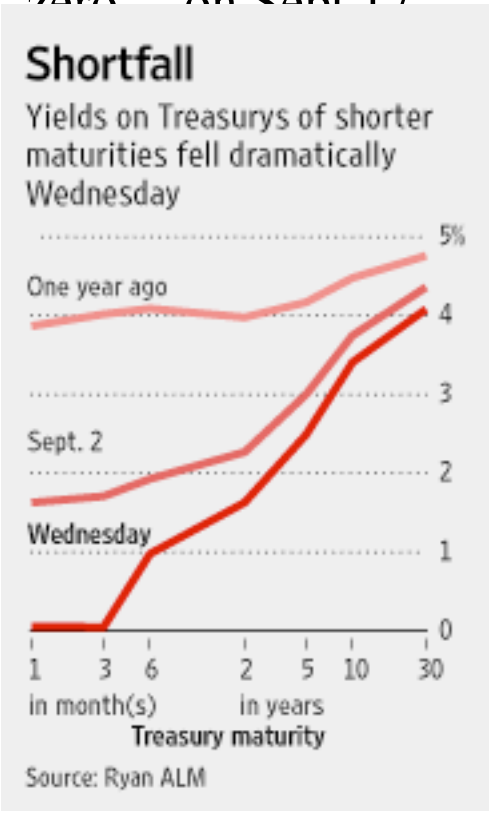
Lesson 1: Nothing is risk free? The market view of US treasuries…



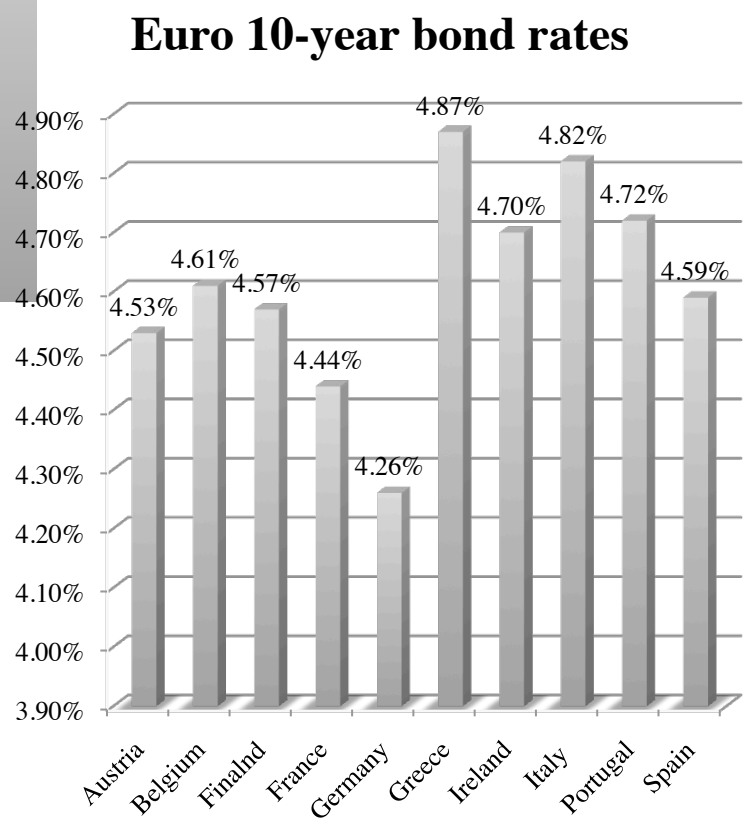
And the consequences..

- Reserve Fund "breaks the buck" On Wednesday, September 17, the Reserve Primary Fund had $62.6 billion in assets, making it one of the largest money-market funds.. At least a dozen large investors pulled out almost $40 billion of their money Monday and Tuesday, two-thirds of Primary Fund's formidable asset base. That pushed the fund's per-share price down to $0.97, a bracing signal to investors and a jolt to money-market investors world-wide. The withdrawals meant the Primary Fund had to "break the buck." That is, its net asset value sunk below the time-honored standard of$1 a share.

- Treasury bill rates drop to zero ... on Sept 17



Response 1: From government bond rates to riskfree rates…



- The Brazilian government had 10-year nominal $R bonds outstanding, with a yield to maturity of about 10.25% on January 1, 2009. In January 2009, the Brazilian government had a local currency sovereign rating of Ba1. The typical default spread (over a default free rate) for Ba1 rated country bonds in early 2009 was 3%. The risk free rate in nominal $R is

a) The yield to maturity on the 10-year bond (10.25%)

b) The yield to maturity on the 10-year bond + Default spread (13.25%)

c) The yield to maturity on the 10-year bond – Default spread (7.25%)

d) None of the above

II. The Equity Risk Premium: Trusting history?

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2007	7.78%	6.42%	5.94%	4.79%
1967-2007	5.94%	4.33%	4.75%	3.50%
1997-2007	5.26%	2.68%	3.86%	1.51%

Historical premium in January 2008

	Arithmetic Average		Geometric Average	
	Stocks – T. Bills	Stocks – T. Bonds	Stocks – T. Bills	Stocks – T. Bonds
1928-2008	7.30%	5.65%	5.32%	3.88%
	(2.29%)	(2.40%)		
1959-2008	5.14%	3.33%	3.77%	2.29%
	(2.39%)	(2.63%)		
1999-2008	-2.53%	-6.26%	-4.53%	-7.96%
	(6.36%)	(8.85%)		

Historical premium in January 2009

Or the market?: Implied equity risk premiums in 2008 vs 2009

Between 2001 and 2007 dividends and stock buybacks averaged 4.02% of the index each year.

Analysts expect earnings to grow 5% a year for the next 5 years. We will assume that dividends & buybacks will keep pace.. Last year's cashflow (59.03) growing at 5% a year

After year 5, we will assume that earnings on the index will grow at 4.02%, the same rate as the entire economy (= riskfree rate).

61.98 | 65.08 | 68.33 | 71.75 | 75.34

$$1468.36 = \frac{61.98}{(1+r)} + \frac{65.08}{(1+r)^2} + \frac{68.33}{(1+r)^3} + \frac{71.75}{(1+r)^4} + \frac{75.34}{(1+r)^5} + \frac{75.35(1.0402)}{(r-.0402)(1+r)^5}$$

January 1, 2008
S&P 500 is at 1468.36
4.02% of 1468.36 = 59.03

Expected Return on Stocks (1/1/08) = 8.39%

In 2008, the actual cash returned to stockholders was 68.72. However, there was a 41% dropoff in buybacks in Q4. We reduced the total buybacks for the year by that amount.

Analysts expect earnings to grow 4% a year for the next 5 years. We will assume that dividends & buybacks will keep pace.. Last year's cashflow (52.58) growing at 4% a year

After year 5, we will assume that earnings on the index will grow at 2.21%, the same rate as the entire economy (= riskfree rate).

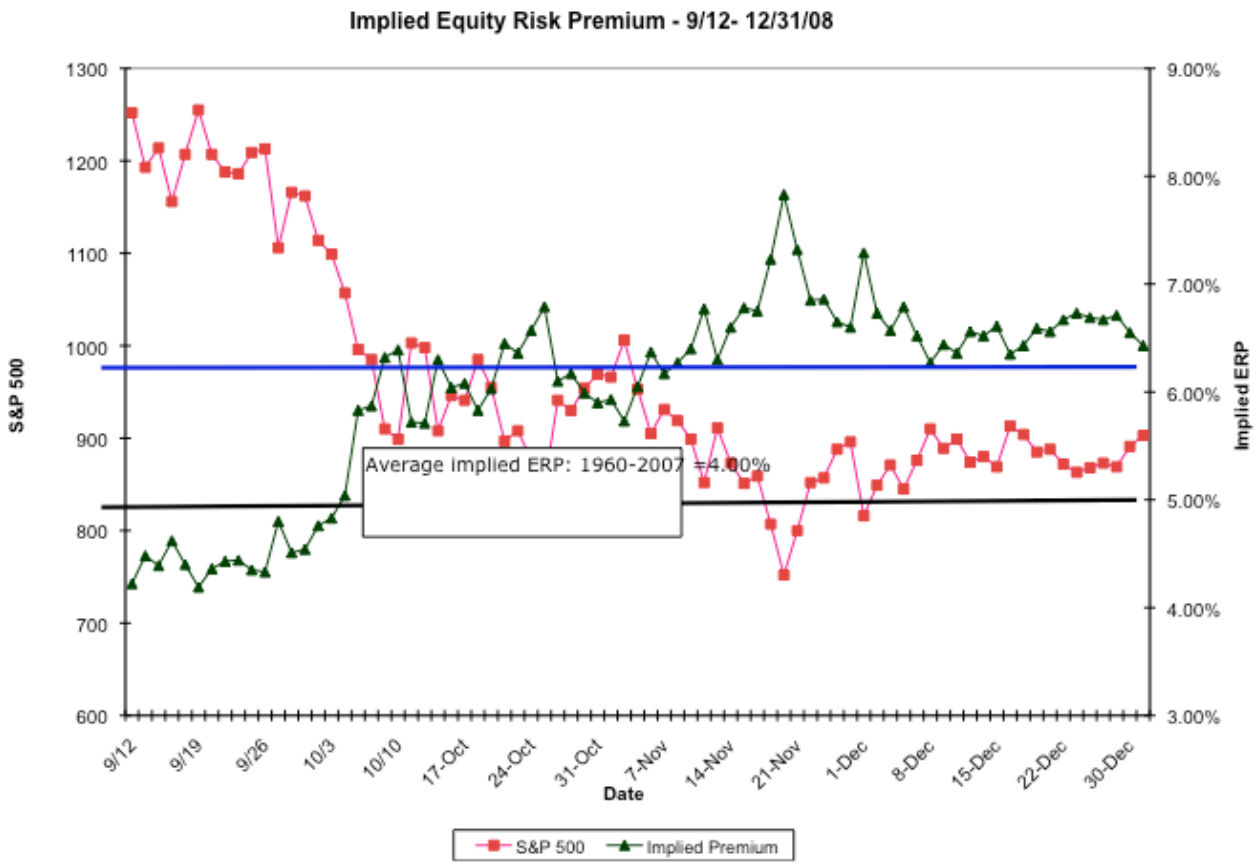
54.69 | 56.87 | 59.15 | 61.52 | 63.98

$$903.25 = \frac{54.69}{(1+r)} + \frac{56.87}{(1+r)^2} + \frac{59.15}{(1+r)^3} + \frac{61.52}{(1+r)^4} + \frac{63.98}{(1+r)^5} + \frac{63.98(1.0221)}{(r-.0221)(1+r)^5}$$

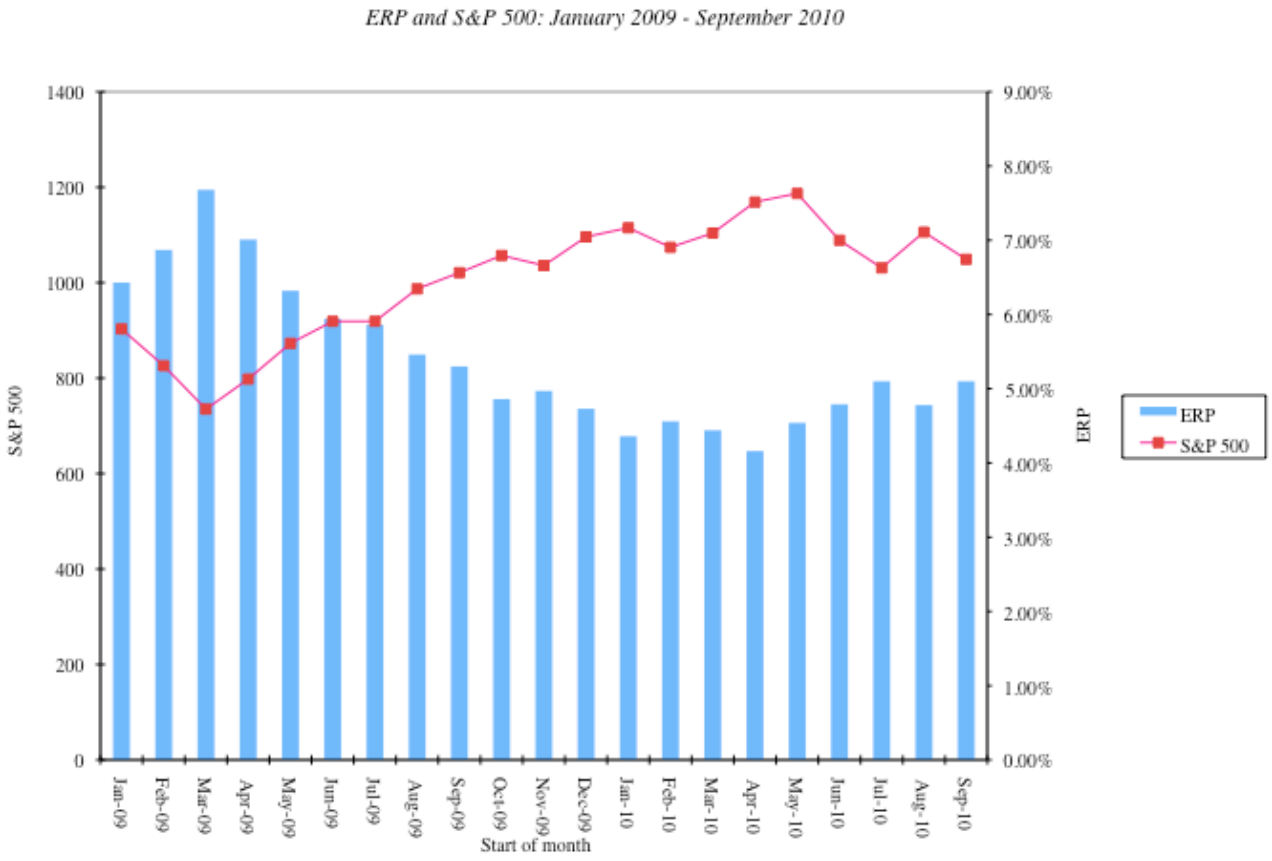
January 1, 2009
S&P 500 is at 903.25
Adjusted Dividends & Buybacks for 2008 = 52.58

Expected Return on Stocks (1/1/09) = 8.64%
Equity Risk Premium = 8.64% - 2.21% = 6.43%

Lesson 2A: ERPs can change even in mature markets: 9/12/2008 – 12/31/2008



Response 2A: Update your numbers: Implied Equity Risk Premiums



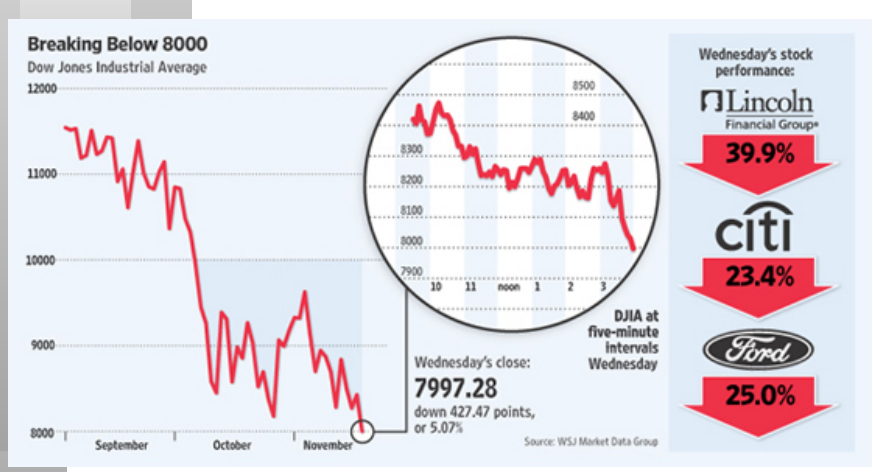
Lesson 2B: Default spreads can also change dramatically…

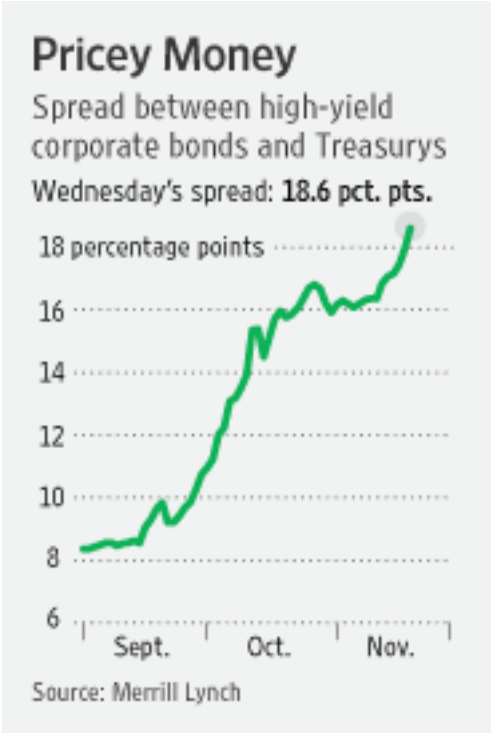
	Default spread over treasury			
Rating	1-Jan-08	12-Sep-08	12-Nov-08	1-Jan-09
Aaa/AAA	0.99%	1.40%	2.15%	2.00%
Aa1/AA+	1.15%	1.45%	2.30%	2.25%
Aa2/AA	1.25%	1.50%	2.55%	2.50%
Aa3/AA-	1.30%	1.65%	2.80%	2.75%
A1/A+	1.35%	1.85%	3.25%	3.25%
A2/A	1.42%	1.95%	3.50%	3.50%
A3/A-	1.48%	2.15%	3.75%	3.75%
Baa1/BBB+	1.73%	2.65%	4.50%	5.25%
Baa2/BBB	2.02%	2.90%	5.00%	5.75%
Baa3/BBB-	2.60%	3.20%	5.75%	7.25%
Ba1/BB+	3.20%	4.45%	7.00%	9.50%
Ba2/BB	3.65%	5.15%	8.00%	10.50%
Ba3/BB-	4.00%	5.30%	9.00%	11.00%
B1/B+	4.55%	5.85%	9.50%	11.50%
B2/B	5.65%	6.10%	10.50%	12.50%
B3/B-	6.45%	9.40%	13.50%	15.50%
Caa/CCC+	7.15%	9.80%	14.00%	16.50%

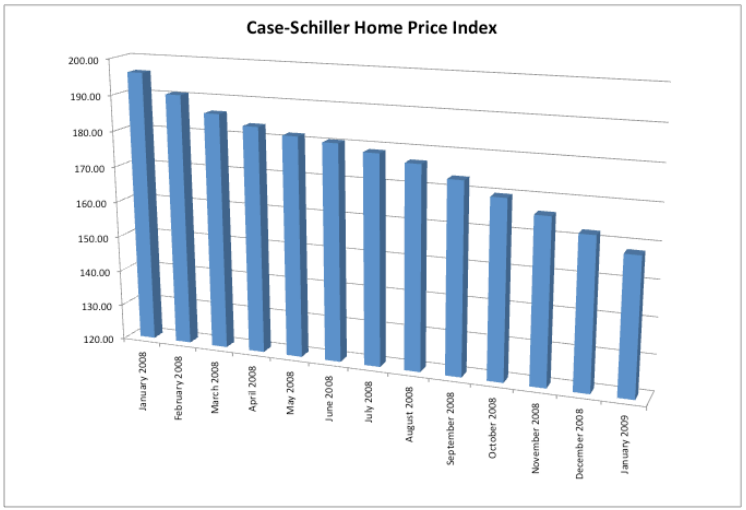
Response 2B: Don't trust (or use) book costs of debt… even for unrated companies..

- Many practitioners use the book cost of debt, computed by dividing the interest expenses by the book value of debt, to estimate the cost of capital. Implicit in this practice are two assumptions:
  - The cost of debt for most companies (at least mature ones) does not change much over time.
  - The book cost of debt is the actual cost that the company has to pay
  - If a company has no bonds or rating, there is no choice
- While this practice has always been sloppy, its inadequacy has been laid bare by the crisis.
  - Even if a company's rating did not change over 2008, its cost of borrowing new funds would have changed significantly
  - If you are valuing a firm, you have to consider the current cost of borrowing, not a historical cost.

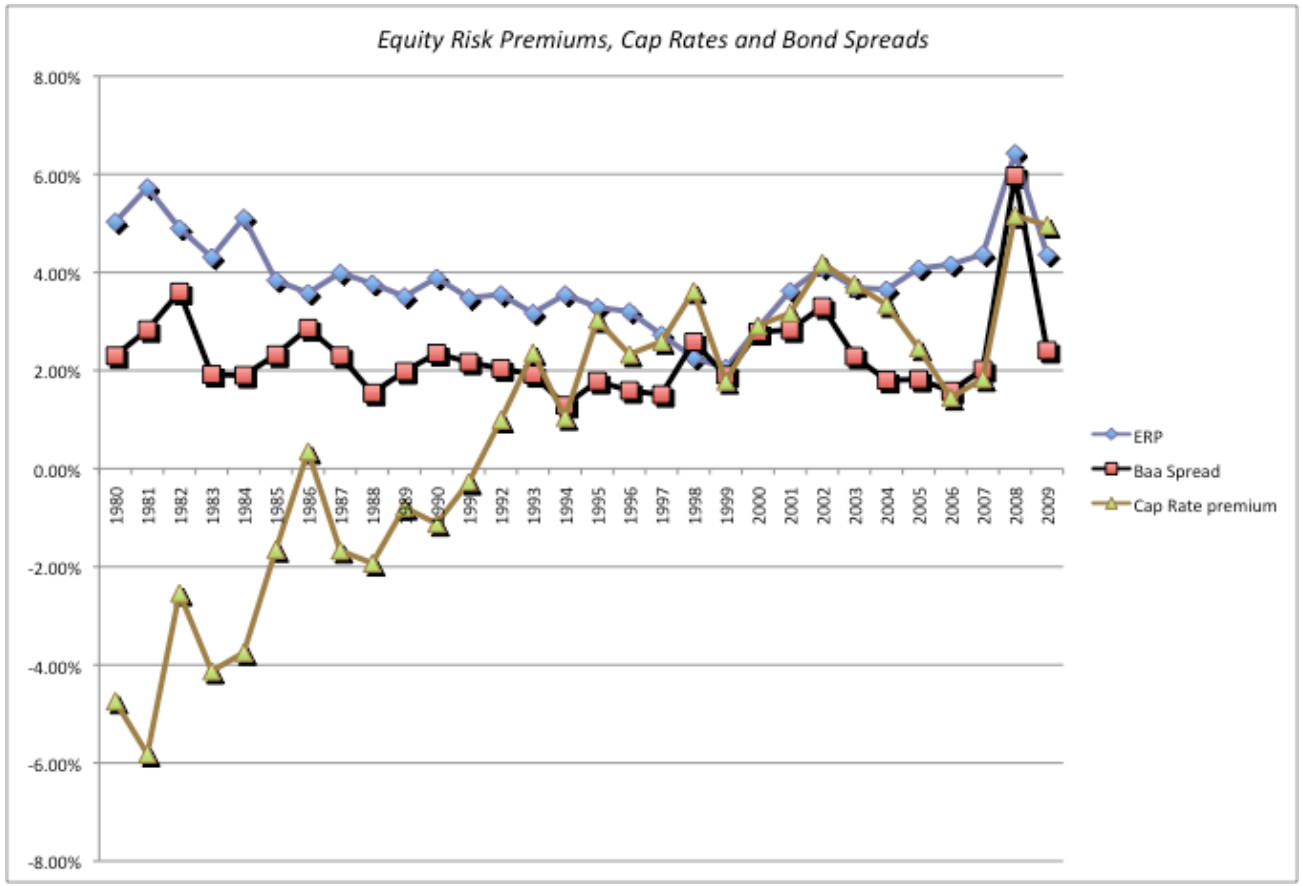
Lesson 2C: Equities, Bonds and Real Estate
All Risky Investments!



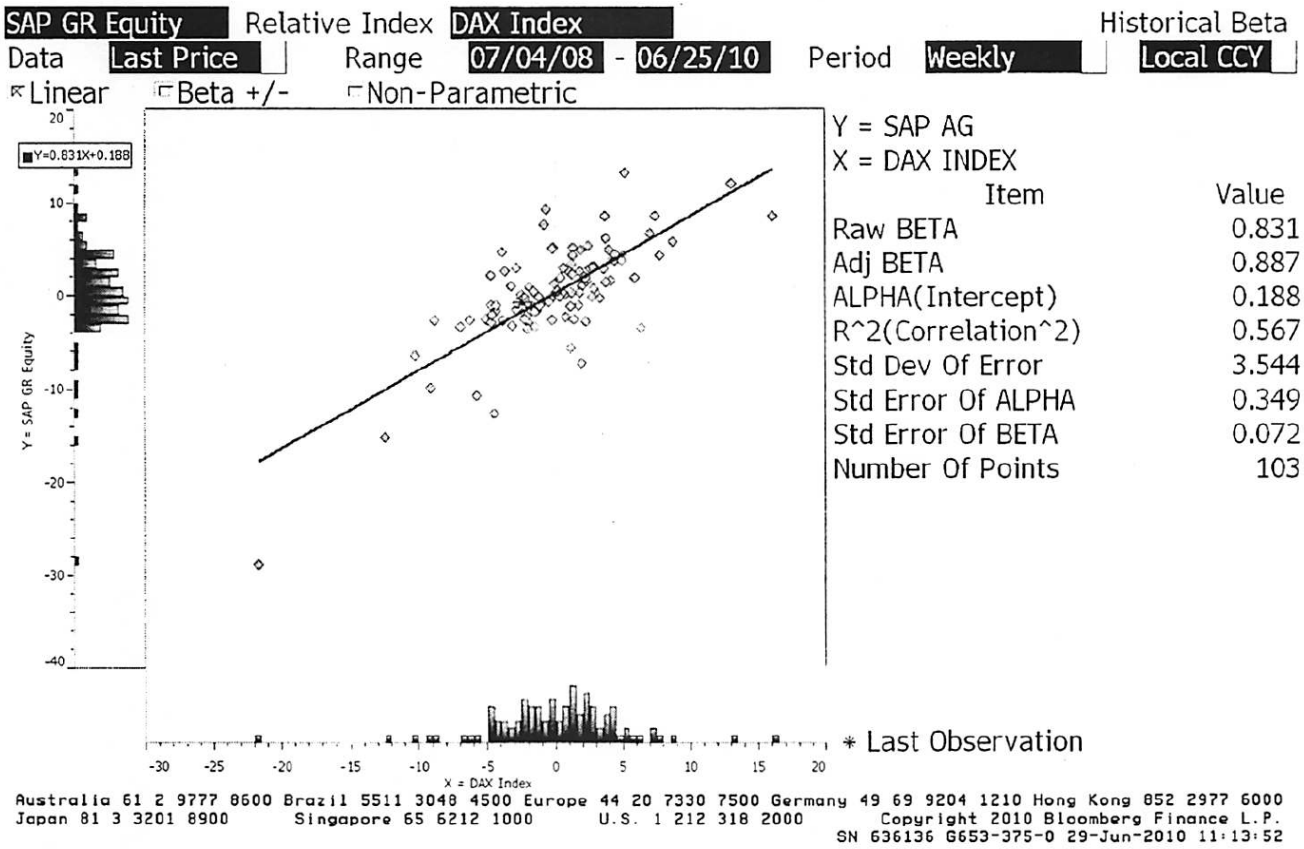




Response 2C: Check risk premiums for consistency…



Estimating Betas: The perils of regressions…

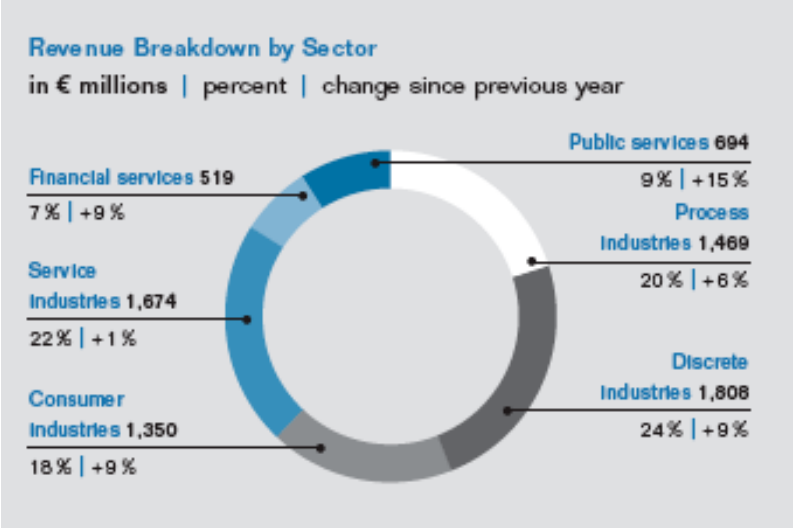


Bottom up Betas as an alternative…

- **Approach 1: Based on business mix**
  - SAP is in three business: software, consulting and training. We will aggregate the consulting and training businesses

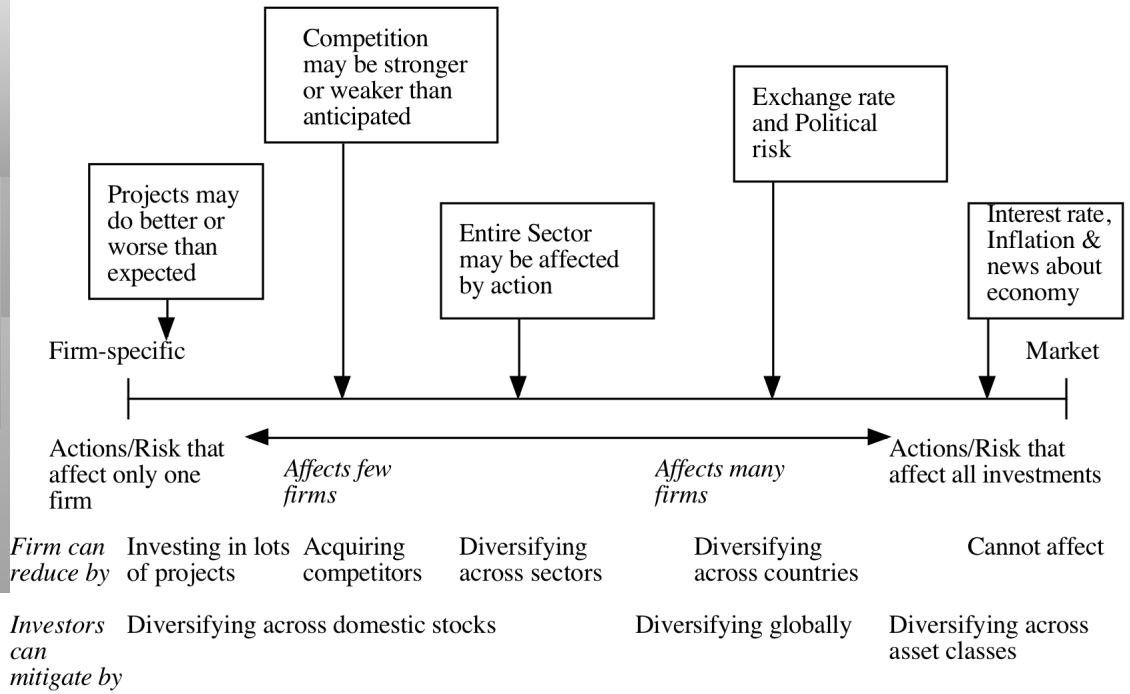
Business	Revenues	EV/Sales	Value	Weights	Beta
Software	€ 5.3	3.25	17.23	80%	1.30
Consulting	€ 2.2	2.00	4.40	20%	1.05
SAP	**€ 7.5**		**21.63**		**1.25**

- **Approach 2: Customer Base**



Lesson 3A: The line between firm specific and market risk can be murky..

Figure 3.5: A Break Down of Risk

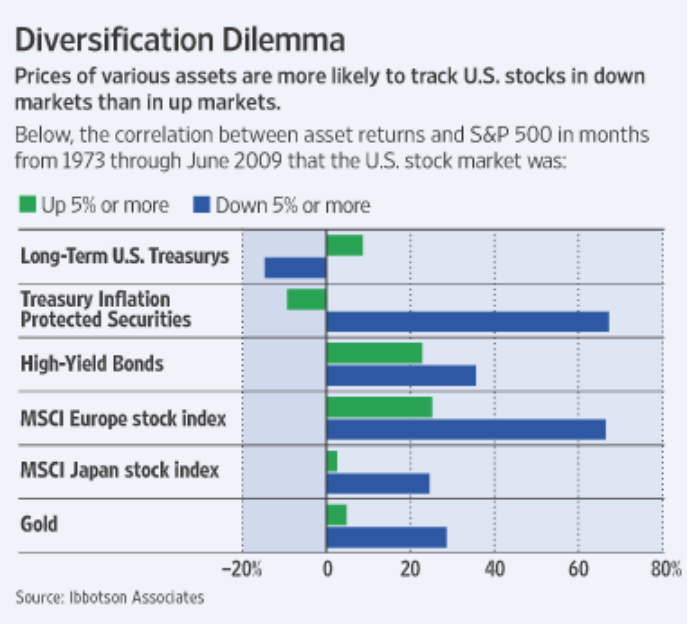


The classic point of view: Market risks come from macro variables and what firms do to enhance their profits/value falls under firm specific risk.

Lehman's woes can be traced to large bets made by the firm in the CDS and deriviatives market. If we stayed with classical finance, this seems to clearly fall under firm specific risk but… Too big to fail? Systemic risks? All of these are really debates about when firm specific risk becomes market risk.

Lesson 3B: The limits of diversification..

- Diversification has always been the mantra in investing. If you stay diversified, we have been told, your portfolio will be less risky since the correlation between asset classes is low.
- The crisis of 2008 illustrated some of the limits of diversification. In this particular crisis, all risky assets (equities, bonds, real assets) dropped in value as investors reassessed the price of risk. The correlation across asset classes increased.



Lesson 3C: Even sector betas can change…

- Estimates of sector betas at the start of 2008 and 2009:

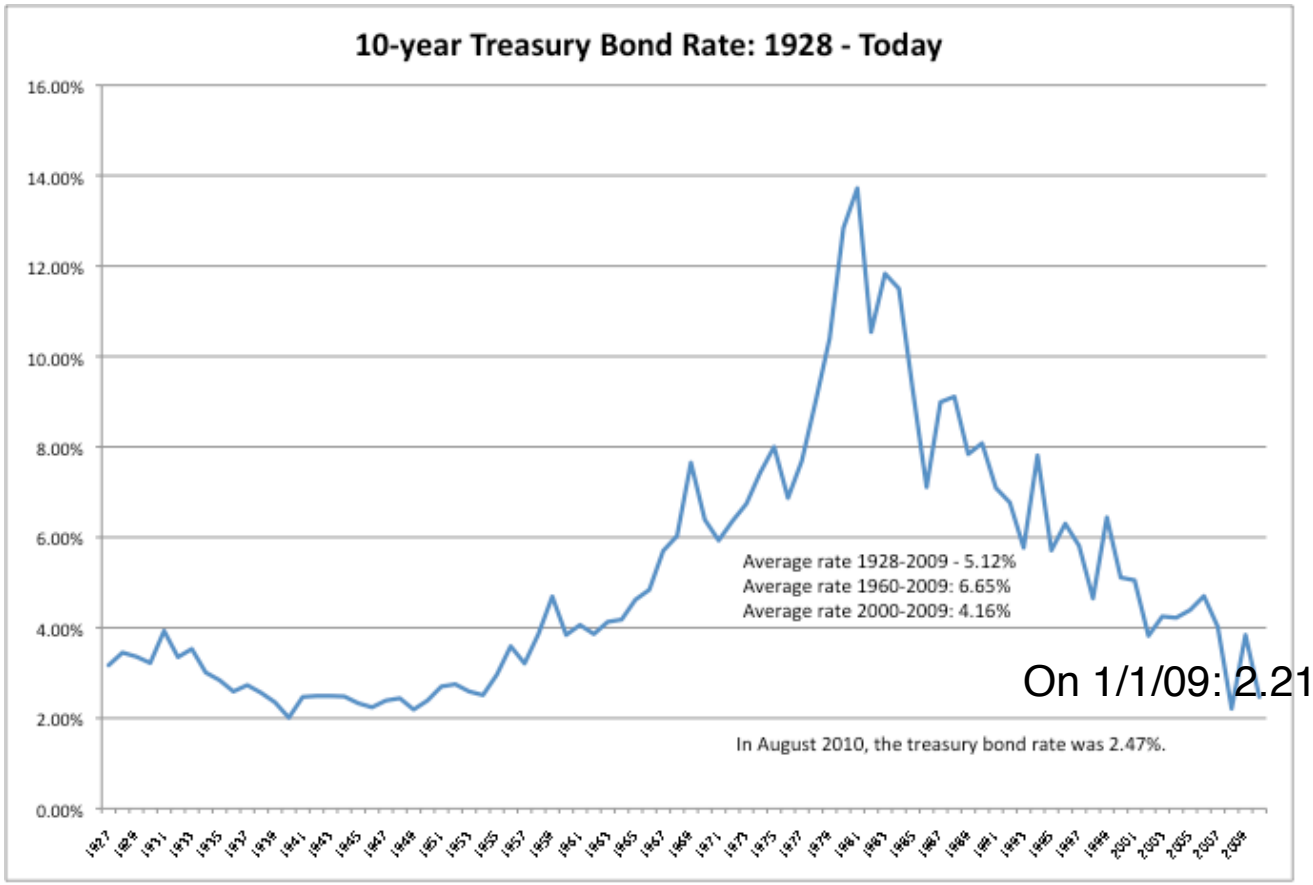
Sector	2009	2008
Financial Services		
Bank	0.71	0.63
Insurance (Prop/Cas.)	0.91	0.89
Investment Co.(Foreign)	1.31	0.71
Technology		
Biotechnology	1.25	1.51
Computer Software/Svcs	1.22	1.56
Computers/Peripherals	1.29	1.86
Internet	1.41	1.97
Real Estate		
Manuf. Housing/RV	1.32	1.19
R.E.I.T.	1.35	0.90

Betas went up for financial service firms, retailers and real estate related businesses and down for technology and health care.

Response 3: Return to basics for market betas…

- Average across firms and across time: Instead of using the sector average betas as bottom up betas, we should consider using the average across time for each sector.
- Check against fundamentals: If the beta of a firm reflects the discretionary nature of its products, the betas we estimate for a sector should be a function of the elasticity of demand for the products/services provided by that sector.
- Adjust for non-diversification: If the marginal investors in the firm are not diversified or only partially diversified, we have to incorporate that portion of the firm specific risk into the beta and cost of equity.
- Check against implied betas: We can estimated implied expected returns for equity by sector, given how the market is pricing stocks in that sector and back out betas from these expected returns. We can compare these betas to the betas that we have estimated.

Lesson 4: Macro variables behave strangely during crisis…



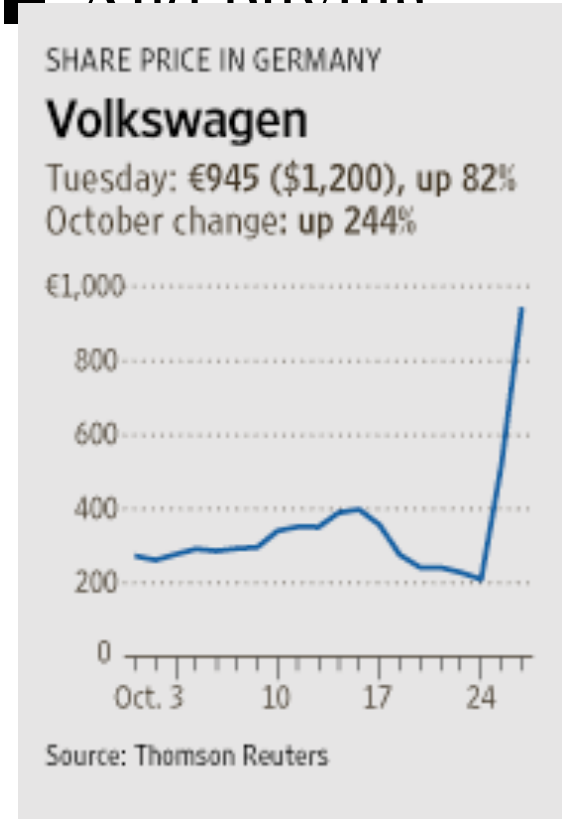
Response 4: Keeping macro views out of your valuation has become more important than ever…

- Selective normalization: Analysts often pick and choose which variables they want to normalize. Thus, they may decide that interest are too low and use higher rates. However, the lower riskfree rate in early 2009 was the result of the market crisis (and the flight to safety), and the crisis also affected equity risk premiums and default spreads (pushing them to new highs) and economic growth (to lows). If you raise the riskfree rate but leave equity risk premiums, default spreads and real growth untouched, you are creating an inconsistent valuation.
- Macro and micro views: When the macro environment becomes unstable, there will be strong disagreements about where the economy, interest rates and exchange rates will go in the near and far future. It is therefore important to separate out your views on the macro economy from your views on a company, when you do valuation. A person looking at your valuation can then decide which of your views is reasonable and which ones are not.

Lesson 5A: Even large cap stocks in developed markets can become illiquid..

- Panic selling

- And buying



Lesson 5B: With the concurrent increase in costs…

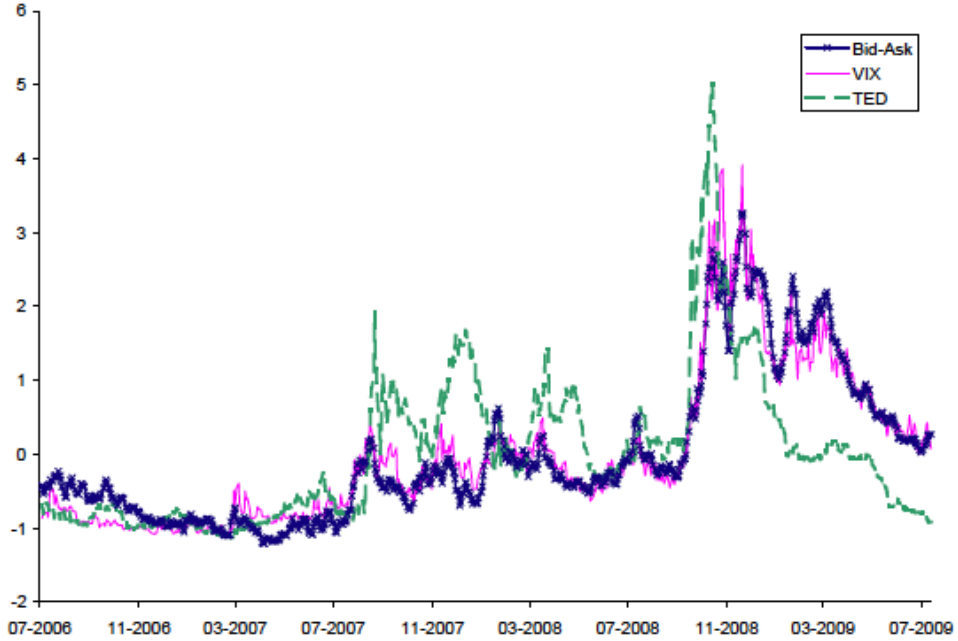
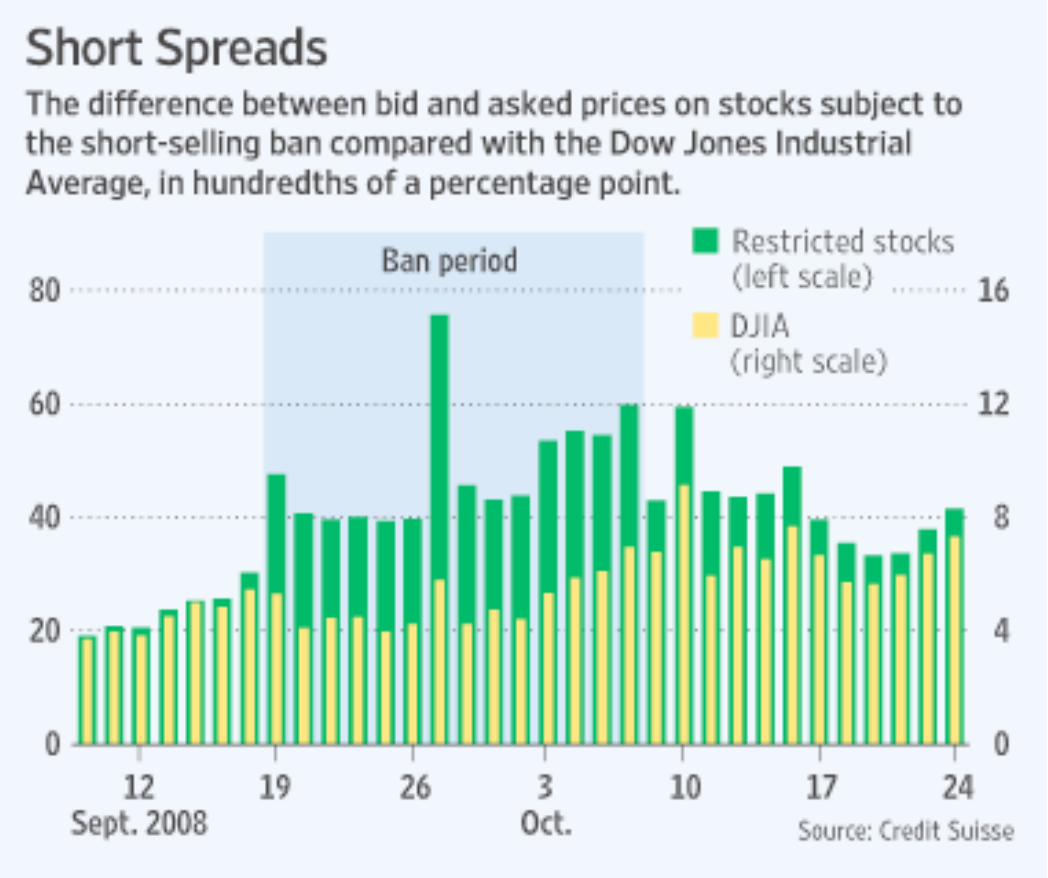


Figure 2: **Bid-Ask Spreads During the Global Liquidity Crisis.** The chart shows average bid-ask spread for large cap U.S. stocks, the equity volatility index VIX, and the interest-rate spread between LIBOR and Treasury bills (TED) from July 2006 to July 2009. Each of the series has been scaled to have a zero mean and a unit standard deviation.

And even more so for stocks with short sales restrictions…



Lesson 5C: With wildly divergent effects for different investors..

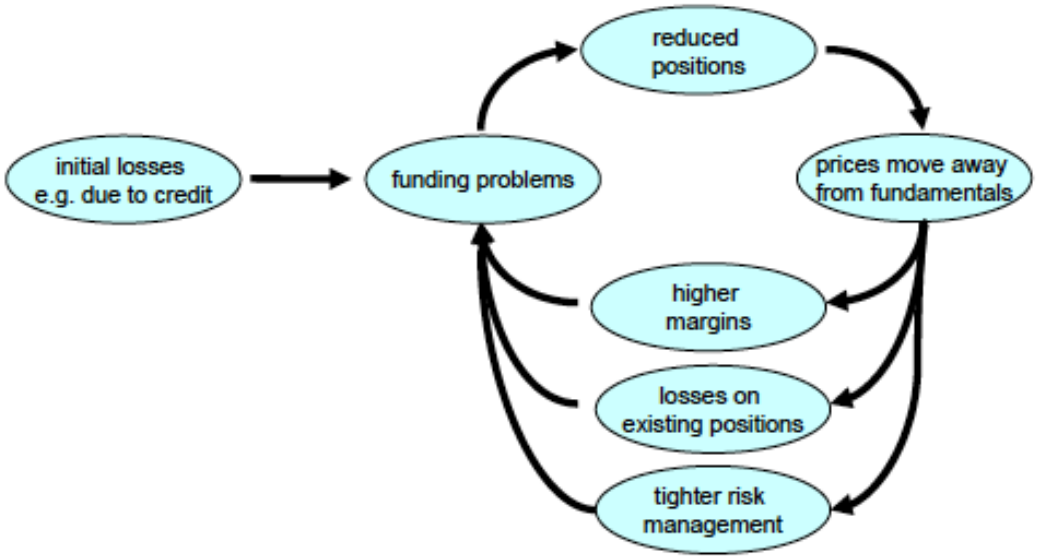


Figure 4: **Liquidity Spirals.** The chart shows how an initial shock to financial institutions' funding is amplified by increasing margins (margin spirals), losses on existing positions (loss spiral), and tightened risk management (risk management spiral).

See Pedersen (2009)

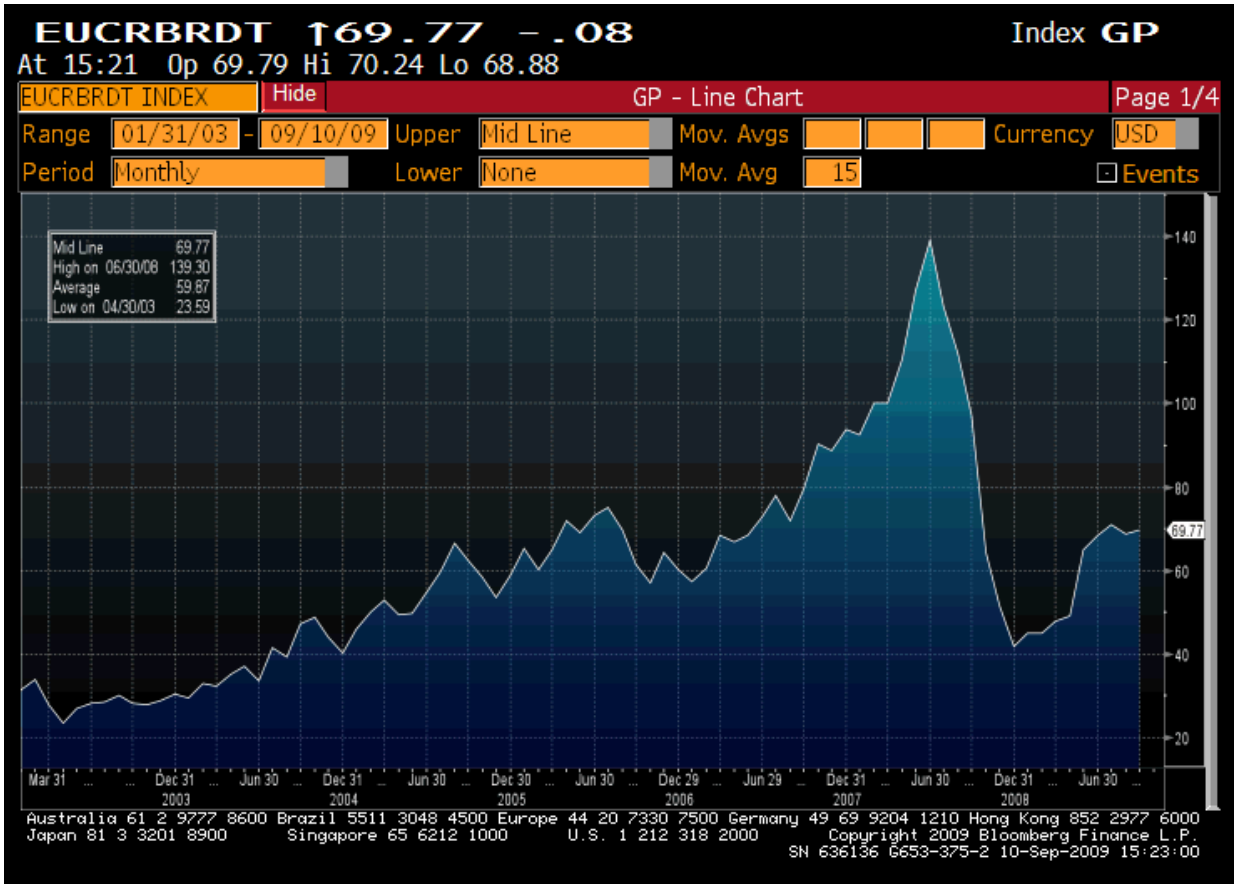
Response 5A: Illiquidity has to be considered explicitly in valuation… for all companies..

- If we accept the premise that illiquidity can be a significant problem, even with large market cap companies, we have to consider ways in which we can explicitly incorporate the illiquidity risk into value. In general, we have two choices:
  - Adjust discount rates: As a general proposition, we could argue that illiquidity is a risk and that discount rates should be higher for illiquid companies. Holding cash flows constant, we will arrive at lower values for illiquid assets.
  - Reduce estimated value for illiquidity: Alternatively, we can ignore illiquidity while estimating value but discount the expected value for illiquidity (like private company practitioners have.

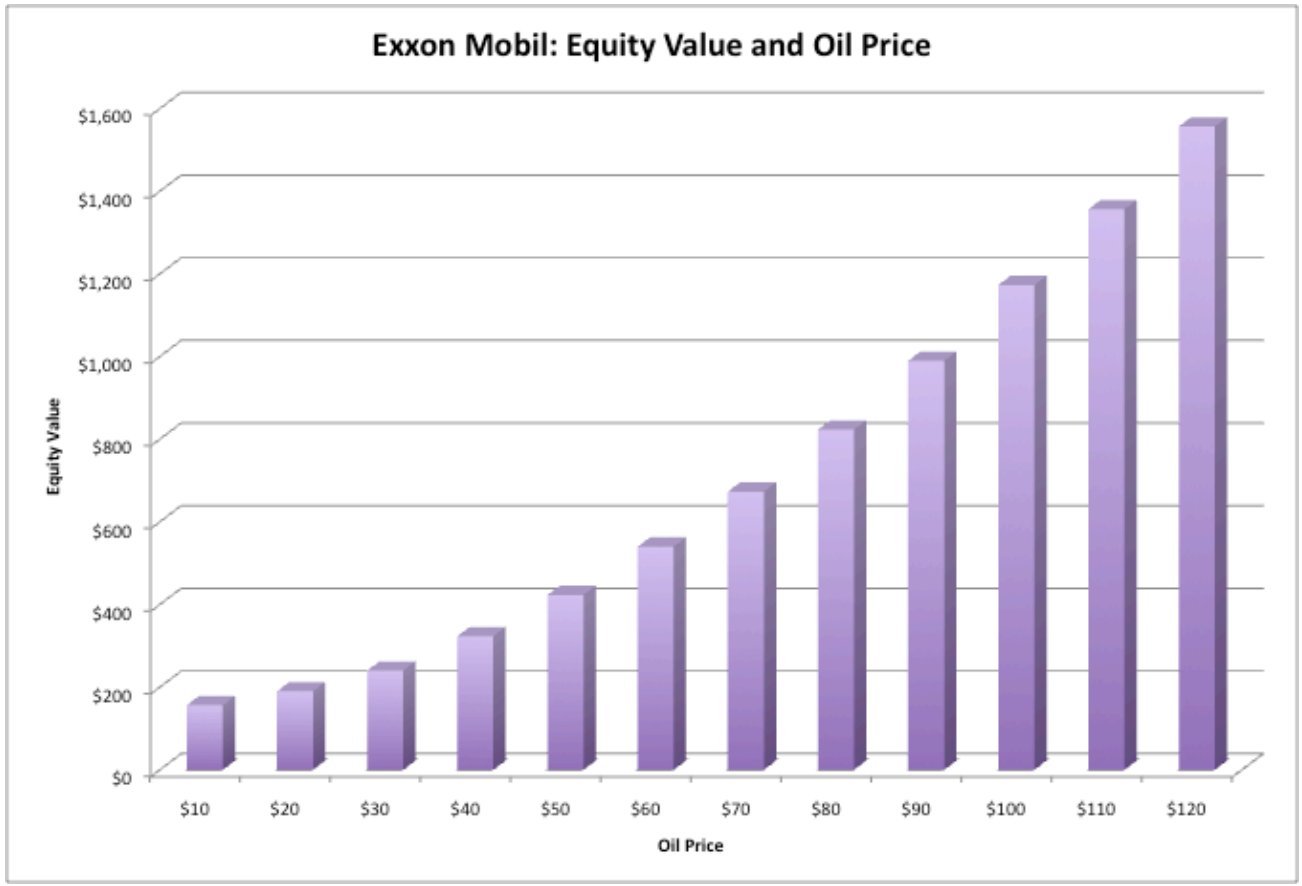
Response 5B: And vary across assets (companies)…

- Liquidity as a source of market risk: We can extend traditional risk and return models (such as the CAPM) to consider illiquidity as a source of market risk. In practice, this would require us to estimate
  - An illiquidity beta for every asset, reflecting not only how illiquid an asset is but how that illkquidity correlates with market illiquidity
  - An illiquidity risk premium which will vary across time
- Historical data: We can look at how the market has priced assets historically and try to back out how much of a discount it has attached to illiquid assets and how that discount varies across asssts.
- Market based approach: Using observed stock prices, we can back out the implied illiquidity discount on estimated value for firms in different sectors (illiquidity classes).

Lesson 6A: There may be no normal…



And value will be a function of your expectations…



Lesson 6B: And stability can be fleeting… Valuing a Bank in 2009 – Wells Fargo..

Year	***2008***	*2007*	*2006*	*2005*	*2004*	*2003*	*2002*	*2001*	*Average: 01-07*
Dividends	**$5,751**	$3,955	$3,641	$3,375	$3,150	$2,527	$1,873	$1,710	
Net Income	**$2,842**	$8,057	$8,482	$7,671	$7,014	$6,202	$5,434	$3,423	
Book Equity	**$47,628**	$45,876	$40,660	$37,866	$34,469	$30,319	$27,214	$26,488	
Growth Rate	**-64.73%**	-5.01%	10.57%	9.37%	13.09%	14.13%	58.75%	-14.98%	12.28%
Payout ratio	**202.36%**	49.09%	42.93%	44.00%	44.91%	40.74%	34.47%	49.96%	43.73%
ROE	**5.97%**	17.56%	20.86%	20.26%	20.35%	20.46%	19.97%	12.92%	18.91%

1. If you were valuing Wells Fargo today, what would you use as your base year earnings? Dividends? Return on equity?
2. Historically banks have had a beta close to one, which would have given both banks a US$ cost of equity of about 14% in 2009 (T.Bond rate =3.5%; ERP =6%; CRP=4.5%). Would you continue to use this beta in the valuation?

Response 6A: When uncertain, keep it simple: The key valuation inputs for Wells Fargo..

- Focus on the key inputs into valuation: the ROE and the cost of equity

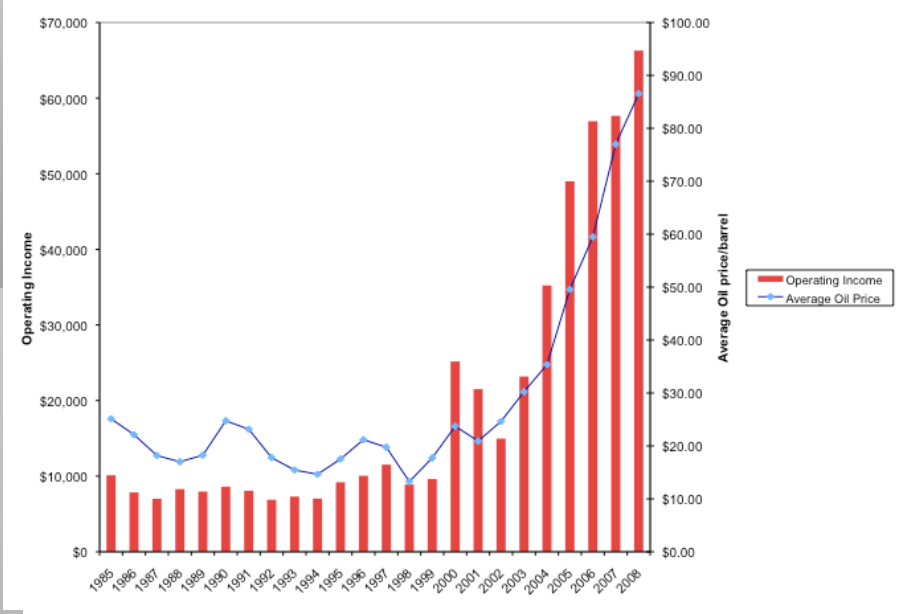
		Cost of Equity			
Return on Equity		9%	11%	13%	15%
	10%	$56,900	$42,971	$34,542	$28,910
	12%	$73,581	$55,185	$44,148	$36,790
	14%	$90,883	$67,909	$54,144	$44,982
	16%	$109,917	$81,157	$64,541	$53,694
	18%	$122,703	$94,942	$75,349	$62,333
	20%	$147,261	$109,279	$86,578	$71,509

- Or define value as a function of key scenarios:

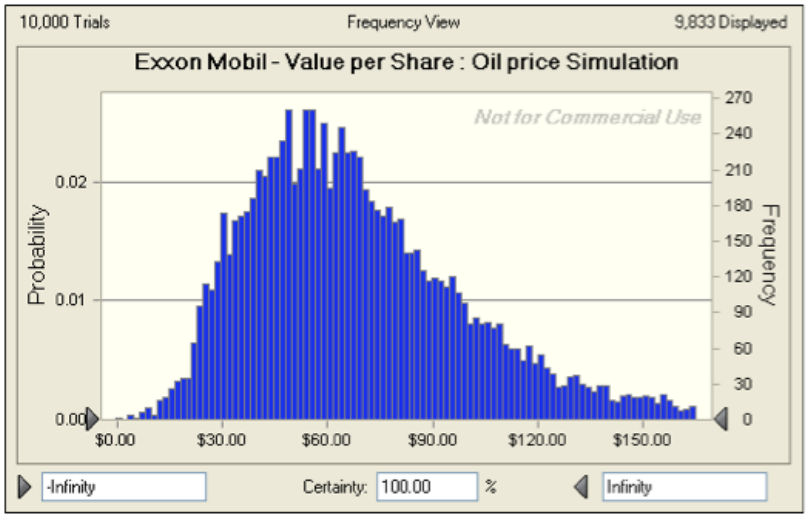
	Net Income	ROE	Cost of equity	Value of equity
Quick bounce back to normalcy	$9,006.45	18.91%	9%	126293.58
Slow bounceback to normalcy	$7,144.20	15.00%	10%	$81,648.00
New World Order	$5,715.36	12.00%	11%	$53,581.50
Market Cap (2/2009)				$66,643.00

Response 6B: Probabilistic Analysis

Step 1: Look at history



Step 3: Run simulation



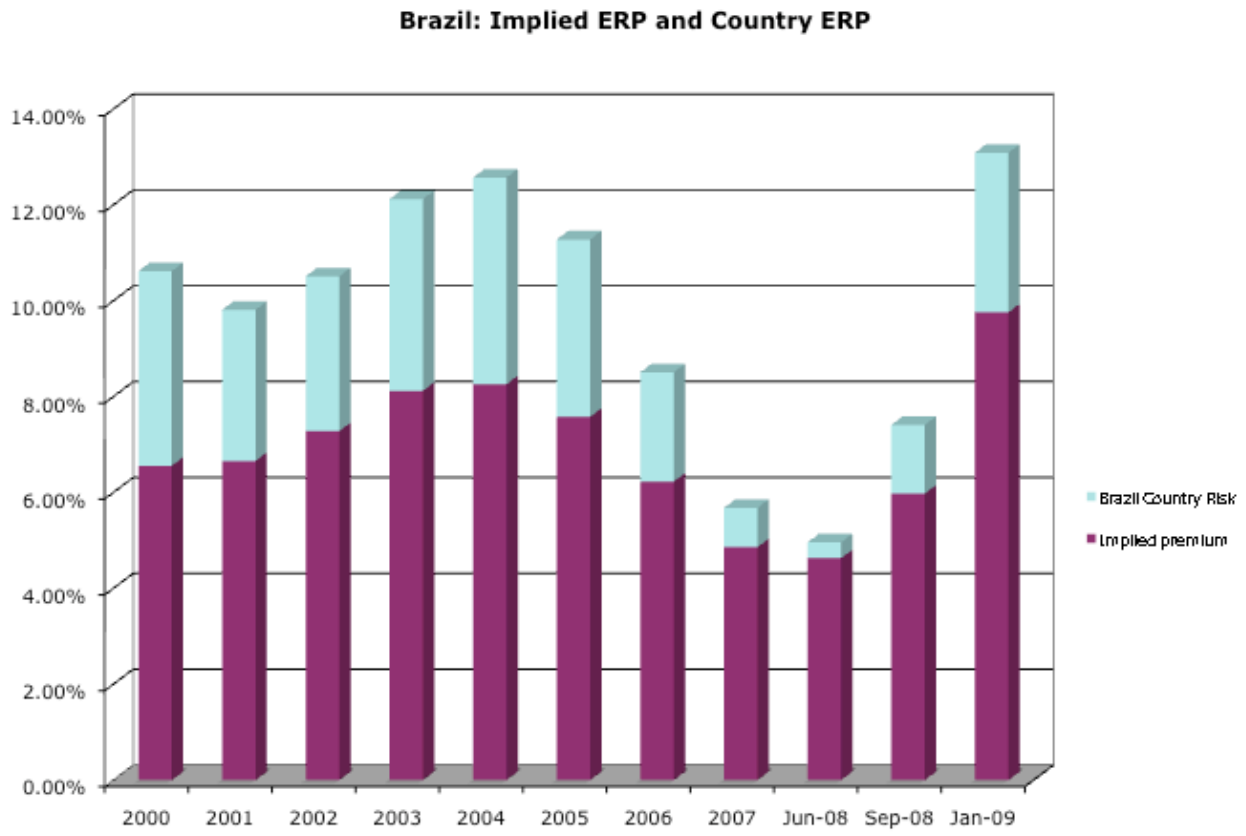
Step 2: Look for relationship

Regression of Exxon income against oil price

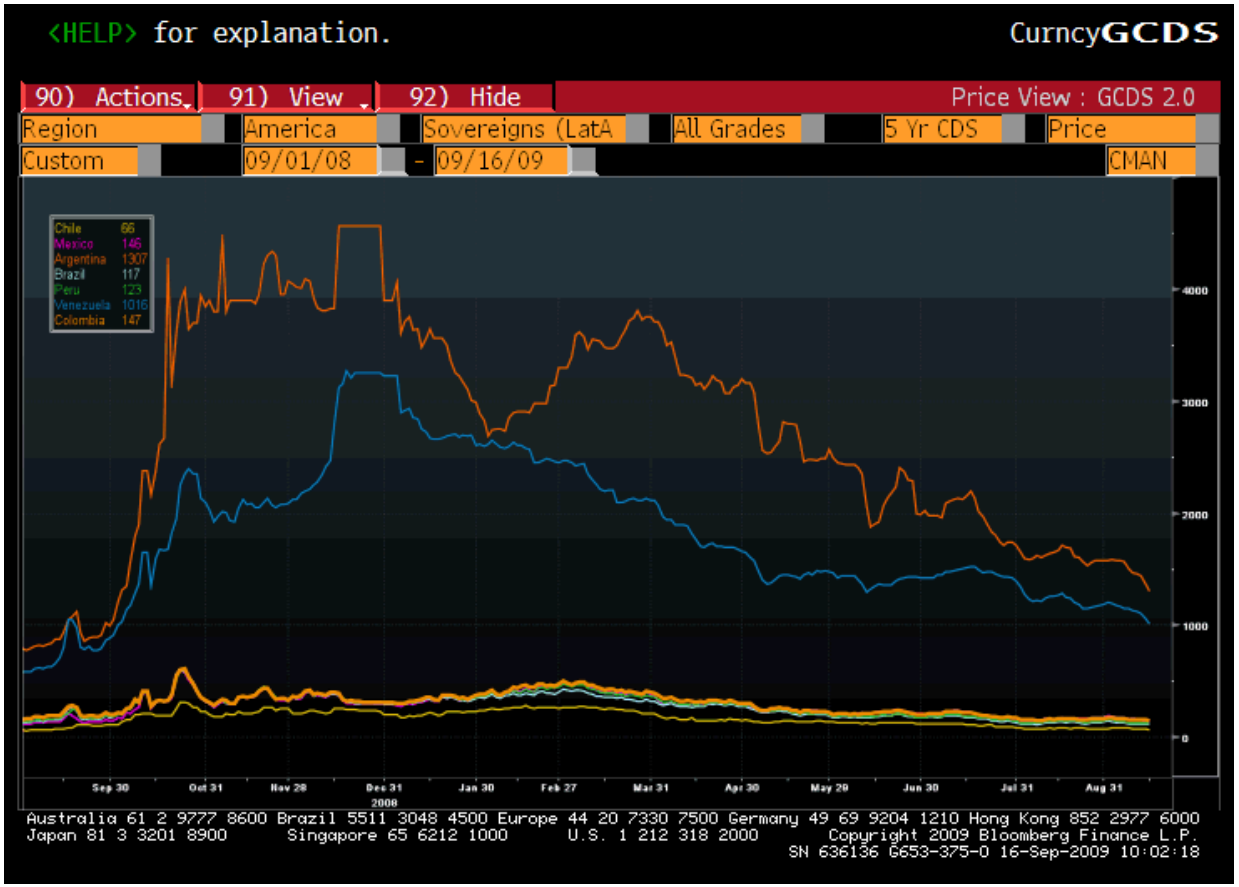
Op Inc = -6,934 + 911 (Price per barrel of oil)

R squared = 94%

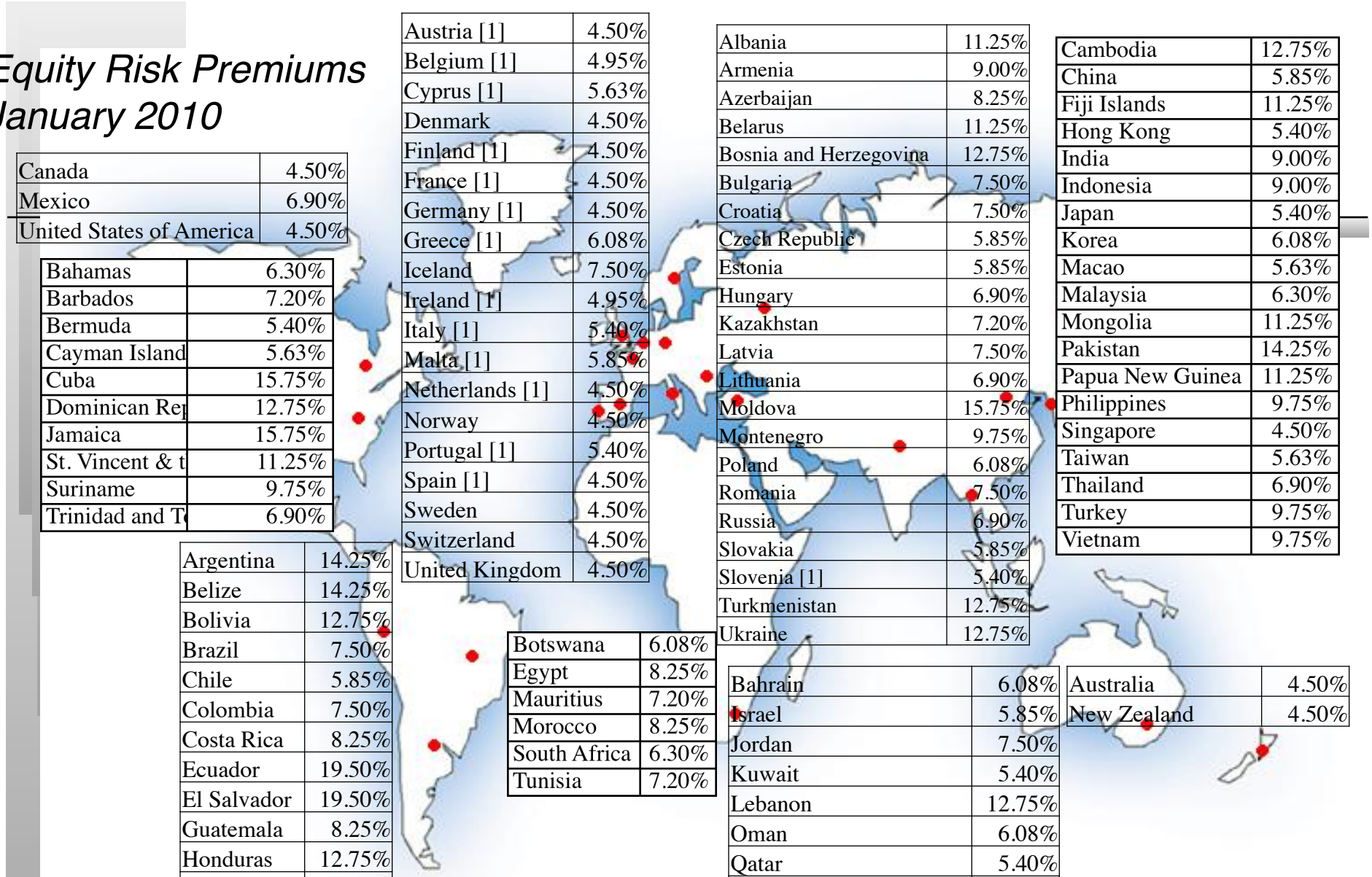
Lesson 7A: Country risk can change in a hurry…



Response 7A: A more dynamic measure of country risk..



Equity Risk Premiums
January 2010



Canada	4.50%
Mexico	6.90%
United States of America	4.50%

Bahamas	6.30%
Barbados	7.20%
Bermuda	5.40%
Cayman Island	5.63%
Cuba	15.75%
Dominican Rep	12.75%
Jamaica	15.75%
St. Vincent & t	11.25%
Suriname	9.75%
Trinidad and T	6.90%

Argentina	14.25%
Belize	14.25%
Bolivia	12.75%
Brazil	7.50%
Chile	5.85%
Colombia	7.50%
Costa Rica	8.25%
Ecuador	19.50%
El Salvador	19.50%
Guatemala	8.25%
Honduras	12.75%
Nicaragua	14.25%
Panama	8.25%
Paraguay	14.25%
Peru	7.50%
Uruguay	9.75%
Venezuela	11.25%

Austria [1]	4.50%
Belgium [1]	4.95%
Cyprus [1]	5.63%
Denmark	4.50%
Finland [1]	4.50%
France [1]	4.50%
Germany [1]	4.50%
Greece [1]	6.08%
Iceland	7.50%
Ireland [1]	4.95%
Italy [1]	5.40%
Malta [1]	5.85%
Netherlands [1]	4.50%
Norway	4.50%
Portugal [1]	5.40%
Spain [1]	4.50%
Sweden	4.50%
Switzerland	4.50%
United Kingdom	4.50%

Botswana	6.08%
Egypt	8.25%
Mauritius	7.20%
Morocco	8.25%
South Africa	6.30%
Tunisia	7.20%

Albania	11.25%
Armenia	9.00%
Azerbaijan	8.25%
Belarus	11.25%
Bosnia and Herzegovina	12.75%
Bulgaria	7.50%
Croatia	7.50%
Czech Republic	5.85%
Estonia	5.85%
Hungary	6.90%
Kazakhstan	7.20%
Latvia	7.50%
Lithuania	6.90%
Moldova	15.75%
Montenegro	9.75%
Poland	6.08%
Romania	7.50%
Russia	6.90%
Slovakia	5.85%
Slovenia [1]	5.40%
Turkmenistan	12.75%
Ukraine	12.75%

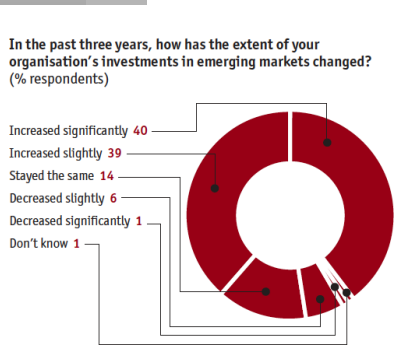
Bahrain	6.08%
Israel	5.85%
Jordan	7.50%
Kuwait	5.40%
Lebanon	12.75%
Oman	6.08%
Qatar	5.40%
Saudi Arabia	5.85%
United Arab Emirates	5.40%

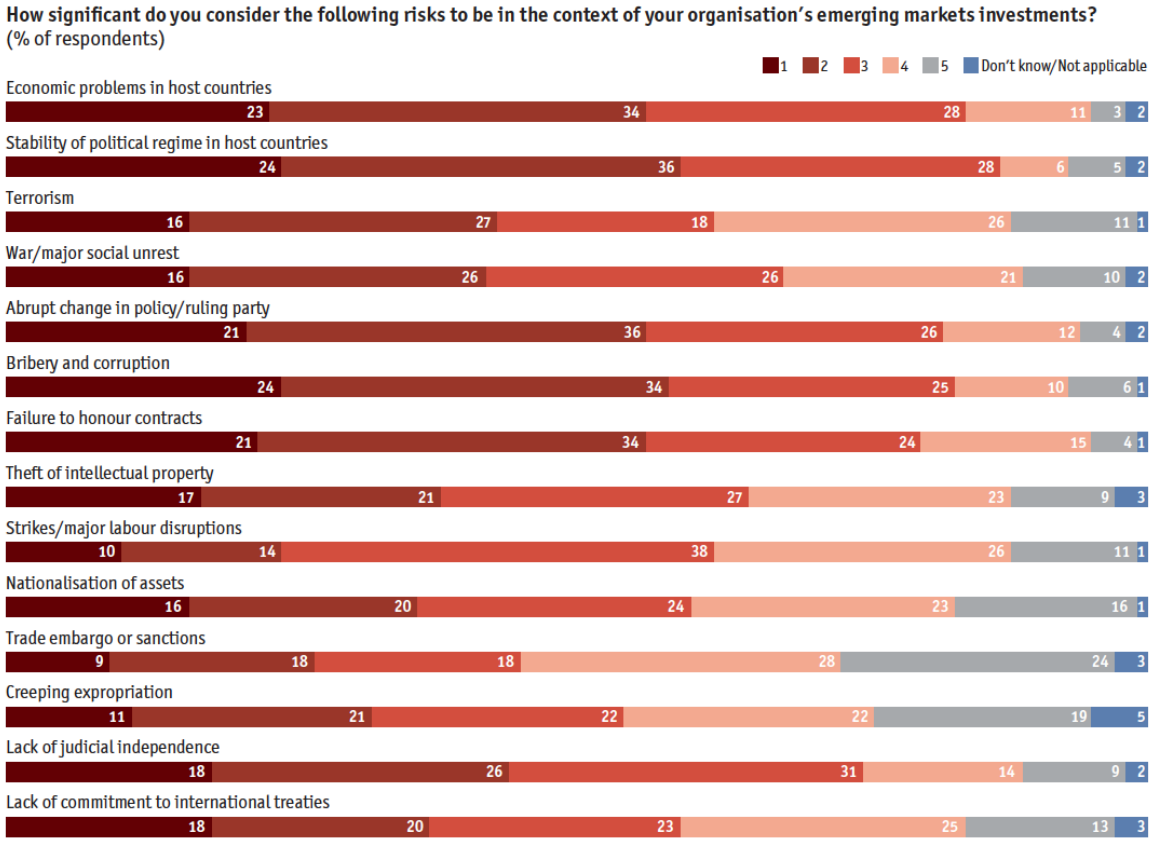
Cambodia	12.75%
China	5.85%
Fiji Islands	11.25%
Hong Kong	5.40%
India	9.00%
Indonesia	9.00%
Japan	5.40%
Korea	6.08%
Macao	5.63%
Malaysia	6.30%
Mongolia	11.25%
Pakistan	14.25%
Papua New Guinea	11.25%
Philippines	9.75%
Singapore	4.50%
Taiwan	5.63%
Thailand	6.90%
Turkey	9.75%
Vietnam	9.75%

Australia	4.50%
New Zealand	4.50%

Lesson 7B:And affect developed market companies…

- Results of The Economist's Survey of developed market companies

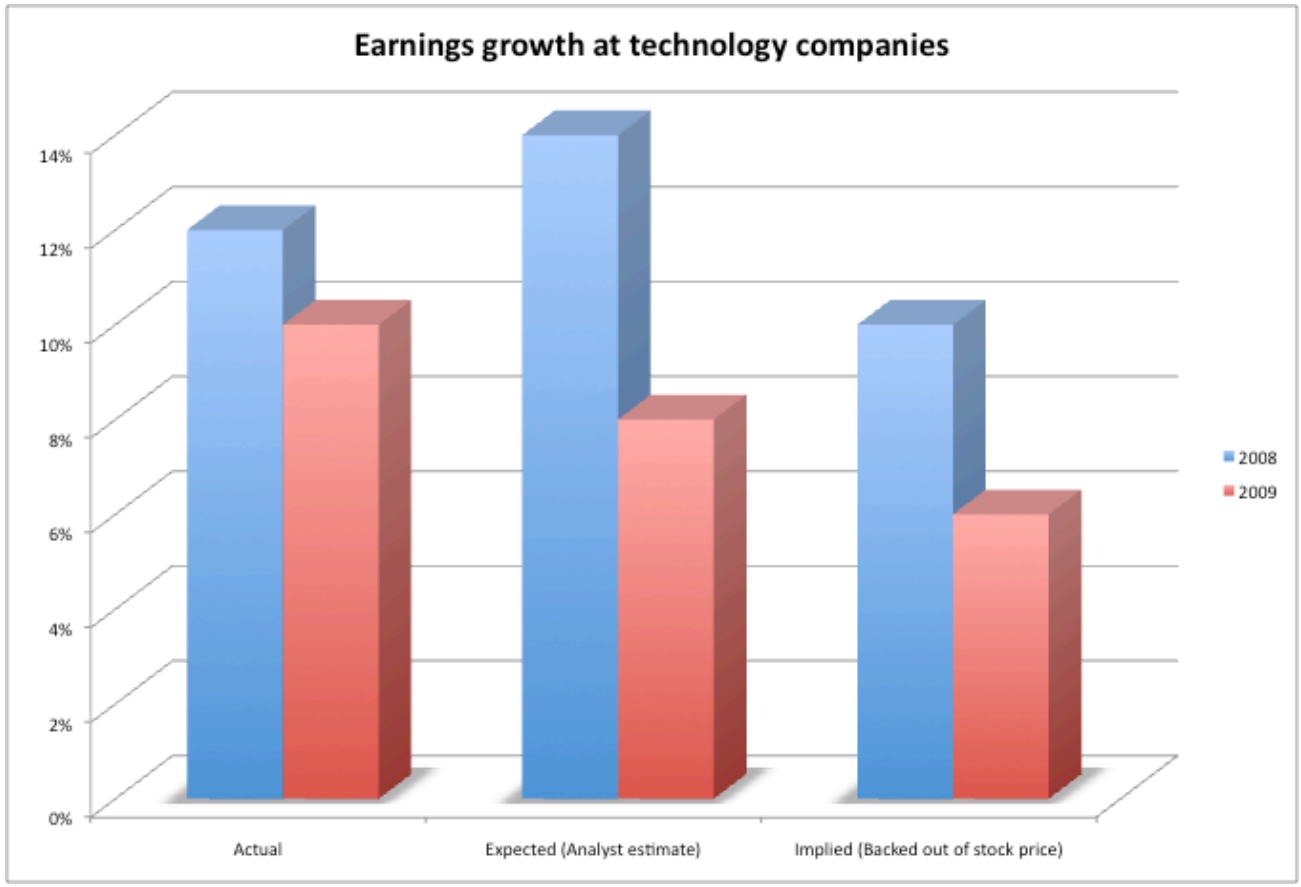




Response 7: Country risk derives from operations, not where you are incorporated..

- Source of revenues: Other things remaining equal, a company should be more exposed to risk in a country if it generates more of its revenues from that country. A Brazilian firm that generates the bulk of its revenues in Brazil should be more exposed to country risk than one that generates a smaller percent of its business within Brazil.
- Manufacturing facilities: Other things remaining equal, a firm that has all of its production facilities in Brazil should be more exposed to country risk than one which has production facilities spread over multiple countries. The problem will be accented for companies that cannot move their production facilities (mining and petroleum companies, for instance).
- Use of risk management products: Companies can use both options/futures markets and insurance to hedge some or a significant portion of country risk.

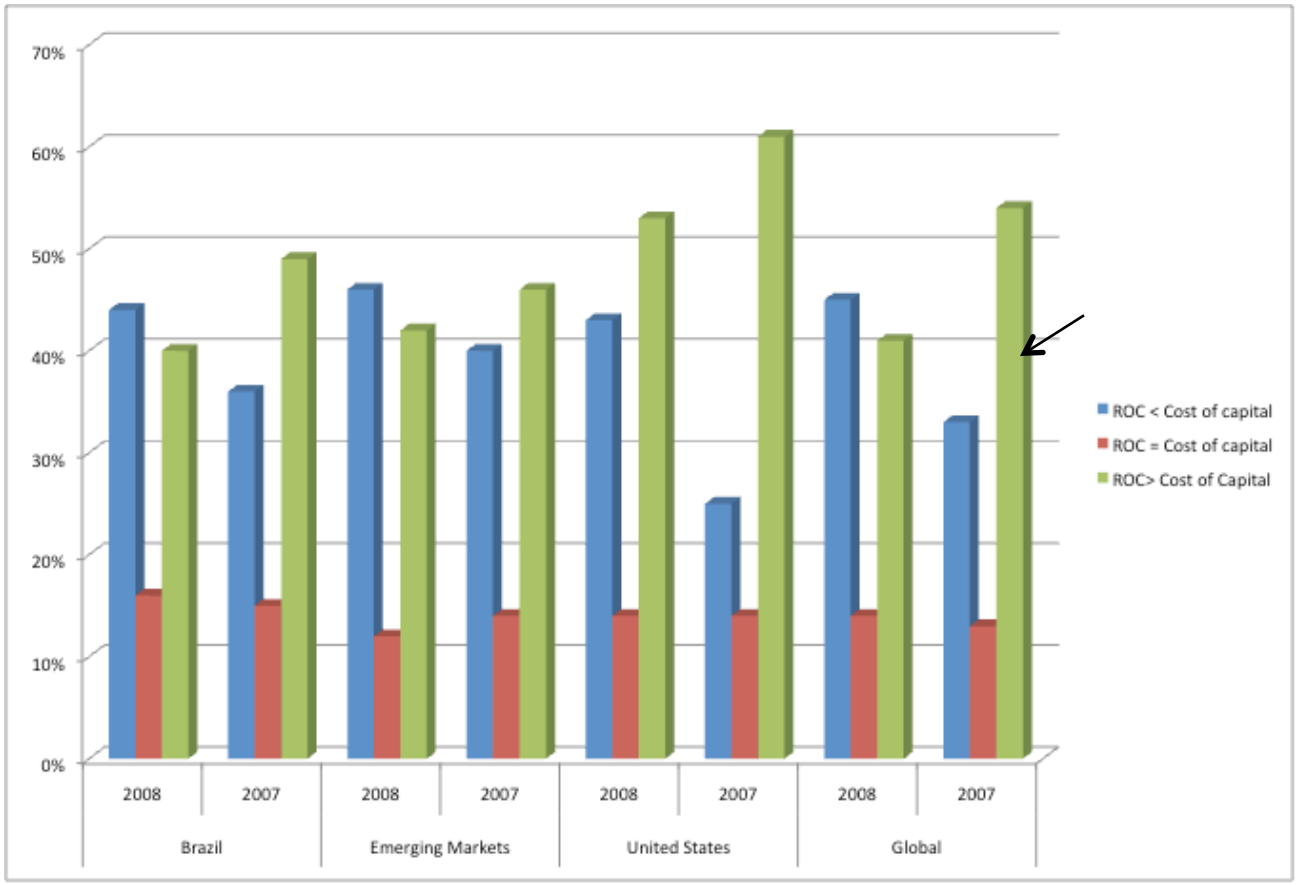
Lesson 8A: Growth can be illusory…



Lesson 8B: And destroy value..

- For growth to create value, the new investments that generate that growth have to earn a return on capital > cost of capital. While this is easy to show, it is tough to measure in practice, since
  - Our estimates of cost of capital are backward-looking, and even if done right, reflect the past risk profile of the company. If a firm grows by sequentially entering riskier and riskier businesses, we will give it higher values as it grows, but the risk will eventually catch up.
  - Our estimates of return on capital are based upon the operating income reported in a specific year and the accounting capital invested. Both numbers reflect both accounting choices and short term profitability, rather than long term returns.
- In effect, we may be rewarding many companies for growth when we should be punishing them.

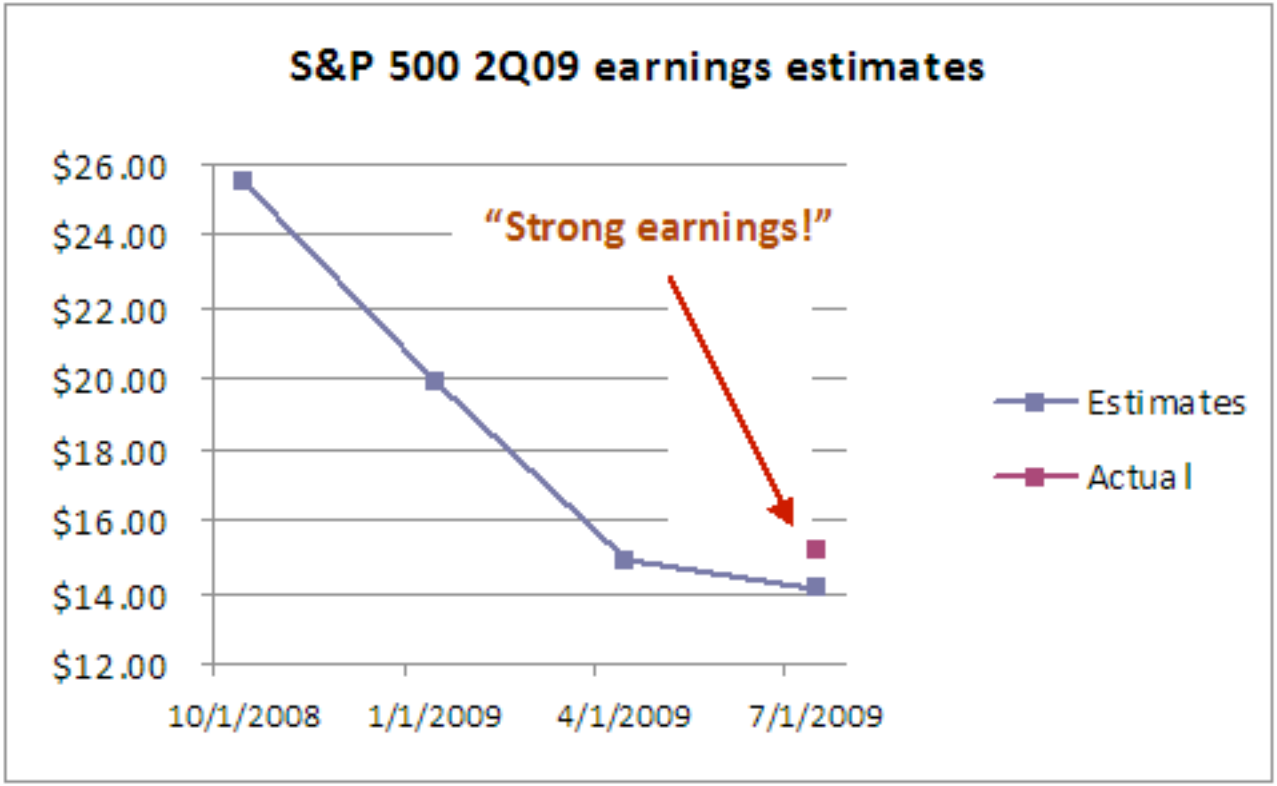
Backed up by some evidence…



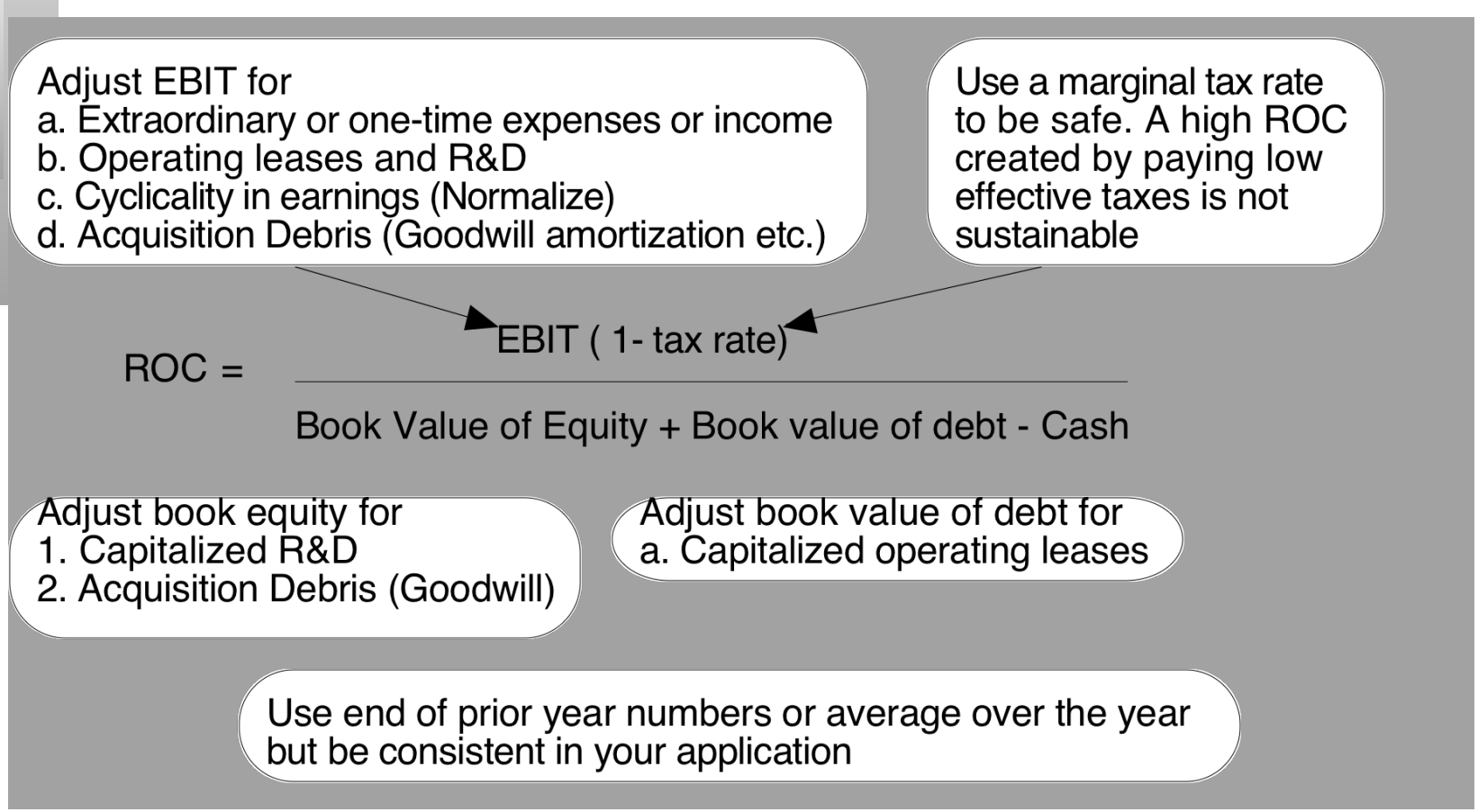
Response 8A: Don't trust historical growth rates..

First 5 years	Growth Class	Next 5 years: Lowest	2	3	4	5	Highest
	Lowest	13.73%	7.19%	7.52%	9.80%	13.07%	48.69%
	2	27.27%	6.74%	12.61%	15.84%	17.01%	20.53%
	3	15.23%	14.09%	27.27%	20.45%	11.14%	11.82%
	4	10.03%	14.09%	34.15%	21.14%	11.38%	9.21%
	5	9.09%	12.63%	24.24%	28.79%	12.12%	13.13%
	Highest	16.32%	10.88%	19.67%	22.18%	13.81%	17.15%

Response 8B: Or analyst estimates and management forecasts…

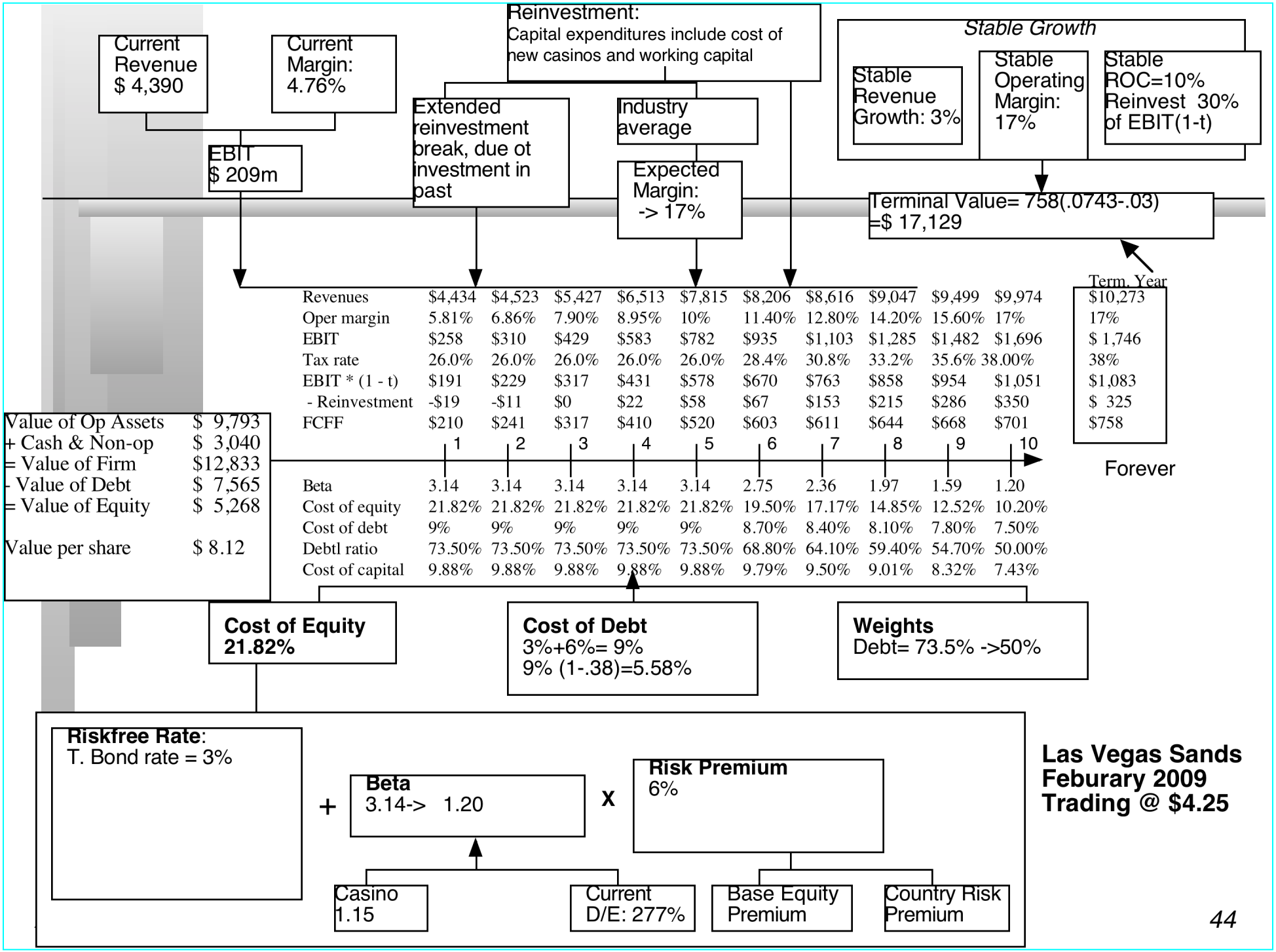


Response 8C: Spend some time getting return on capital right!!



Lesson 9: We under estimate truncation risk.. With distressed firms..

- Our assumptions of perpetual life and terminal value are based upon two premises:
  - The consequences of getting into financial trouble are short term and easily reversed.
  - Capital markets are always open and accessible. A company that needs to raise equity to cover negative cash flows or repay debt can always do so, albeit at a higher cost.
- *Lesson 10.1: Indirect bankruptcy costs are much higher than we thought*. In other words, the perception that you are in trouble can be almost as damaging as being in trouble, especially in businesses that are dependent upon intangible assets.
- *Lesson 10.2: Capital markets can shut down*, even in developed markets and even for the largest companies.


Current Revenue $ 4,390
Current Margin: 4.76%
EBIT $ 209m
Reinvestment: Capital expenditures include cost of new casinos and working capital
Extended reinvestment break, due ot investment in past
Industry average
Expected Margin: -> 17%
Stable Growth
Stable Revenue Growth: 3%
Stable Operating Margin: 17%
Stable ROC=10% Reinvest 30% of EBIT(1-t)
Terminal Value= 758(.0743-.03) =$ 17,129
Term. Year
Revenues $4,434 $4,523 $5,427 $6,513 $7,815 $8,206 $8,616 $9,047 $9,499 $9,974 $10,273
Oper margin 5.81% 6.86% 7.90% 8.95% 10% 11.40% 12.80% 14.20% 15.60% 17% 17%
EBIT $258 $310 $429 $583 $782 $935 $1,103 $1,285 $1,482 $1,696 $ 1,746
Tax rate 26.0% 26.0% 26.0% 26.0% 26.0% 28.4% 30.8% 33.2% 35.6% 38.00% 38%
EBIT * (1 - t) $191 $229 $317 $431 $578 $670 $763 $858 $954 $1,051 $1,083
- Reinvestment -$19 -$11 $0 $22 $58 $67 $153 $215 $286 $350 $ 325
FCFF $210 $241 $317 $410 $520 $603 $611 $644 $668 $701 $758
1 2 3 4 5 6 7 8 9 10
Forever
Beta 3.14 3.14 3.14 3.14 3.14 2.75 2.36 1.97 1.59 1.20
Cost of equity 21.82% 21.82% 21.82% 21.82% 21.82% 19.50% 17.17% 14.85% 12.52% 10.20%
Cost of debt 9% 9% 9% 9% 9% 8.70% 8.40% 8.10% 7.80% 7.50%
Debtl ratio 73.50% 73.50% 73.50% 73.50% 73.50% 68.80% 64.10% 59.40% 54.70% 50.00%
Cost of capital 9.88% 9.88% 9.88% 9.88% 9.88% 9.79% 9.50% 9.01% 8.32% 7.43%
Value of Op Assets $ 9,793
+ Cash & Non-op $ 3,040
= Value of Firm $12,833
- Value of Debt $ 7,565
= Value of Equity $ 5,268
Value per share $ 8.12
Cost of Equity 21.82%
Cost of Debt 3%+6%= 9% 9% (1-.38)=5.58%
Weights Debt= 73.5% ->50%
Riskfree Rate: T. Bond rate = 3%
+
Beta 3.14-> 1.20
X
Risk Premium 6%
Casino 1.15
Current D/E: 277%
Base Equity Premium
Country Risk Premium
Las Vegas Sands Feburary 2009 Trading @ $4.25

Response 9: Adjust value for truncation risk

- In February 2009, LVS was rated B+ by S&P. Historically, 28.25% of B+ rated bonds default within 10 years. LVS has a 6.375% bond, maturing in February 2015 (7 years), trading at $529. If we discount the expected cash flows on the bond at the riskfree rate (3%), we can back out the probability of distress from the bond price:

$$529 = \sum_{t=1}^{t=7} \frac{63.75(1-\Pi_{Distress})^t}{(1.03)^t} + \frac{1000(1-\Pi_{Distress})^7}{(1.03)^7}$$

- Solving for the probability of bankruptcy, we get:

$\pi_{Distress}$ = Annual probability of default = 13.54%

  - Cumulative probability of surviving 10 years = $(1 - .1354)^{10}$ = 23.34%
  - Cumulative probability of distress over 10 years = 1 - .2334 = .7666 or 76.66%
- If LVS is becomes distressed:
  - Expected distress sale proceeds = $2,769 million < Face value of debt
  - Expected equity value/share = $0.00
- Expected value per share = $8.12 (1 - .7666) + $0.00 (.7666) = $1.92

Lesson 10: Governments and regulators can affect value..

- In most developed market valuations, there is little explicit consideration for how governments and politics affect value. In fact, the only effect on value that governments have on value is through tax policy, primarily through tax rates.
- In this crisis, we have been reminded that governments can influence equity value in many ways…
  - Bailouts: By determining who is "too large to fail" and who is not, governments can determine the destiniex of even large enterprises.
  - Nationalizations: We used to think of the fear of nationalization as restricted to tinpot dictatorships in small emerging markets. No more!
  - Regulations and rules: We think of rules and regulations as clearly defined boundaries and constraints. We forget that rules are written and enforced by human beings, and they can be changed by those same humans.
- *Implication: When valuing companies, especially regulated businesses, we have to consider the effects of not only existing regulations, but changes in those regulations.*

Response 10: Incorporate the "Heavy Hand" into Equity Value per Share

	Average for companies where government has large stake	Average for other companies in the same sector
Tax Rate	41%	32%
ROIC	7%	11%
Debt ratio	43%	35%
Dividends/FCFE	135%	78%

The government's interests may diverge from your interests.
- Dividend policy
- Cost cutting
- Taxes

If the company is badly run, can you do anything about it as a stockholder?

The Government put: The government will not let a company that it owns go under, offering bailouts and other measures to save the firm. This will increase the value of the firm.

The Government call: If the firm becomes too valuable, the government may decide to expropriate the firm at favorable prices (nationalization).

Lesson 11: Independent Board ≠ Effective Board

SEPTEMBER 18, 2008

Where Was Lehman Board?

Firm's External Directors Had Relied on Experiences Of a Bygone Financial Era

By DENNIS K. BERMAN

Article | Comments

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Nine of them are retired. Four are over 75 years old. One is a theater producer, another a former Navy admiral. Only two have direct experience in the financial-services industry.

Meet the Lehman Brothers Holdings external board directors, a group of 10 people who, perhaps unknowingly, carried the health of the world's financial system on their shoulders the past 18 months.

As the world nervously awaits the effects of the unprecedented Lehman Brothers liquidation, one can't help but wonder how and why this board let its longtime chairman and patron, Richard Fuld Jr., cling to both hope and power.

Response 11: Let's think about effective boards… Directors should..

- Know the business: If we want board members to oversee managers, we have to also accept the proposition that these board members understand the business that the company is in.
- (At least some should) serve the interests of those most opposed to incumbent managers: If one of the problems with boards is that they are unwilling to challenge incumbent managers, we need directors who represent stockholders who most disagree with incumbent managers (proportional voting for directors versus majority voting).
- Have a counter weight to the CEO: If it is human nature to assent to authority, we need to create counters to the power of the CEO. In effect, it may be time to create a "Devil's Advocate" on the Board, with powers (and resources) to match the CEO.

Lesson 12: Biased processes = Bad valuations!!

- The biggest barrier to sensible valuations is not bad data, poor modeling skills, poorly trained or lack of inflation. It is bias.
- If we enter a valuation with strong preconceptions about what we expect or should find, we will find ways to confirm those preconceptions.
- If we tie rewards, compensation and other incentives to the conclusions of a valuation, the bias will get worse.

Response 12: If you want good valuations, fix the processes…

- Require disclosure of bias: All analysts should be required to reveal their biases before they reveal their valuation results.
- Separate valuation from deal making and selling: Asking deal makers (sales people) to analyze whether a deal (sale) makes sense creates conflicts of interest that lead to biased valuations.
- Force transparency: It is easy to hide bias, when assumptions are not explicit and valuations are not transparent.
- Avoid "post-valuation garnishing": While rules of thumb are often based in fact, they get dated and can lead us to set aside good sense.

CLOSING THOUGHTS..

- We all make mistakes. When confronted with them, we can
  - Ignore them and act like nothing has happened
  - Panic (and throw out everything that we have learned out as useless)
  - Learn from them and adapt
- We will make more mistakes in the future. We cannot design systems and models that are always right but we can incorporate "early warning" mechanisms in them to allow us to fix mistakes before it is too late.
- If uncertainty is the name of the game, we have to develop estimation approaches that are flexible, less dependent upon historical data and more grounded in fundamentals.