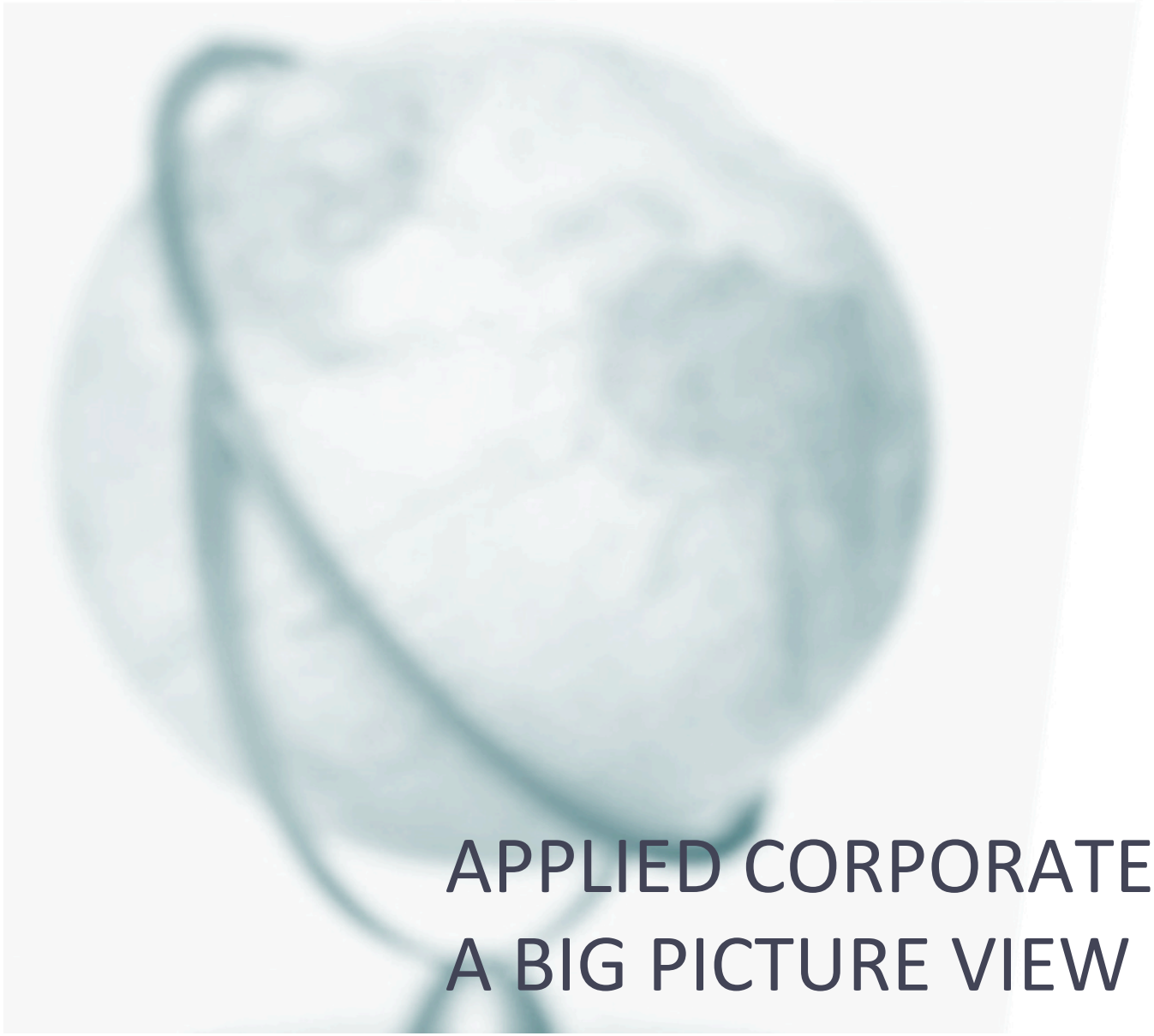
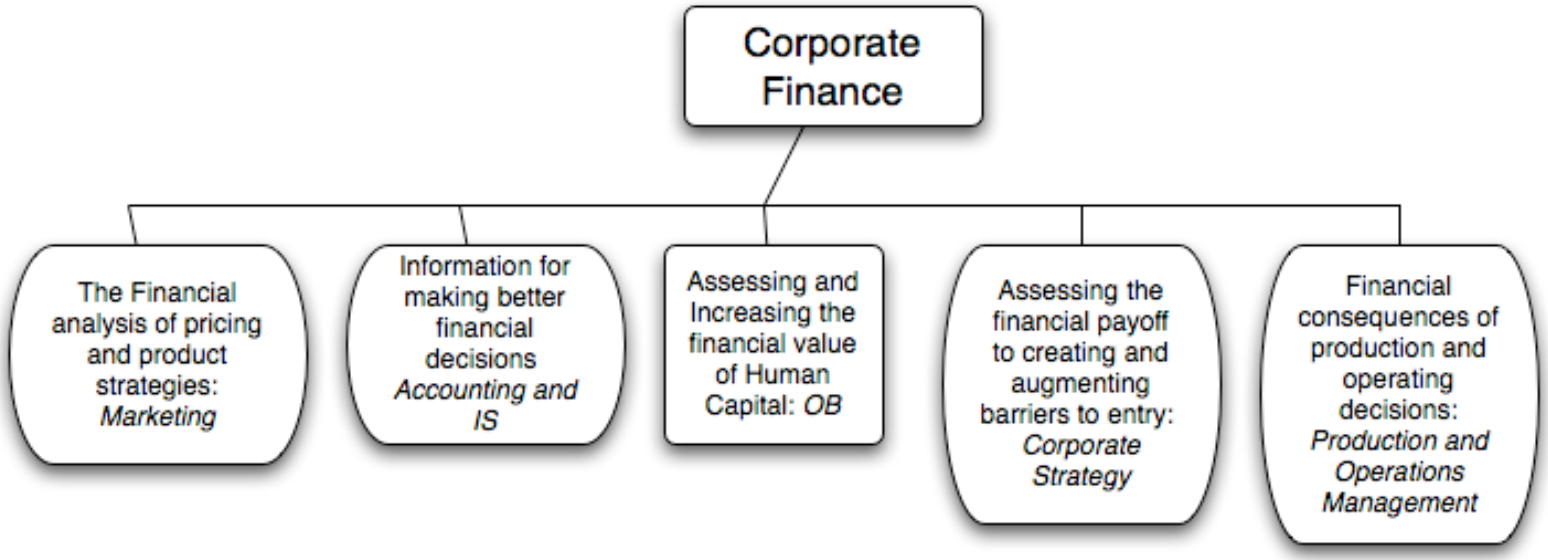


APPLIED CORPORATE FINANCE: A BIG PICTURE VIEW

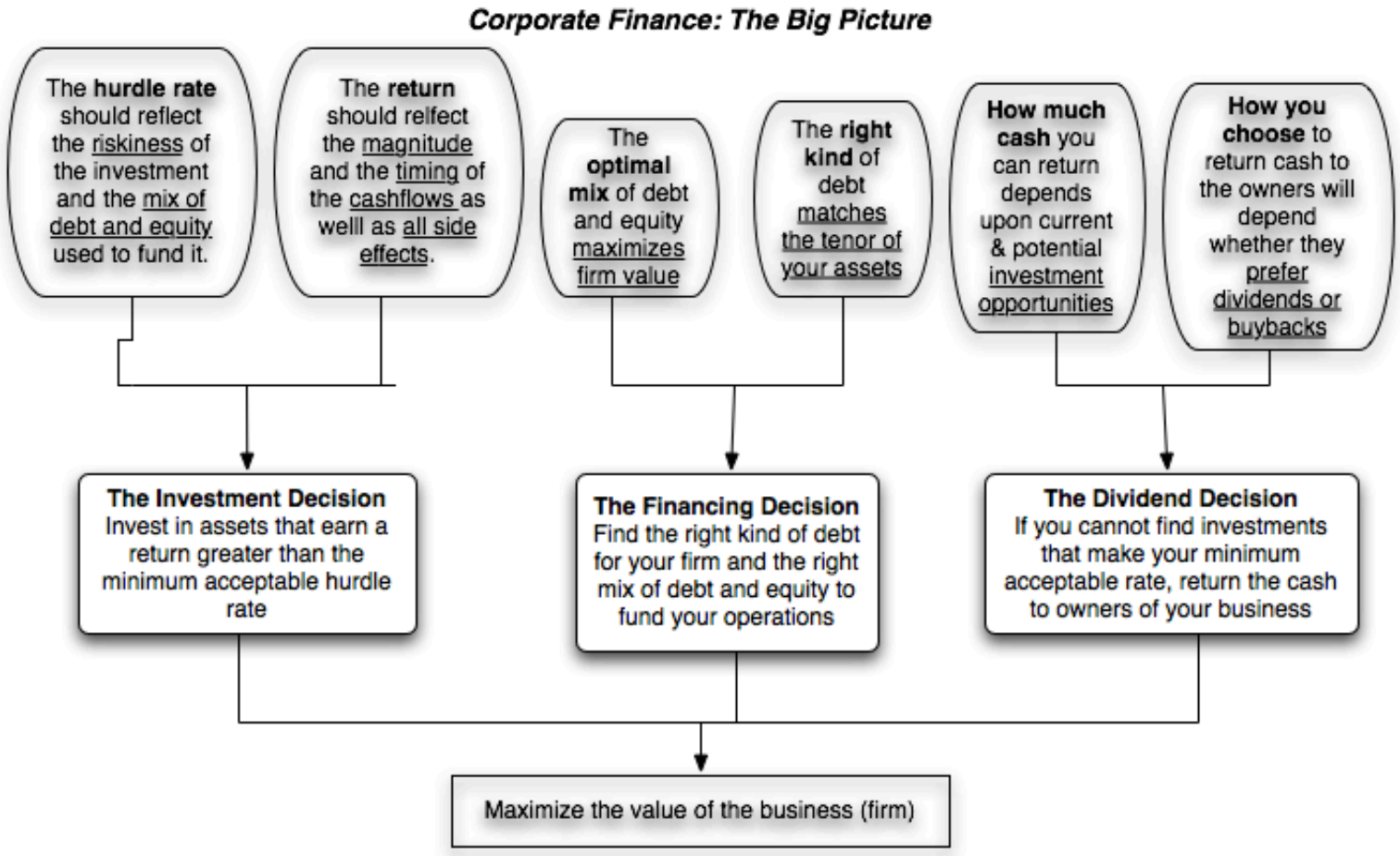
Aswath Damodaran
www.damodaran.com

What is corporate finance?

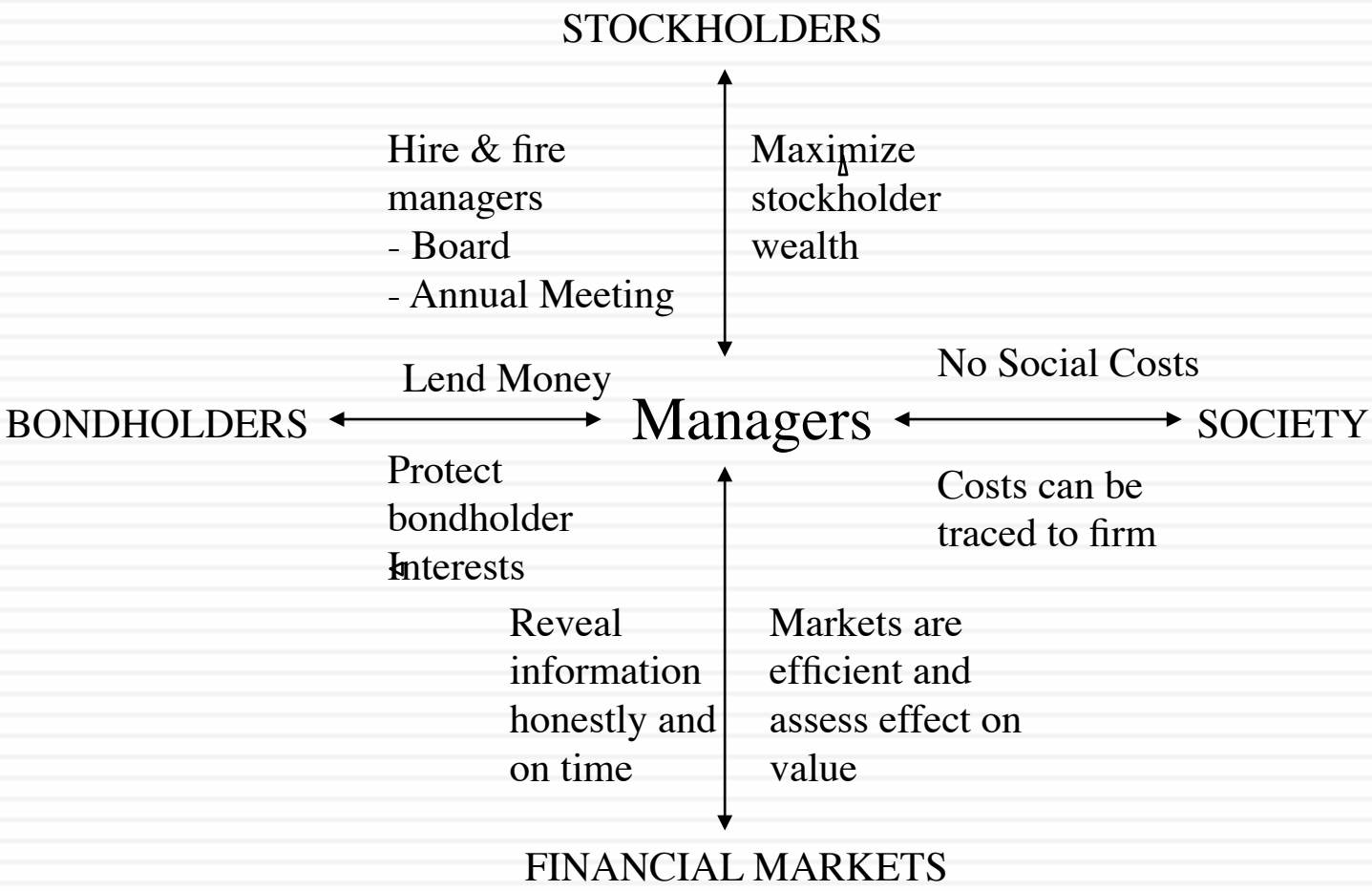
- Every decision that a business makes has financial implications, and any decision which affects the finances of a business is a corporate finance decision.
- Defined broadly, everything that a business does fits under the rubric of corporate finance.



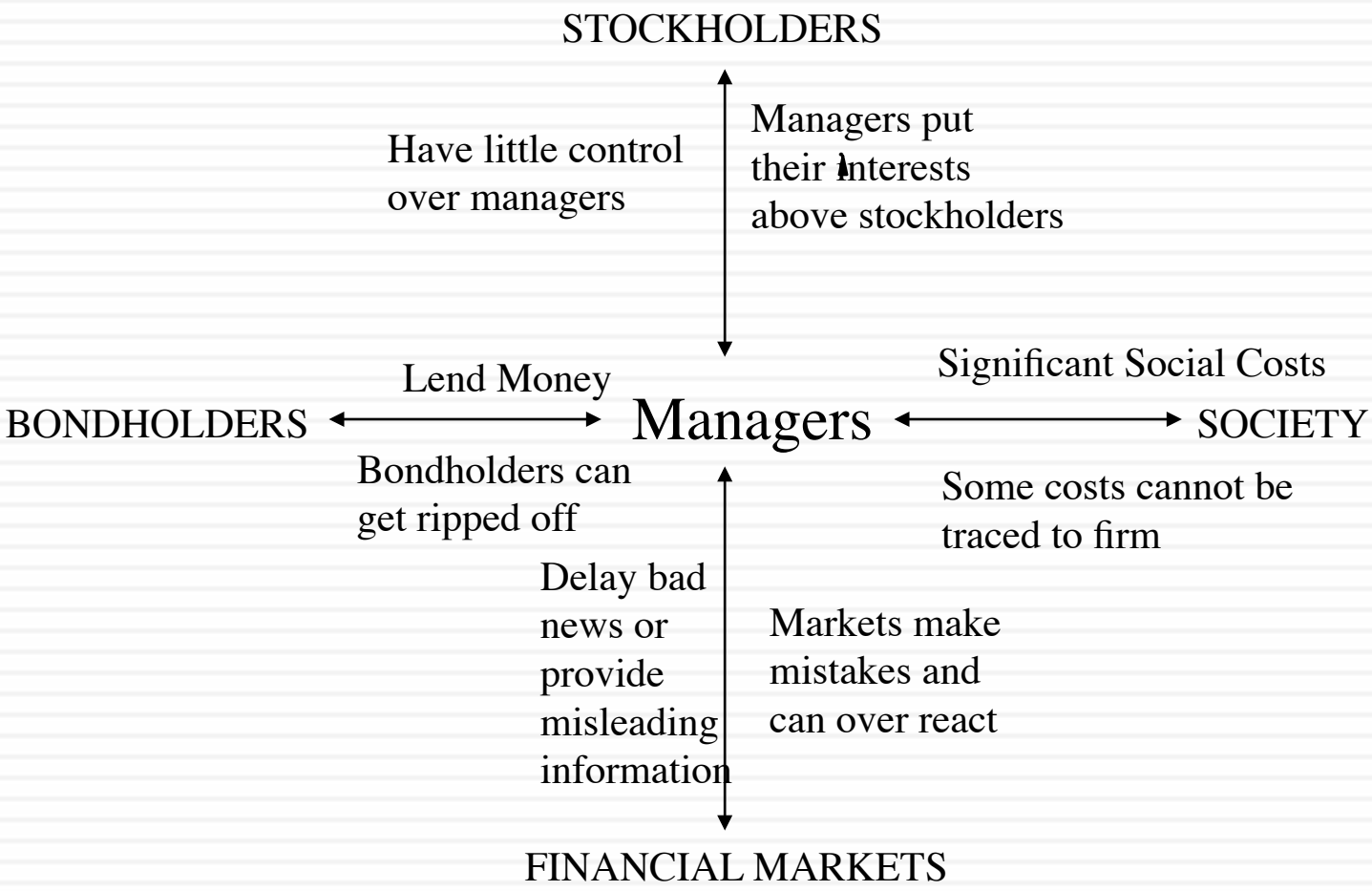
First Principles



The Classical Objective Function



What can go wrong?



The worst board ever? Disney in 1997

Reveta F. Bowers 1,5
Head of School
Center for Early Education

Roy E . Disney 3
Vice Chairman
The Walt Disney Company

Michael D. Eisner 3
Chairman and Chief Executive Officer
The Walt Disney Company

Stanley P. Gold 4,5
President and Chief Executive Officer
Shamrock Holdings, Inc.

Sanford M. Litvack
Senior Executive Vice President
and Chief of Corporate Operations
The Walt Disney Company

Ignacio E. Lozano, Jr. 1,2,4
Editor-in-Chief, LA OPINION

George J. Mitchell 5
Special Counsel
Verner, Liipfert, Bernard, McPherson
and Hand

Thomas S. Murphy
Former Chairman
Capital Cities/ABC, Inc.

Richard A. Nunis
Chairman
Walt Disney Attractions

Leo J. O'Donovan, S.J.
President
Georgetown University

Michael S. Ovitz 3
President
The Walt Disney Company

Sidney Poitier 2,4
Chief Executive Officer
Verdon-Cedric Productions

Irwin E. Russell 2,4
Attorney at Law

Robert A.M. Stern
Senior Partner Productions

E. Cardon Walker 1
Former Chairman and Chief Executive Officer
The Walt Disney Company

Raymond L. Watson 1,2,3
Vice Chairman
The Irvine Company

Gary L. Wilson 5
Co-Chairman
Northwest Airlines Corporation

1 Member of Audit Review Committee
2 Member of Compensation Committee
3 Member of Executive Committee
4 Member of Executive Performance Plan Committee
5 Member of Nominating Committee

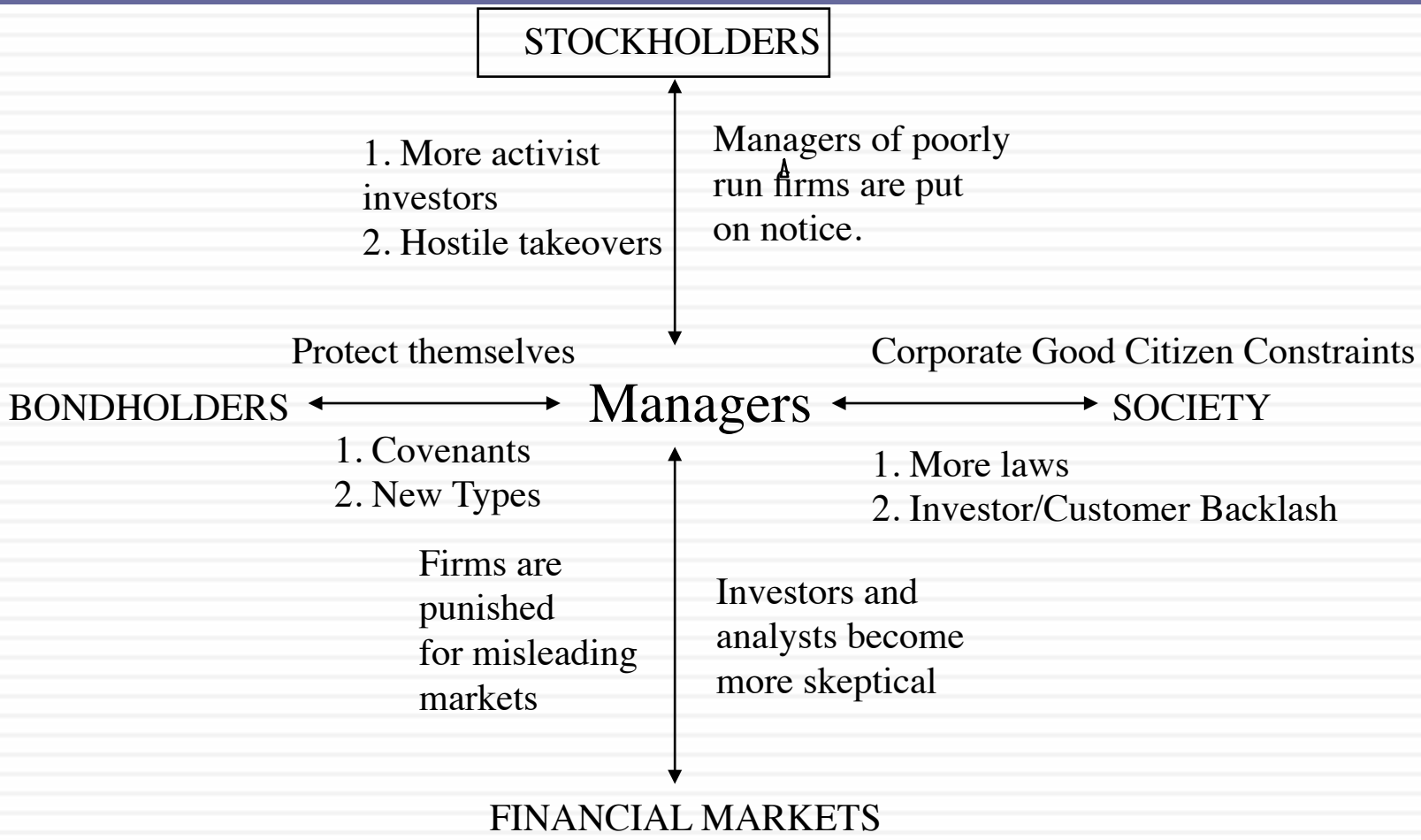
A good board at Wyndham?
You can be the judge

	Audit	Compensation	Corporate Governance	Executive
Stephen P. Holmes				C
Myra J. Biblowit		M	M	
James E. Buckman				M
George Herrera	M		C	
The Right Honourable Brian Mulroney		C	M	
Pauline D.E. Richards	M	M		
Michael H. Wargotz	C			M

C - Chair

M - Member

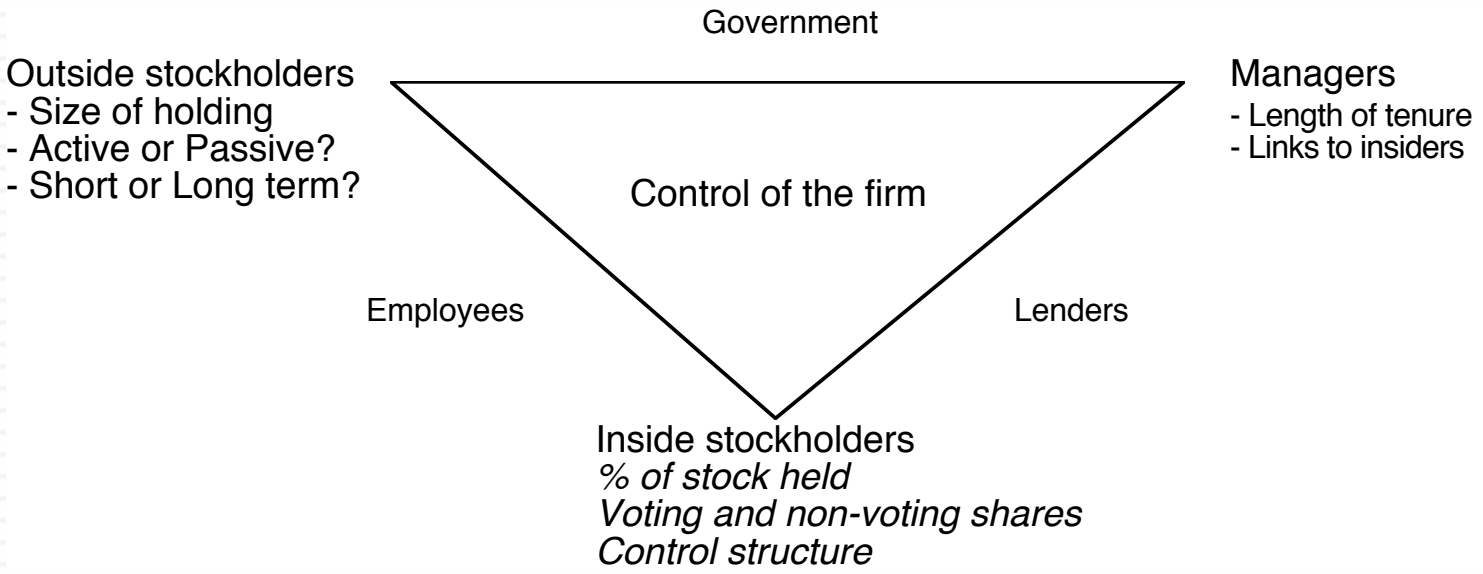
A Market Based Solution



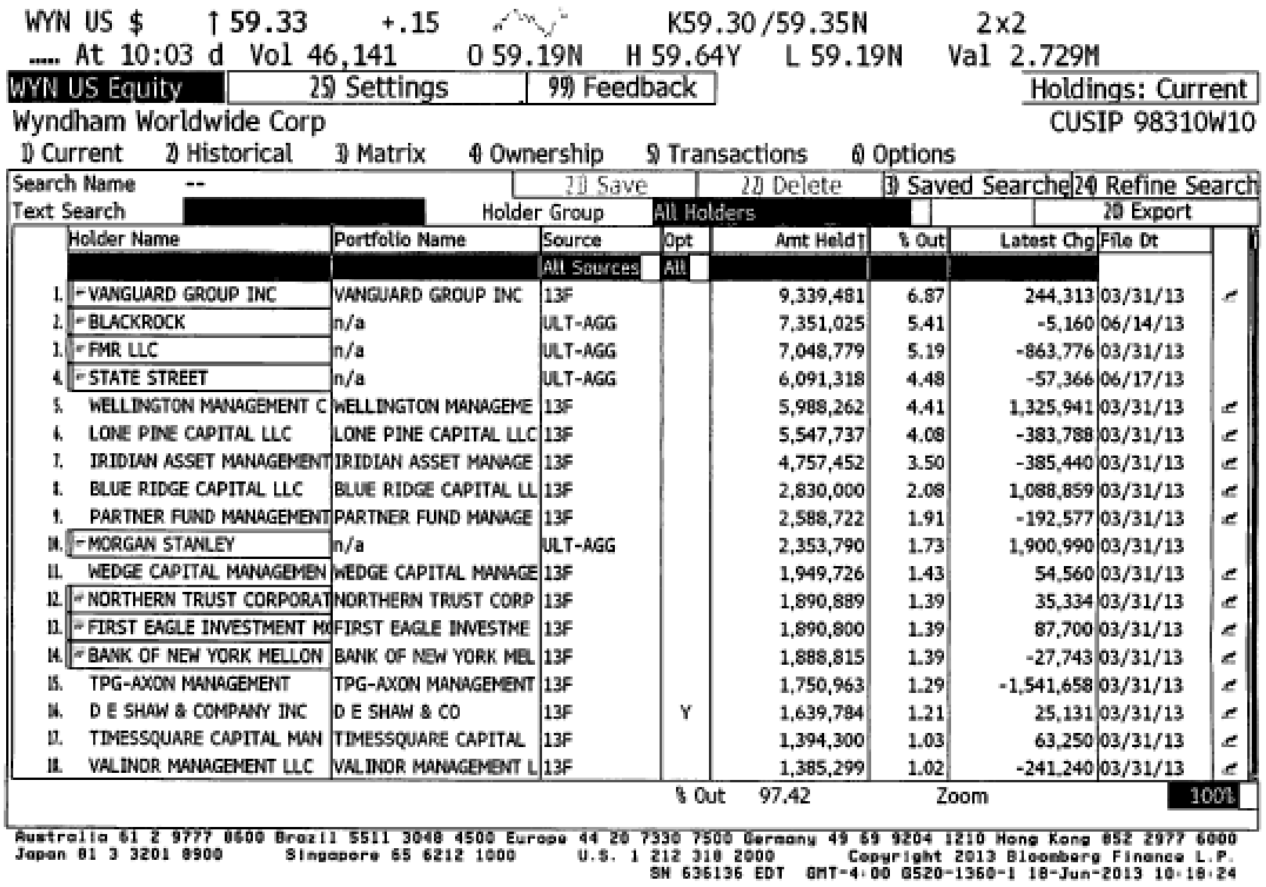
Application Test: Who owns/runs your firm?

- Look at: Bloomberg printout HDS for your firm
- Who are the top stockholders in your firm?
- What are the potential conflicts of interests that you see emerging from this stockholding structure?

B HDS Page
PB Page 3-12



The marginal investor: Wyndham's top stockholders in 2003



WYN US $ ↑ 59.33 +.15 K59.30/59.35N 2x2
..... At 10:03 d Vol 46,141 O 59.19N H 59.64Y L 59.19N Val 2.729M

WYN US Equity | 25) Settings | 99) Feedback | Holdings: Current

Wyndham Worldwide Corp — CUSIP 98310W10

1) Current 2) Historical 3) Matrix 4) Ownership 5) Transactions 6) Options

Search Name -- | 21) Save | 22) Delete | 23) Saved Searches | 24) Refine Search

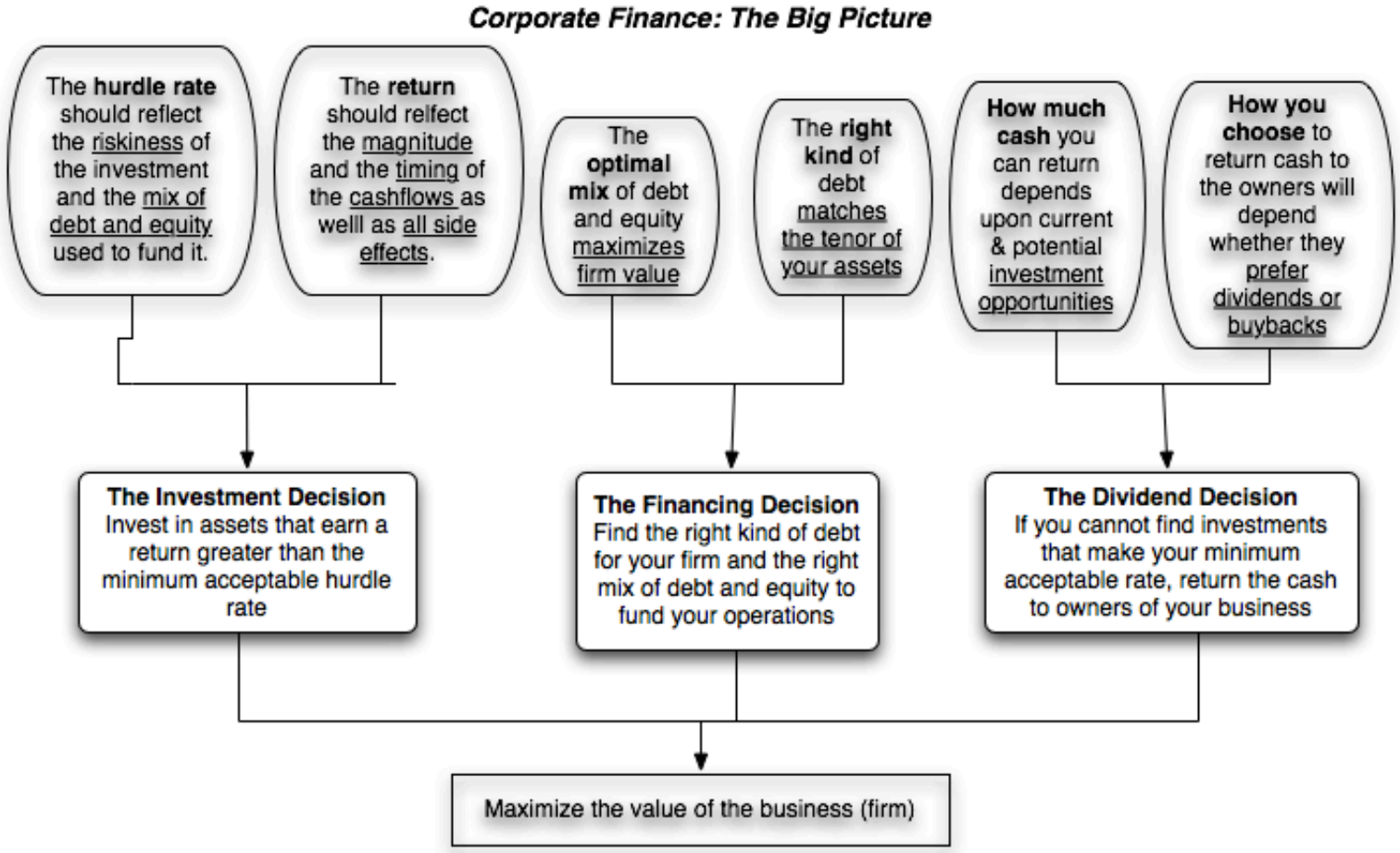
Text Search | Holder Group: All Holders | 20) Export

	Holder Name	Portfolio Name	Source	Opt	Amt Held↑	% Out	Latest Chg	File Dt
			All Sources	All				
1.	VANGUARD GROUP INC	VANGUARD GROUP INC	13F		9,339,481	6.87	244,313	03/31/13
2.	BLACKROCK	n/a	ULT-AGG		7,351,025	5.41	-5,160	06/14/13
3.	FMR LLC	n/a	ULT-AGG		7,048,779	5.19	-863,776	03/31/13
4.	STATE STREET	n/a	ULT-AGG		6,091,318	4.48	-57,366	06/17/13
5.	WELLINGTON MANAGEMENT C	WELLINGTON MANAGEME	13F		5,988,262	4.41	1,325,941	03/31/13
6.	LONE PINE CAPITAL LLC	LONE PINE CAPITAL LLC	13F		5,547,737	4.08	-383,788	03/31/13
7.	IRIDIAN ASSET MANAGEMENT	IRIDIAN ASSET MANAGE	13F		4,757,452	3.50	-385,440	03/31/13
8.	BLUE RIDGE CAPITAL LLC	BLUE RIDGE CAPITAL LL	13F		2,830,000	2.08	1,088,859	03/31/13
9.	PARTNER FUND MANAGEMENT	PARTNER FUND MANAGE	13F		2,588,722	1.91	-192,577	03/31/13
10.	MORGAN STANLEY	n/a	ULT-AGG		2,353,790	1.73	1,900,990	03/31/13
11.	WEDGE CAPITAL MANAGEMEN	WEDGE CAPITAL MANAGE	13F		1,949,726	1.43	54,560	03/31/13
12.	NORTHERN TRUST CORPORAT	NORTHERN TRUST CORP	13F		1,890,889	1.39	35,334	03/31/13
13.	FIRST EAGLE INVESTMENT M	FIRST EAGLE INVESTME	13F		1,890,800	1.39	87,700	03/31/13
14.	BANK OF NEW YORK MELLON	BANK OF NEW YORK MEL	13F		1,888,815	1.39	-27,743	03/31/13
15.	TPG-AXON MANAGEMENT	TPG-AXON MANAGEMENT	13F		1,750,963	1.29	-1,541,658	03/31/13
16.	D E SHAW & COMPANY INC	D E SHAW & CO	13F	Y	1,639,784	1.21	25,131	03/31/13
17.	TIMESSQUARE CAPITAL MAN	TIMESSQUARE CAPITAL	13F		1,394,300	1.03	63,250	03/31/13
18.	VALINOR MANAGEMENT LLC	VALINOR MANAGEMENT L	13F		1,385,299	1.02	-241,240	03/31/13

% Out 97.42 Zoom 100%

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2013 Bloomberg Finance L.P.
SN 636136 EDT GMT-4:00 G520-1360-1 18-Jun-2013 10:18:24

First Principles



What is Risk?

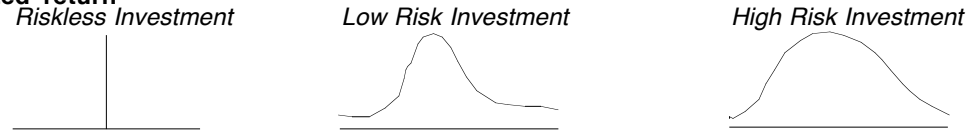
- Risk, in traditional terms, is viewed as a ‘negative’. Webster’s dictionary, for instance, defines risk as “exposing to danger or hazard”. The Chinese symbols for risk, reproduced below, give a much better description of risk:

- The first symbol is the symbol for “danger”, while the second is the symbol for “opportunity”, making risk a mix of danger and opportunity. You cannot have one, without the other.

Alternatives to the CAPM

Step 1: Defining Risk

The risk in an investment can be measured by the variance in actual returns around an expected return



Step 2: Differentiating between Rewarded and Unrewarded Risk

Risk that is specific to investment (Firm Specific)
Can be diversified away in a diversified portfolio
1. each investment is a small proportion of portfolio
2. risk averages out across investments in portfolio

Risk that affects all investments (Market Risk)
Cannot be diversified away since most assets are affected by it.

The marginal investor is assumed to hold a "diversified" portfolio. Thus, only market risk will be rewarded and priced.

Step 3: Measuring Market Risk

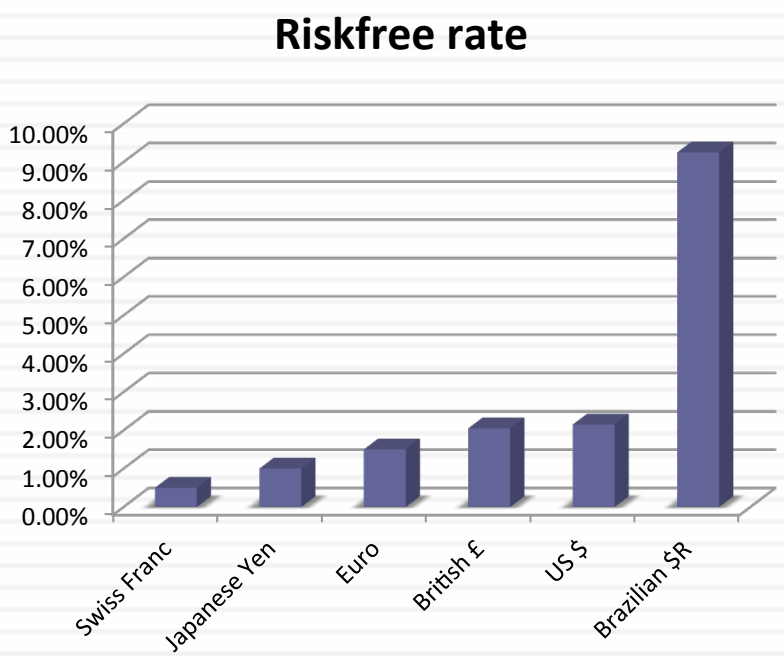
The CAPM	**The APM**	**Multi-Factor Models**	**Proxy Models**
If there is 1. no private information 2. no transactions cost the optimal diversified portfolio includes every traded asset. Everyone will hold this<u>market portfolio</u> **Market Risk = Risk added by any investment to the market portfolio:**	If there are no arbitrage opportunities then the market risk of any asset must be captured by betas relative to factors that affect all investments. **Market Risk = Risk exposures of any asset to market factors**	Since market risk affects most or all investments, it must come from macro economic factors. **Market Risk = Risk exposures of any asset to macro economic factors.**	In an efficient market, differences in returns across long periods must be due to market risk differences. Looking for variables correlated with returns should then give us proxies for this risk. **Market Risk = Captured by the Proxy Variable(s)**
Beta of asset relative to Market portfolio (from a regression)	Betas of asset relative to unspecified market factors (from a factor analysis)	Betas of assets relative to specified macro economic factors (from a regression)	Equation relating returns to proxy variables (from a regression)

Inputs required to use the CAPM -

- The capital asset pricing model yields the following expected return:
  - Expected Return = Riskfree Rate+ Beta * (Expected Return on the Market Portfolio - Riskfree Rate)
- To use the model we need three inputs:
  a. The current risk-free rate, i.e., the rate that you can earn on a default free, long term investment today.
  b. The expected market risk premium (the premium expected for investing in risky assets (market portfolio) over the riskless asset)
  c. The relative risk (beta) of the business/company being analyzed.

What is the riskfree rate?

For US dollar investments, the risk free rate has to be the rate on a long term, default free US $ investment. Most investors use the 10-year US treasury bond rate (about 2.15% in June 2013) as the risk free rate. Would you go along?



- The Brazilian government had 10-year $R bonds outstanding, with a yield to maturity of about 11% on June 2013. At the time, the Brazilian government had a local currency sovereign rating of Baa2. The typical default spread for Baa2 rated country bonds in June 2013 was 1.75%. The riskfree rate in Brazilian Reails ($R) Is

a. The yield to maturity on the 10-year bond (11%)

b. The yield to maturity on the 10-year bond + Default spread (12,75%)

c. The yield to maturity on the 10-year bond – Default spread (9.25%)

Why do risk free rates vary across currencies?

And the equity risk premium..

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2012	7.65%	5.88%	5.74%	4.20%
	2.20%	2.33%		
1962-2012	5.93%	3.91%	4.60%	2.93%
	2.38%	2.66%		
2002-2012	7.06%	3.08%	5.38%	1.71%
	5.82%	8.11%		

Historical premium

In 2012, the actual cash returned to stockholders was 72.25. Using the average total yield for the last decade yields 69.46

Analysts expect earnings to grow 7.67% in 2013, 7.28% in 2014, scaling down to 1.76% in 2017, resulting in a compounded annual growth rate of 5.27% over the next 5 years. We will assume that dividends & buybacks will tgrow 5.27% a year for the next 5 years.

After year 5, we will assume that earnings on the index will grow at 1.76%, the same rate as the entire economy (= riskfree rate).

73.12 76.97 81.03 85.30 89.80

$$1426.19 = \frac{73.12}{(1+r)} + \frac{76.97}{(1+r)^2} + \frac{81.03}{(1+r)^3} + \frac{85.30}{(1+r)^4} + \frac{89.80}{(1+r)^5} + \frac{89.80(1.0176)}{(r-.0176)(1+r)^5}$$

January 1, 2013
S&P 500 is at 1426.19
Adjusted Dividends & Buybacks for base year = 69.46

Expected Return on Stocks (1/1/13) = 7.54%
T.Bond rate on 1/1/13 = 1.76%
Equity Risk Premium = 7.54% - 1.76% = 5.78%

Data Sources:
Dividends and Buybacks last year: S&P
Expected growth rate: S&P, Media reports, Factset, Thomson-Reuters

Country Risk: Look at a country's bond rating and default spreads as a start

- Ratings agencies assign ratings to countries that reflect their assessment of the default risk of these countries. These ratings reflect the political and economic stability of these countries and thus provide a useful measure of country risk. In June 2013, the local currency rating, from Moody's, for Brazil was Baa2. There are three ways in which this can be converted into a default spread:
  - Brazil had US $ denominated bonds that can be compared to the US treasury bond. In June 2013, the rate on the 10-year US $ denominated Brazilian bond was at 3.89%, 1.74% higher than the US T.Bond rate of 2.15% on that day.
  - Brazil has a ten-year CDS that was trading at 1.50% in June 2013.
  - You can use the typical spread for the rating, based upon other rated countries, to estimate a spread for the country. In June 2013, the spread for a Baa2 rated country was about 1.75%.
- Many analysts add this default spread to the US risk premium to come up with a risk premium for a country. This would yield a risk premium of 7.55% for Brazil, if we use 5.8% as the US risk premium and the default spread based on the rating.

Beyond the default spread

- While default risk spreads and equity risk premiums are highly correlated, one would expect equity spreads to be higher than debt spreads. In fact, if we can estimate how risky the equity market is, relative to the government bond, we can scale up the spread.
- Country Risk Premium for Brazil in June 2013
  - Standard Deviation in Bovespa = 33%
  - Standard Deviation in Brazilian government Bond = 22%
  - Default spread on Bond = 1.75%
  - Country Risk Premium (CRP) for Brazil = 1.75% (33%/22%) = 2.63%
  - Total Risk Premium for India= US risk premium (in '13) + CRP
    = 5.8% + 2.63% = 8.43%

Country Risk Premiu
January 2013

Canada	0.00%	5.80%
USA	0.00%	5.80%
N. America	**0.00%**	**5.80%**

Argentina	9.00%	14.80%
Belize	15.00%	20.80%
Bolivia	4.88%	10.68%
Brazil	2.63%	8.43%
Chile	1.05%	6.85%
Colombia	3.00%	8.80%
Costa Rica	3.00%	8.80%
Ecuador	10.50%	16.30%
El Salvador	4.88%	10.68%
Guatemala	3.60%	9.40%
Honduras	7.50%	13.30%
Mexico	2.25%	8.05%
Nicaragua	9.00%	14.80%
Panama	2.63%	8.43%
Paraguay	6.00%	11.80%
Peru	2.63%	8.43%
Uruguay	3.00%	8.80%
Venezuela	6.00%	11.80%
Latin America	**3.38%**	**9.18%**

Belgium	1.05%	6.85%
Germany	0.00%	5.80%
Portugal	4.88%	10.68%
Italy	2.63%	8.43%
Luxembourg	0.00%	5.80%
Austria	0.00%	5.80%
Denmark	0.00%	5.80%
France	0.38%	6.18%
Finland	0.00%	5.80%
Greece	10.50%	16.30%
Iceland	3.00%	8.80%
Ireland	3.60%	9.40%
Netherlands	0.00%	5.80%
Norway	0.00%	5.80%
Slovenia	2.63%	8.43%
Spain	3.00%	8.80%
Sweden	0.00%	5.80%
Switzerland	0.00%	5.80%
Turkey	3.60%	9.40%
UK	0.00%	5.80%
W.Europe	**1.05%**	**6.85%**

Albania	6.00%	11.80%
Armenia	4.13%	9.93%
Azerbaijan	3.00%	8.80%
Belarus	9.00%	14.80%
Bosnia & Herzegovina	9.00%	14.80%
Bulgaria	2.63%	8.43%
Croatia	3.00%	8.80%
Czech Republic	1.28%	7.08%
Estonia	1.28%	7.08%
Georgia	4.88%	10.68%
Hungary	3.60%	9.40%
Kazakhstan	2.63%	8.43%
Latvia	3.00%	8.80%
Lithuania	2.25%	8.05%
Moldova	9.00%	14.80%
Montenegro	4.88%	10.68%
Poland	1.50%	7.30%
Romania	3.00%	8.80%
Russia	2.25%	8.05%
Slovakia	1.50%	7.30%
Ukraine	9.00%	14.80%
E. Europe & Russia	**2.68%**	**8.48%**

Bangladesh	4.88%	10.68%
Cambodia	7.50%	13.30%
China	1.05%	6.85%
Fiji Islands	6.00%	11.80%
Hong Kong	0.38%	6.18%
India	3.00%	8.80%
Indonesia	3.00%	8.80%
Japan	1.05%	6.85%
Korea	1.05%	6.85%
Macao	1.05%	6.85%
Malaysia	1.73%	7.53%
Mongolia	6.00%	11.80%
Pakistan	10.50%	16.30%
Papua New Guinea	6.00%	11.80%
Philippines	3.60%	9.40%
Singapore	0.00%	5.80%
Sri Lanka	6.00%	11.80%
Taiwan	1.05%	6.85%
Thailand	2.25%	8.05%
Vietnam	7.50%	13.30%
Asia	**1.55%**	7.35%

Angola	4.88%	10.68%
Botswana	1.50%	7.30%
Egypt	7.50%	13.30%
Kenya	6.00%	11.80%
Mauritius	2.25%	8.05%
Morocco	3.60%	9.40%
Namibia	3.00%	8.80%
Nigeria	4.88%	10.68%
Senegal	6.00%	11.80%
South Africa	2.25%	8.05%
Tunisia	3.00%	8.80%
Zambia	6.00%	11.80%
Africa	**4.29%**	**10.09%**

Bahrain	2.25%	8.05%
Israel	1.28%	7.08%
Jordan	4.13%	9.93%
Kuwait	0.75%	6.55%
Lebanon	6.00%	11.80%
Oman	1.28%	7.08%
Qatar	0.75%	6.55%
Saudi Arabia	1.05%	6.85%
United Arab Emirates	0.75%	6.55%
Middle East	**1.16%**	6.96%

Australia	0.00%	5.80%
New Zealand	0.00%	5.80%
Australia & NZ	**0.00%**	5.80%

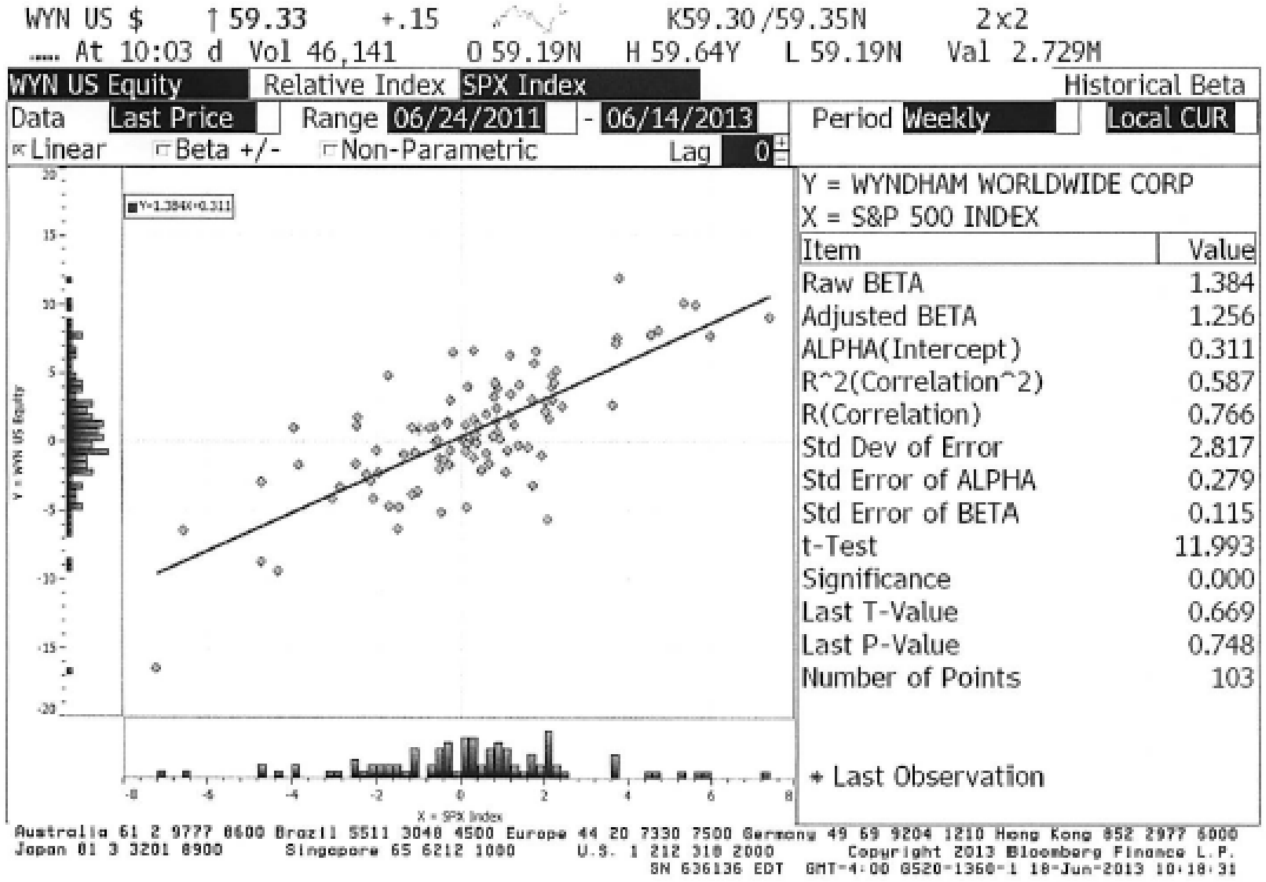
Black #: Total ERP
Red #: Country risk premium
AVG: GDP weighted average

Extending to a multinational: Regional breakdown Wyndham's revenue breakdown and ERP in 2012

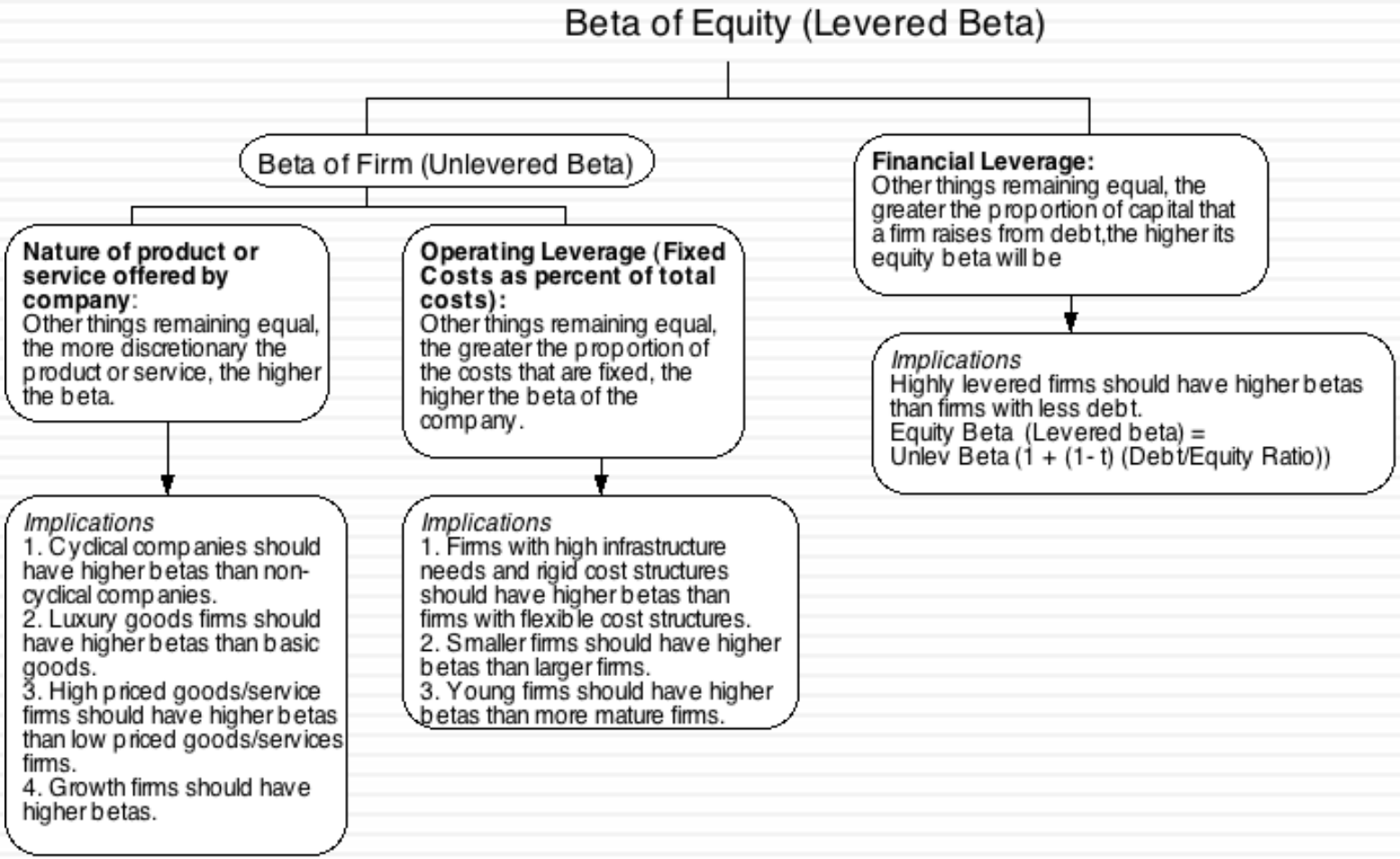
	Number of rooms	ERP	Weight
US & Canada	490277	5.80%	78.14%
Asia	78932	7.58%	12.58%
Europe, Middle East & Africa	44749	6.85%	7.13%
Latin/South America	13479	9.18%	2.15%
Wyndham		6.17%	100.00%

I would have preferred to use revenues or operating income by region, but that information was broken down into US, UK, Netherland & rest of the world.

Estimating Beta: The Regression Approach



Determinants of Betas



Wyndham's businesses
A qualitative assessment

Business	Discretionary/Non-discretionary	Fixed cost structure	Financial leverage	Relative risk assessment
Lodging				
Vacation Exchange & Rentals				
Vacation Ownership				

Bottom up beta for Wyndham

- Wyndham's business betas

Business	*Sector for comps*	*Revenues*	*EV/Sales*	*Estimated Value*	*Weight*	*Unlevered Beta*
Lodging	Hotel/Gaming	$890	2.4300	$2,163	18.55%	1.29
Vacation rentals	Recreation	$1,422	1.7000	$2,417	20.73%	1.18
Vacation ownership	Property Management	$2,269	3.1200	$7,079	60.72%	0.73
Company		$4,581		$11,659		0.93

- Step 1: Start with Wyndham's revenues by business.
- Step 2: Estimate the value as a multiple of revenues by looking at what the market value of publicly traded firms in each business is, relative to revenues.

$$\text{EV/Sales} = \frac{\text{Mkt Equity} + \text{Debt} - \text{Cash}}{\text{Revenues}}$$

- Step 3: Multiply the revenues in step 1 by the industry average multiple in step 2 to get the estimated value, by business.

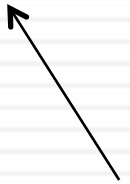
Wyndham's Cost of Equity

- Step 1: Allocate debt & equity across businesses

Business	Estimated value	Sector D/C	Estimated debt	Allocated debt	Estimated equity	Allocated equity	D/E
Lodging	$2,163	30.91%	$668	$704	$1,458	$1,864	37.78%
Vacation rentals	$2,417	27.41%	$663	$698	$1,719	$2,197	31.77%
Vacation ownership	$7,079	52.96%	$3,749	$3,950	$3,130	$4,000	98.75%
Company	$11,659		$5,080	$5,352	$6,307	$8,061	66.39%

- Step 2: Compute levered betas and costs of equity for Wyndham's operating businesses.

Business	Unlevered beta	D/E ratio	Levered beta	Cost of equity
Lodging	1.29	37.78%	1.59	11.97%
Vacation rentals	1.18	31.77%	1.41	10.86%
Vacation ownership	0.73	98.75%	1.18	9.41%
Company	0.93	66.39%	1.31	10.23%



Riskfree Rate = 2.15%
Risk Premium = 6.17%

Discussion Issue

- In advance of the Olympics, you are looking at expanding your vacation rental business in Brazil. What US $ cost of equity would you use in assessing this investment?

  Risk free rate =

  ERP =

  Levered Beta =

  Cost of equity =

  What if you were estimating the $R cost of equity for the same investment?

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.

Wyndham's cost of debt

- Wyndham's LT bond rating (from Moody's) in June 2013 is Baa3.
- To compute a synthetic rating, we used the operating income of $870 million and interest expenses of $134 million from 2012 to estimate an interest coverage ratio:

  Interest coverage ratio = 870/134 = 6.49

Interest Coverage Ratios, Ratings and Default Spreads- June 2013

If interest coverage ratio is			
>	*≤ to*	*Rating is*	*Spread is*
8.50	100000	Aaa/AAA	0.40%
6.5	8.499999	Aa2/AA	0.70%
5.5	6.499999	A1/A+	0.85%
4.25	5.499999	A2/A	1.00%
3	4.249999	A3/A-	1.30%
2.5	2.999999	Baa2/BBB	2.00%
2.25	2.49999	Ba1/BB+	3.00%
2	2.2499999	Ba2/BB	4.00%
1.75	1.999999	B1/B+	5.50%
1.5	1.749999	B2/B	6.50%
1.25	1.499999	B3/B-	7.25%
0.8	1.249999	C2/C	8.75%
0.65	0.799999	Ca2/CC	9.50%
0.2	0.649999	Caa/CCC	10.50%
-100000	0.199999	D2/D	12.00%

Based on actual rating of Baa3: Default spread of 1.65%

Cost of debt = 2.15% + 1.65% = 3.8%

Based on synthetic rating of A+: Default spread of 0.85%

Cost of debt = 2.15% + 1.65% = 3.0%

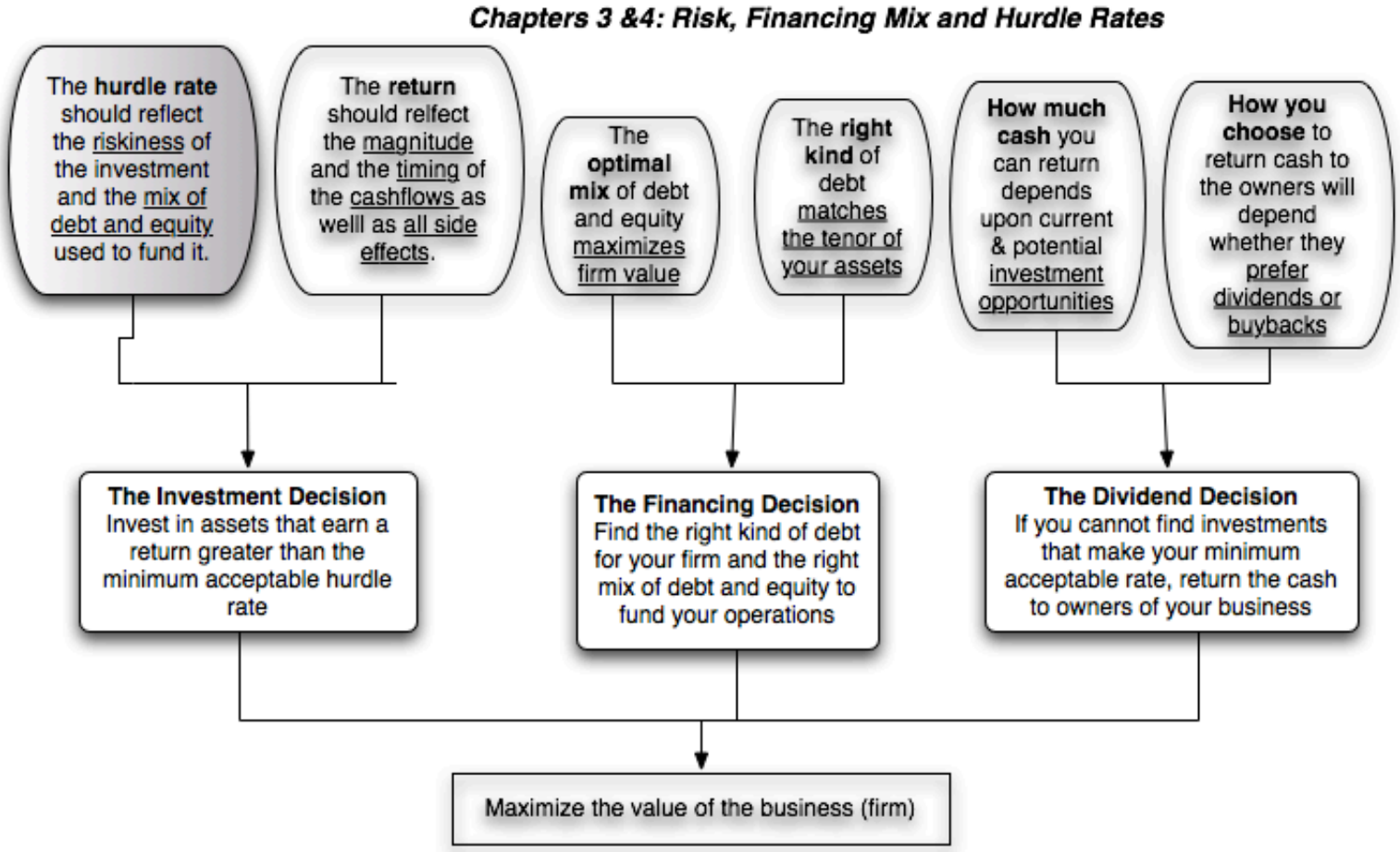
Current Cost of Capital: Wyndham

- Equity
  - Cost of Equity = Riskfree rate + Beta * Risk Premium
    = 2.15% + 1.31 (6.17%) = 10.23%
  - Market Value of Equity = $8,061 million
  - Equity/(Debt+Equity) = 60.1%
- Debt
  - After-tax Cost of debt =(Risk free rate + Default Spread) (1-t)
    = (2.15%+ 1.65%) (1-.38) = 2.36%
  - Market Value of Debt = $ 5,352 million
  - Debt/(Debt +Equity) = 39.9%
- Cost of Capital = 10.23%(.601)+2.36%(.399) = 7.09%

Divisional Costs of Capital: Wyndham

Business	Cost of equity	Cost of debt	Debt ratio	Cost of capital
Lodging	11.97%	2.36%	27.42%	9.34%
Vacation rentals	10.86%	2.36%	24.11%	8.81%
Vacation ownership	9.41%	2.36%	49.69%	5.91%
Company	10.23%	2.36%	39.90%	7.09%

Back to First Principles



Measuring Returns Right: The Basic Principles

- Use cash flows rather than earnings. You cannot spend earnings.
- Use "incremental" cash flows relating to the investment decision, i.e., cash flows that occur as a consequence of the decision, rather than total cash flows.
- Use "time weighted" returns, i.e., value cash flows that occur earlier more than cash flows that occur later.

The Return Mantra: "Time-weighted, Incremental Cash Flow Return"

Let's try this: An acquisition (loosely modeled on Tryp)

- Assume that you have been evaluating whether to buy a Zora, a hotel brand, with 90 hotels (and 13,000 rooms) in Europe and Latin America.
- The average daily rate per room is $80 and the occupancy rate is 60%. The operating expenses are 80% of revenues.
- The capital maintenance expenditures will be 25% higher than depreciation for the next 10 years, and revenue growth will be 3% a year for that period.
- Wyndham has a practice of allocation corporate expenses to projects based upon revenues, with allocated expenses amounting to 5% of the project's revenues. Approximately 75% of the allocated expense is fixed (will be there even if project is not taken).
- The acquisition price is $350 million and an additional $50 million (over and above normal capital expenditures) will have to be spent in the year after the acquisition in upgrading the hotels.

Let's get the hurdle rate right

Why do the analysis in US $? How would the cost of capital be different if the analysis were done in Euros? In nominal $R?

Risk free rate	2.15%	Risk free rate in US $
Beta	1.59	Levered beta for lodging business
	ERP	*Proportion of revenues for Zoro*
Spain	8.80%	40.00%
France & Germany	5.80%	30.00%
Brazil	8.43%	20.00%
Argentina	14.80%	10.00%
ERP for project	8.43%	Weighted average ERP based on exposure
Cost of equity	15.55%	
After-tax cost of debt	2.36%	Cost of debt for Wyndham
Debt ratio	27.42%	Debt ratio for lodging business
Cost of capital	11.93%	Cost of capital in US $

Earnings & Cash flows on the project

Cash flow notes

1. Depreciation is added back since it is a non-cash expense.
2. Capital expenditures are subtracted out, since they are cash outflows.
3. Increases in working capital (inventory, accounts receivable) reduce cash flows

	0	1	2	3	4	5	6	7	8	9	10	TY
Revenues		$284,700	$293,241	$302,038	$311,099	$320,432	$330,045	$339,947	$350,145	$360,649	$371,469	$378,898
Operating expenses		$227,760	$234,593	$241,631	$248,880	$256,346	$264,036	$271,957	$280,116	$288,520	$297,175	$303,119
Depreciation		$12,000	$12,360	$12,731	$13,113	$13,506	$13,911	$14,329	$14,758	$15,201	$15,657	$15,970.42
Allocated Corporate Expenses		$14,235	$14,662	$15,102	$15,555	$16,022	$16,502	$16,997	$17,507	$18,032	$18,573	
Operating income		$44,940	$46,288	$47,677	$49,107	$50,580	$52,098	$53,661	$55,271	$56,929	$58,637	$59,809
Taxes		$15,280	$15,738	$16,210	$16,696	$17,197	$17,713	$18,245	$18,792	$19,356	$19,936	$20,335
After-tax Operating income		$29,660	$30,550	$31,467	$32,411	$33,383	$34,385	$35,416	$36,479	$37,573	$38,700	$39,474
+ Fixed allocated corporate		$7,046	$7,258	$7,475	$7,700	$7,931	$8,169	$8,414	$8,666	$8,926	$9,194	
+ Depreciation		$12,000	$12,360	$12,731	$13,113	$13,506	$13,911	$14,329	$14,758	$15,201	$15,657	$15,970
- Capital Expenditure	$350,000	$65,000	$15,450	$15,914	$16,391	$16,883	$17,389	$17,911	$18,448	$19,002	$19,572	$21,845
- Change in Working Capital		$570	$854	$880	$906	$933	$961	$990	$1,020	$1,050	$1,082	$743
AT Cash flow	-$350,000	-$23,910	$26,606	$27,404	$28,226	$29,073	$29,945	$30,844	$31,769	$32,722	$33,704	$32,856
Terminal value											$330,835	
PV @ 11.93%	-$350,000	-$21,361	$21,236	$19,542	$17,982	$16,548	$15,227	$14,012	$12,894	$11,865	$118,093	
NPV	-$123,961											
IRR for project	6.10%											

Incremental cash flow note

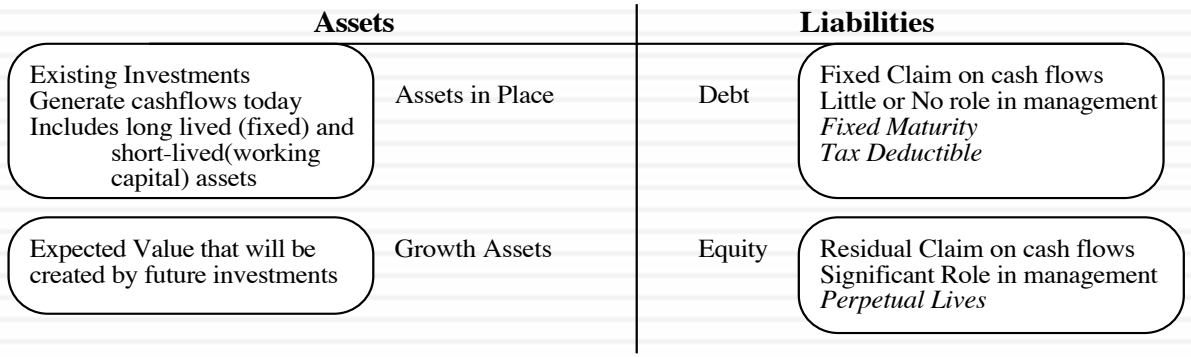
1. The portion of allocated G&A that is fixed (75%) is added back, since it is not incremental.
2. Any expenses incurred prior to the investment are sunk and are not considered.

You really, really, really want to get this deal done. Here are some "arguments"

- Assume that this investment will give you an entrée into the vacation ownership business in Latin America. Can you use that rationale for making the acquisition?
  - Yes
  - No
- Now assume that you believe that you can run these hotels much better than the existing management can. How might this change (or not change) your decision?

A Tangent: From New to Existing Investments: ROC for the entire firm

How "good" are the existing investments of the firm?



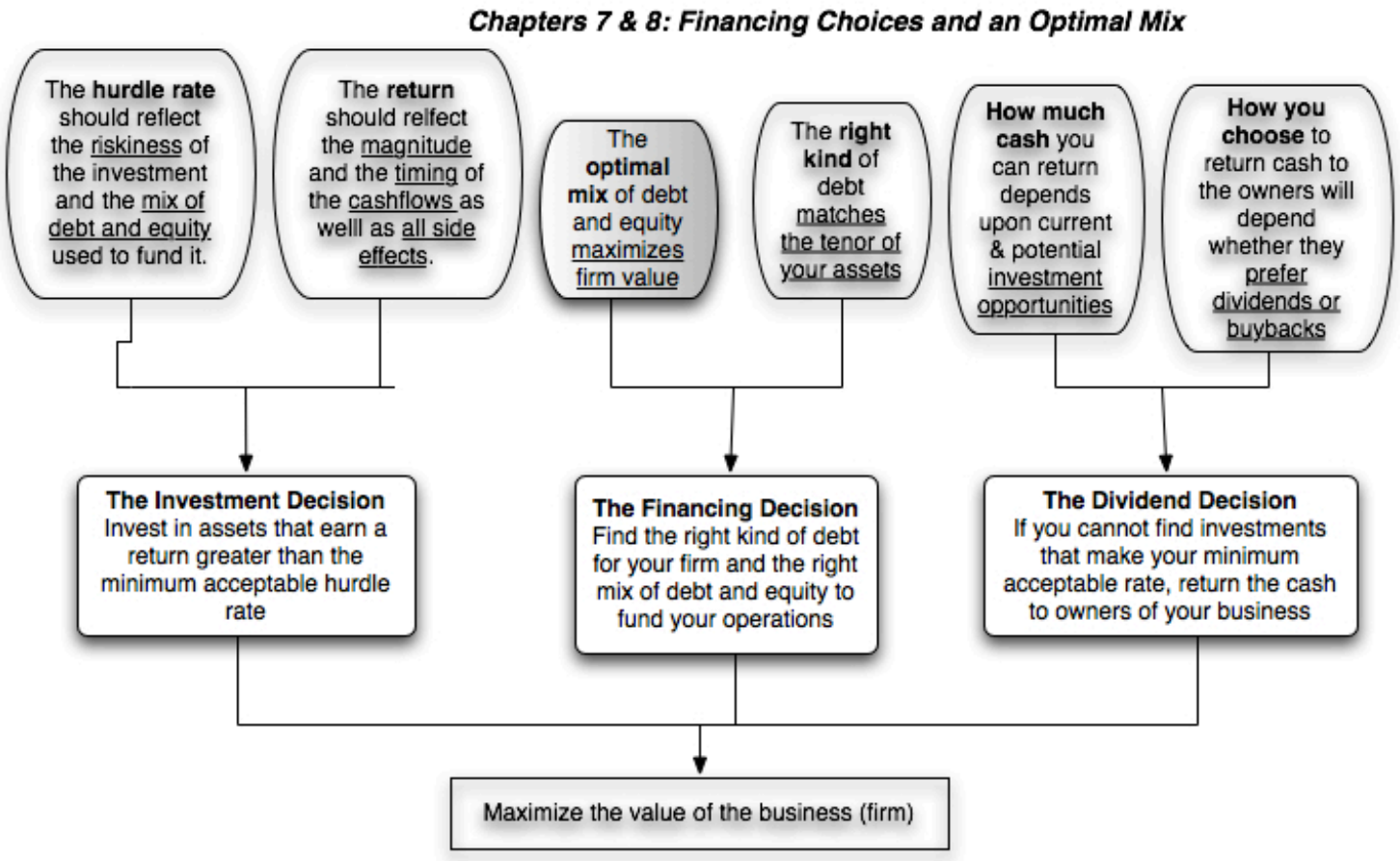
Wyndham's divisional returns

Business	*EBIT*	*EBIT (1-t)*	*Segment Assets*	*Allocated Capital*	*ROIC*	*Cost of capital*	*Return spread*
Lodging	$225.00	$148.16	$1,757.00	$1,188.19	12.47%	9.34%	3.13%
Vacation rental	$248.00	$163.31	$2,703.00	$1,827.93	8.93%	8.81%	0.12%
Vacation ownership	$511.00	$336.49	$4,853.00	$3,281.88	10.25%	5.91%	4.34%
Corporate & Other	-$114.00	-$75.07					
Wyndham	$870.00	$572.90	$9,313.00	$6,298.00	9.10%	7.09%	2.01%

A comparison to the peer group

Company	*EBIT (1-t)*	*Invested Capital*	*Return on invested capital*
Ryman	-$17.40	$1,880.00	-0.93%
Orient Express	$23.40	$1,405.00	1.67%
Hyatt	$101.40	$5,269.00	1.92%
Marriott Vacations	$115.20	$1,735.00	6.64%
Wyndham	$573.33	$6,298.00	9.10%
Starwood	$549.00	$4,705.00	11.67%
Intercontinental	$368.40	$1,374.00	26.81%
Marriott	$594.60	$1,657.00	35.88%
Choice	$115.80	$191.00	60.63%

First Principles



Debt: Summarizing the trade off

Advantages of Debt	*Disadvantages of debt*
1. Tax Benefit: Interest expenses on debt are tax deductible but cash flows to equity are generally not. *Implication: The higher the marginal tax rate, the greater the benefits of debt.*	**1. Expected Bankruptcy Cost**: The expected cost of going bankrupt is a product of the probability of going bankrupt and the cost of going bankrupt. The latter includes both direct and indirect costs. The probability of going bankrupt will be higher in businesses with more volatile earnings and the cost of bankruptcy will also vary across businesses. *Implication:* *1. Firms with more stable earnings should borrow more, for any given level of earnings.* *2. Firms with lower bankruptcy costs should borrow more, for any given level of earnings.*
2. Added Discipline: Borrowing money may force managers to think about the consequences of the investment decisions a little more carefully and reduce bad investments. *Implication: As the separation between managers and stockholders increases, the benefits to using debt will go up.*	**2. Agency Costs**: Actions that benefit equity investors may hurt lenders. The greater the potential for this conflict of interest, the greater the cost borne by the borrower (as higher interest rates or more covenants). *Implication: Firms where lenders can monitor/ control how their money is being used should be able to borrow more than firms where this is difficult to do.*
	3. Loss of flexibility: Using up available debt capacity today will mean that you cannot draw on it in the future. This loss of flexibility can be disastrous if funds are needed and access to capital is shut off. *Implication:* 1. *Firms that can forecast future funding needs better should be able to borrow more.* 2. *Firms with better access to capital markets should be more willing to borrow more today.*

Debt Burden: A comparison

Company	*Debt*	*Market Cap*	*D/E ratio*	*Debt/Capital*	*Debt/EBITDA*
Marriott	$3,255.00	$12,491.00	26.06%	20.67%	2.85
Choice	$871.00	$2,396.00	36.35%	26.66%	4.33
Hyatt	$1,242.00	$6,489.00	19.14%	16.07%	2.37
Marriott Vacations	$686.00	$1,593.00	43.06%	30.10%	3.10
Ryman	$1,092.00	$1,923.00	56.79%	36.22%	10.71
Starwood	$1,747.00	$13,012.00	13.43%	11.84%	1.50
Orient Express	$606.00	$1,504.00	40.29%	28.72%	7.30
Intercontinental	$1,258.00	$7,554.00	16.65%	14.28%	1.78
Wyndham	$5,352.00	$8,061.00	66.39%	39.90%	5.04

Mechanics of Cost of Capital Estimation

1. Estimate the Cost of Equity at different levels of debt:

   Equity will become riskier -> Beta will increase -> Cost of Equity will increase.

   Estimation will use levered beta calculation

2. Estimate the Cost of Debt at different levels of debt:

   Default risk will go up and bond ratings will go down as debt goes up -> Cost of Debt will increase.

   To estimating bond ratings, we will use the interest coverage ratio (EBIT/Interest expense)

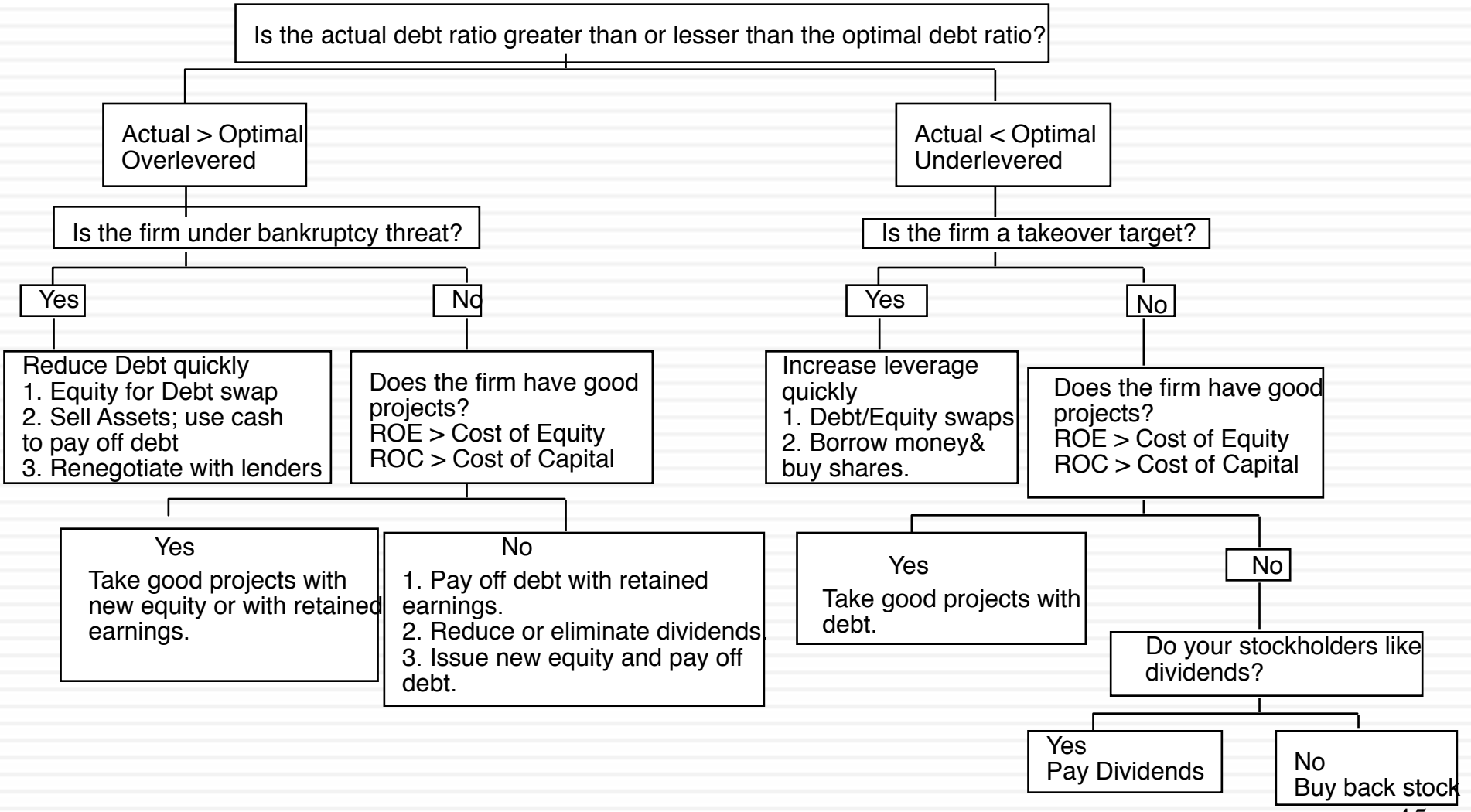
3. Estimate the Cost of Capital at different levels of debt

4. Calculate the effect on Firm Value and Stock Price.

Finding an optimal mix: Wyndham's cost of capital schedule…

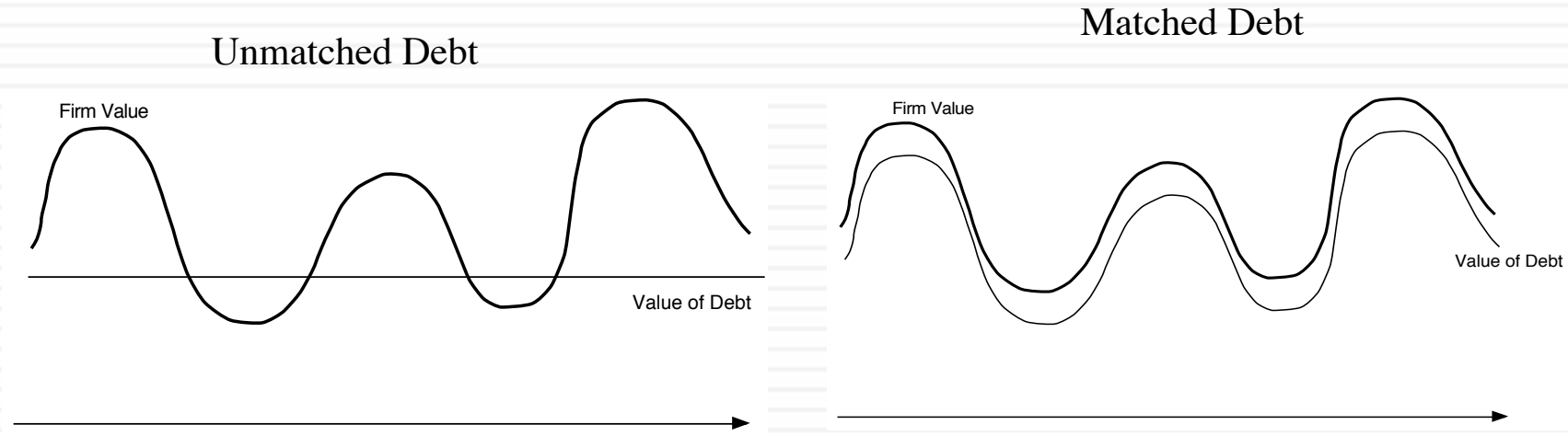
Debt Ratio	Beta	Cost of Equity	Bond Rating	Interest rate on debt	Tax Rate	Cost of Debt (after-tax)	WACC	Firm Value (G)
0%	0.93	7.88%	Aaa/AAA	2.55%	38.00%	1.58%	7.88%	$11,446
10%	0.99	8.27%	Aaa/AAA	2.55%	38.00%	1.58%	7.60%	$12,023
20%	1.07	8.77%	Aaa/AAA	2.55%	38.00%	1.58%	7.33%	$12,660
30%	1.17	9.40%	Aa2/AA	2.85%	38.00%	1.77%	7.11%	$13,219
40%	1.31	10.25%	A1/A+	3.00%	38.00%	1.86%	6.89%	$13,828
50%	1.50	11.43%	C2/C	10.90%	38.00%	6.76%	9.09%	$9,442
60%	1.79	13.20%	C2/C	10.90%	38.00%	6.76%	9.34%	$9,123
70%	2.37	16.78%	C2/C	10.90%	33.41%	7.26%	10.11%	$8,232
80%	3.63	24.52%	Ca2/CC	11.65%	27.35%	8.46%	11.68%	$6,883
90%	7.41	47.88%	Caa/CCC	12.65%	22.39%	9.82%	13.62%	$5,714

A Framework for Getting to the Optimal

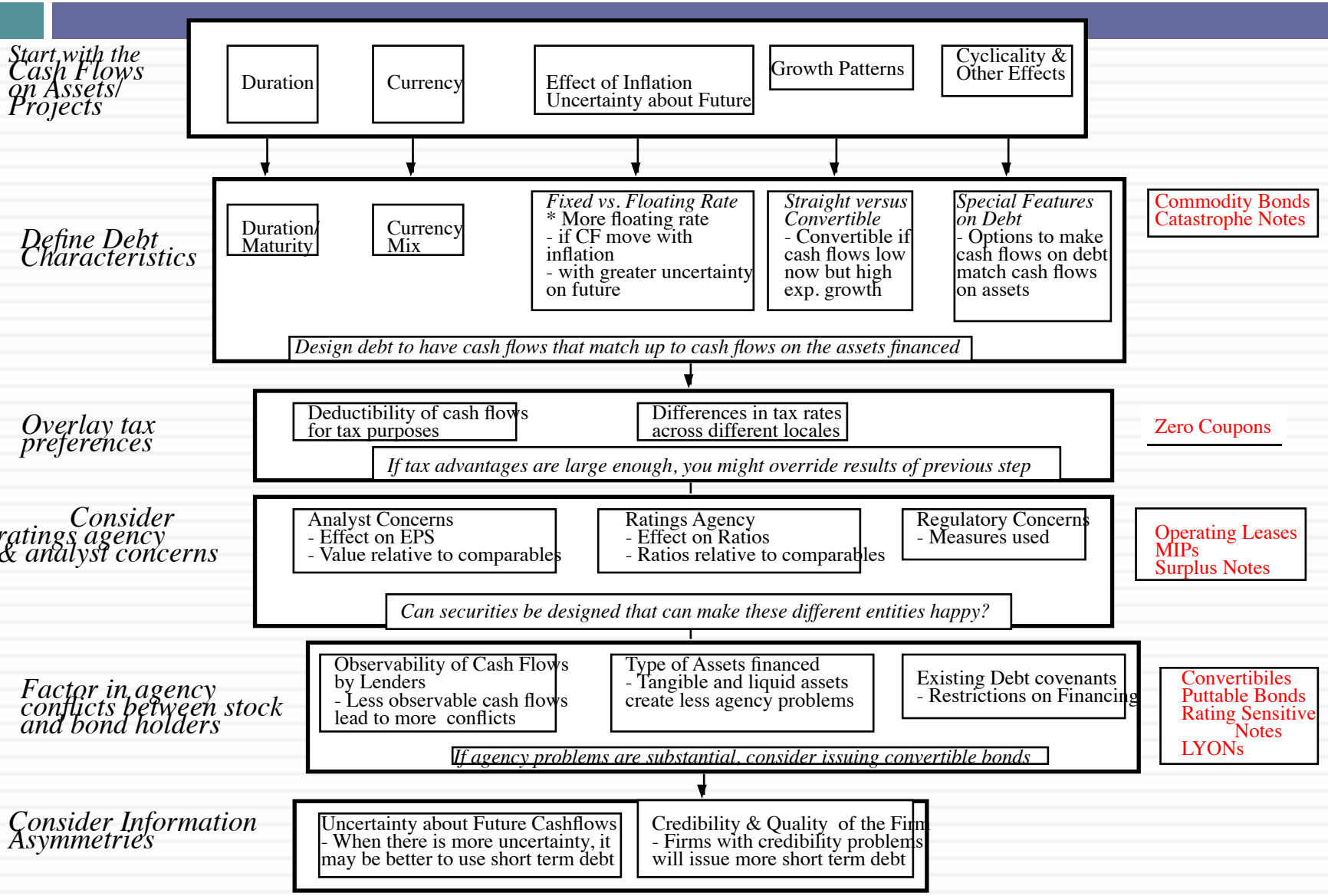


Designing Debt: The Fundamental Principle

- The objective in designing debt is to make the cash flows on debt match up as closely as possible with the cash flows that the firm makes on its assets.
- By doing so, we reduce our risk of default, increase debt capacity and increase firm value.



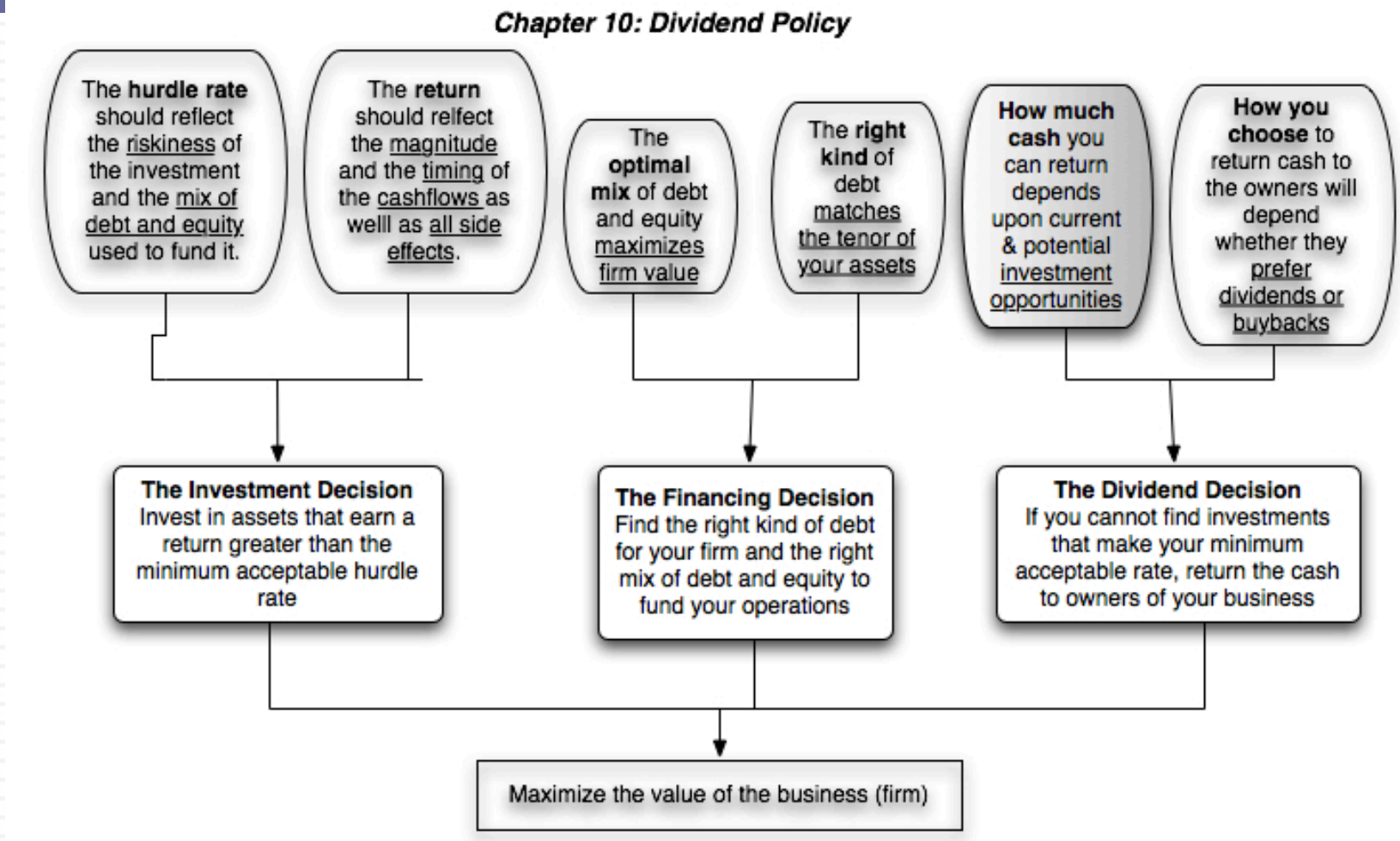
Designing Debt: Bringing it all together



Designing Wyndham's Debt

Business	Lodging	Vacation Rentals	Vacation Ownership
Duration			
Currency			
Pricing Power			
Other			
The perfect debt			

First Principles



Assessing Dividend Policy

- Step 1: How much could the company have paid out during the period under question?
- Step 2: How much did the the company actually pay out during the period in question?
- Step 3: How much do I trust the management of this company with excess cash?
  - How well did they make investments during the period in question?
  - How well has my stock performed during the period in question?

How much has the company returned to stockholders?

- As firms increasing use stock buybacks, we have to measure cash returned to stockholders as not only dividends but also buybacks.
- For instance, for Wyndham, we obtain the following:

	2007	2008	2009	2010	2011	2012
Dividends	$14.00	$28.00	$29.00	$86.00	$99.00	$134.00
Buybacks	$526.00	$15.00	$0.00	$333.00	$893.00	$631.00
Total	$540.00	$43.00	$29.00	$419.00	$992.00	$765.00

A Measure of How Much a Company Could have Afforded to Pay out: FCFE

- The Free Cashflow to Equity (FCFE) is a measure of how much cash is left in the business after non-equity claimholders (debt and preferred stock) have been paid, and after any reinvestment needed to sustain the firm's assets and future growth.

  Net Income

  + Depreciation & Amortization

  = Cash flows from Operations to Equity Investors

  - Preferred Dividends

  - Capital Expenditures

  - Working Capital Needs

  - Principal Repayments

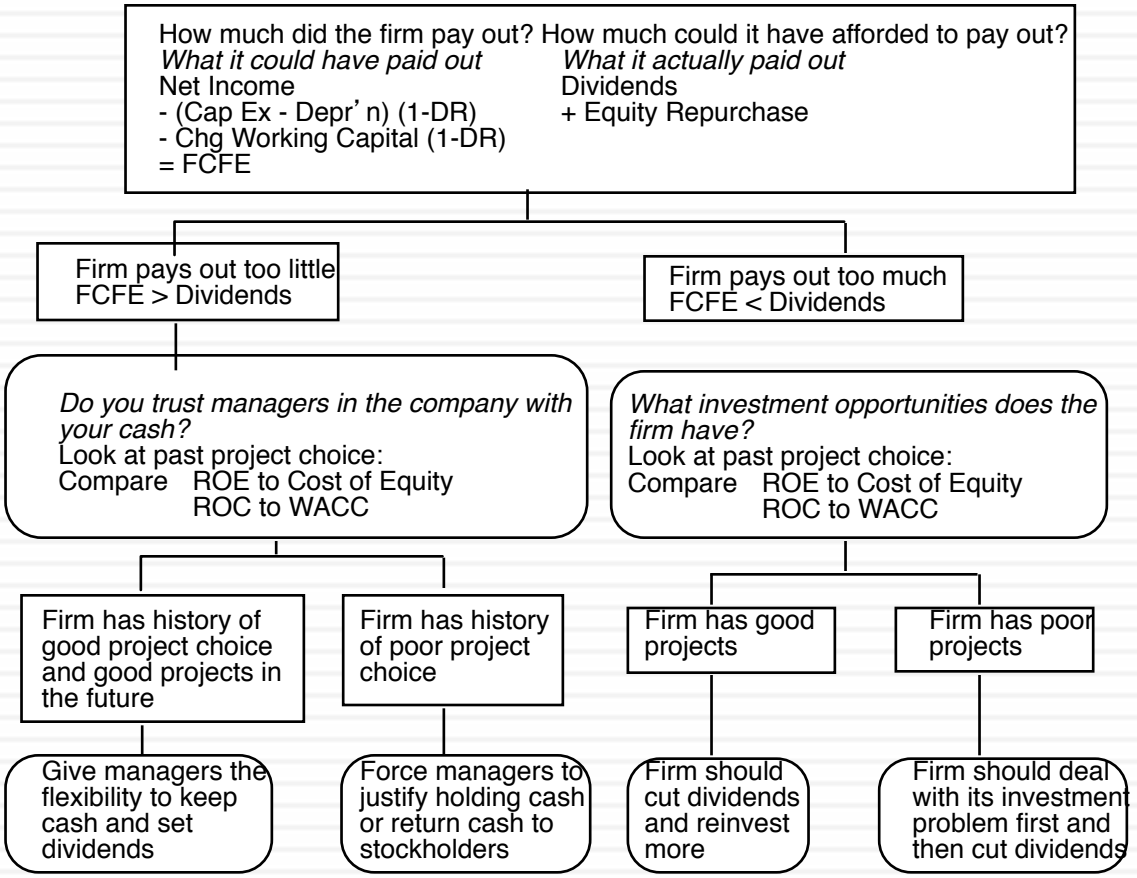
  + Proceeds from New Debt Issues

  = Free Cash flow to Equity

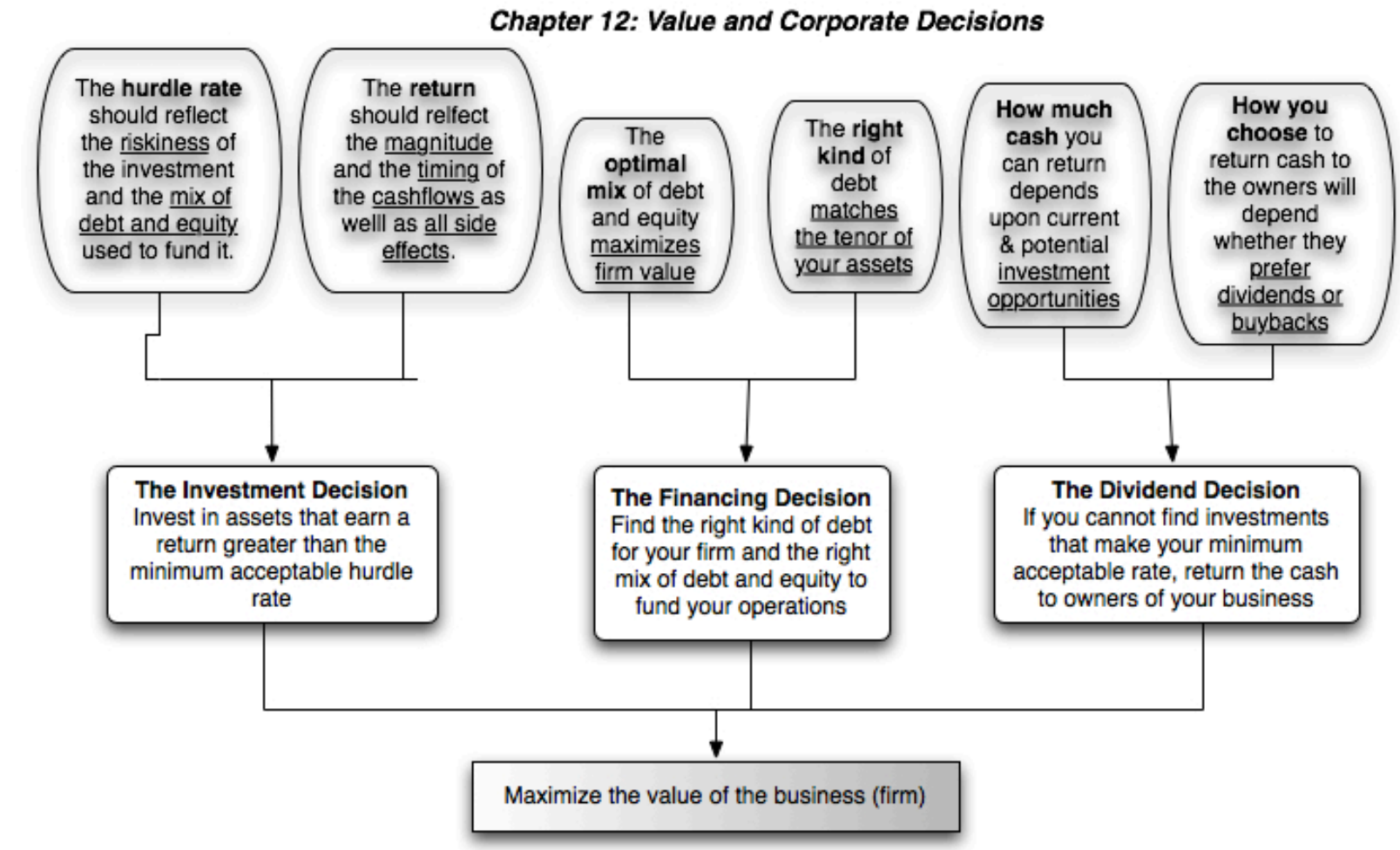
Wyndham's FCFE

	2007	2008	2009	2010	2011	2012
Net Income	$210.00	$136.00	$155.00	$156.00	$142.00	$195.00
- (Cap. Exp - Depr)	$28.00	$3.00	($43.00)	($6.00)	$61.00	$23.00
- ∂ Working Capital	$1,053.00	$1,086.00	$148.00	$357.00	$92.00	$206.00
+ Net Debt Issued	$707.00	$187.00	($272.00)	$222.00	$271.00	$547.00
= Free CF to Equity	($164.00)	($766.00)	($222.00)	$27.00	$260.00	$513.00

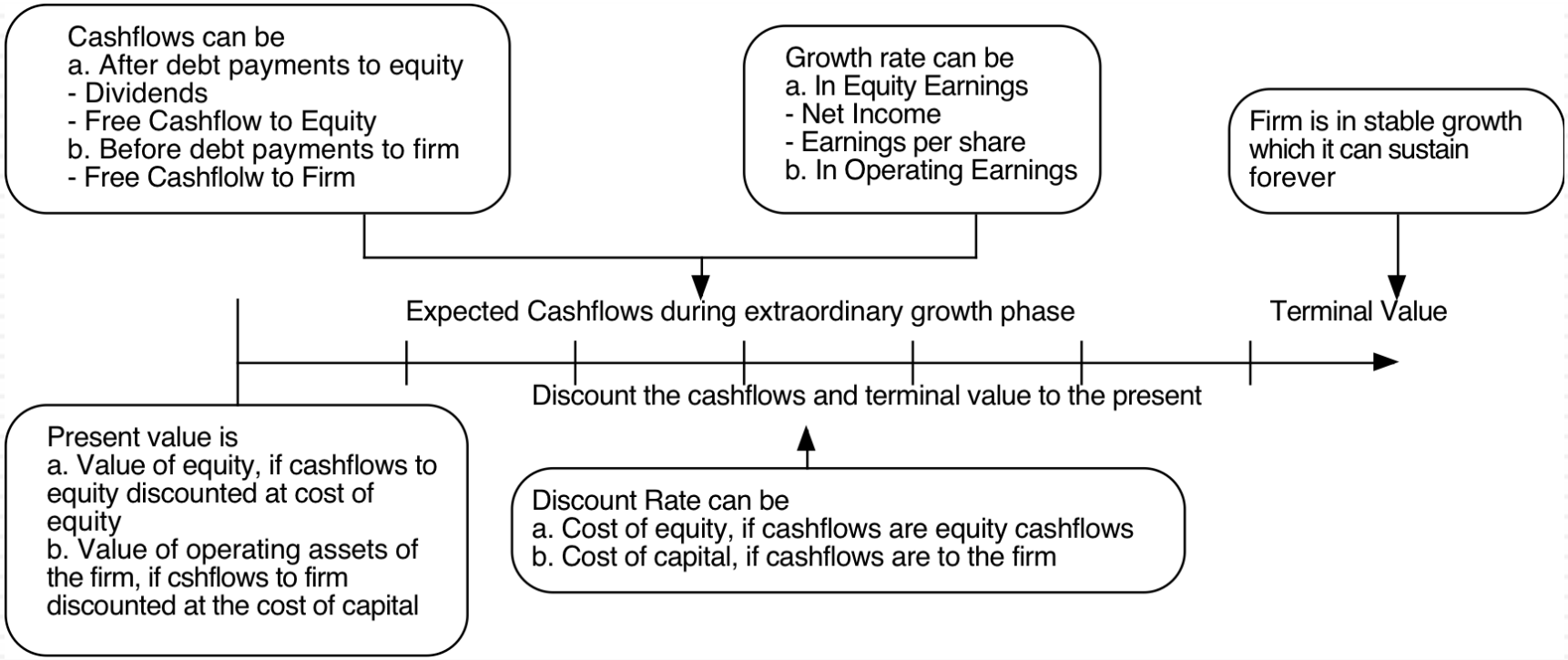
A Practical Framework for Analyzing Dividend Policy



First Principles



The Ingredients that determine value.



Wyndham: My valuation (June 2013)

	LTM	Industry average
Revenues	$4,631.00	
Operating Income	$ 905.39	
Operating margin	19.55%	15.55%
Sales/Capital	0.71	0.82

Revenue growth of 8.86% a year for 5 years, tapering down to 2.15% in year 10

Pre-tax operating margin stays at **19.55**%

Sales to capital ratio of **0.82** for incremental sales

Stable Growth
g = 2.15%; Beta = 1.00;
Cost of capital = 6.65%
ROC= **8**%;
Reinvestment Rate=2.15%/8% = 26.88%

Terminal Value$_{10}$= 811/(.0665-.0215) = 18,025

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Revenue growth rate	8.86%	8.86%	8.86%	8.86%	8.86%	7.52%	6.18%	4.83%	3.49%	2.15%
Revenues	$ 5,041	$ 5,488	$ 5,975	$ 6,504	$ 7,080	$ 7,613	$ 8,083	$ 8,474	$ 8,770	$ 8,958
EBIT (Operating income)	$ 986	$ 1,073	$ 1,168	$ 1,272	$ 1,384	$ 1,488	$ 1,580	$ 1,657	$ 1,715	$ 1,751
EBIT(1-t)	$ 649	$ 707	$ 769	$ 837	$ 912	$ 969	$ 1,016	$ 1,053	$ 1,076	$ 1,086
- Reinvestment	$ 501	$ 545	$ 593	$ 646	$ 703	$ 649	$ 574	$ 477	$ 361	$ 230
FCFF	$ 149	$ 162	$ 176	$ 192	$ 209	$ 319	$ 443	$ 576	$ 715	$ 856

Term yr	
EBIT (1-t)	1109
- Reinv	298
FCFF	811

Operating assets	11,564
+ Cash	217
- Debt	5,401
Value of equity	6,378
Value/share	$46.95

Cost of capital = 11.19% (.601) + 2.36% (.399) = 11.07%

Cost of capital decreases to 6.65% from years 6-10

Cost of Equity
10.23%

Cost of Debt
(2.15%+1.65%)(1-.38)
= 2.36%

Weights
E = 60.1% D = 39.9%

In June 2013, the stock was trading at $59.18/share.

Riskfree Rate:
Riskfree rate = 2.15%

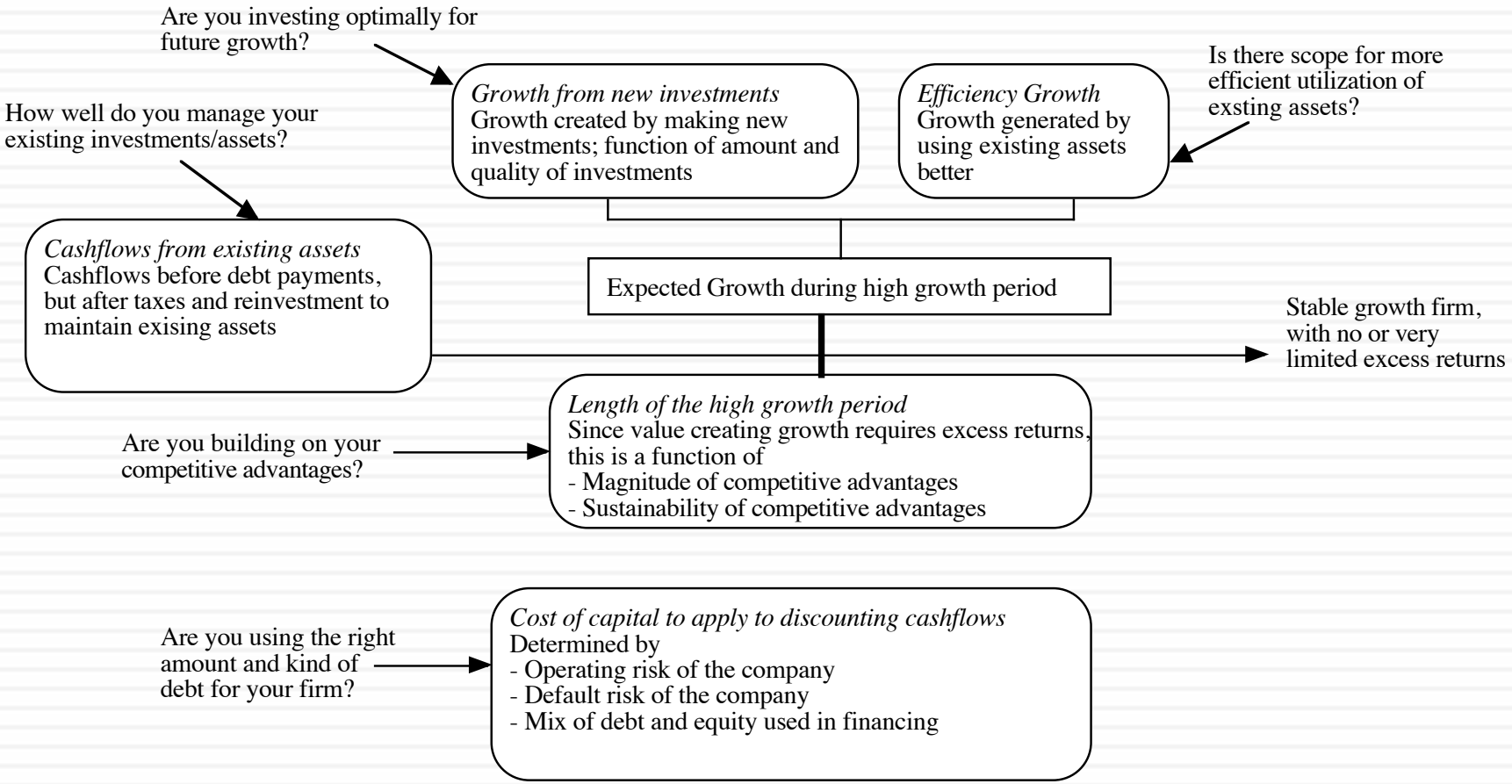
+ **Beta**
1.31

x **Risk Premium**
6.17%

Unlevered Beta for Sectors: 0.93

D/E=66.39%

Ways of changing value…



Most investors don't value companies. They price them.

Company	PE	PBV	EV/Sales	EV/EBIT	EV/EBITDA
Marriott	20.71	NA	1.25	15.67	13.57
Choice	20.66	NA	4.47	16.20	15.55
Hyatt	75.45	1.35	1.75	41.09	13.25
Marriott Vacations	63.72	1.36	1.31	11.25	9.77
Ryman	91.57	2.31	3.06	NA	29.12
Starwood	20.11	3.89	2.34	15.71	12.30
Orient Express	NA	1.71	3.67	52.08	24.47
Intercontinental	13.89	23.83	4.69	14.02	12.16
Wyndham	20.41	4.62	2.85	15.17	12.43

First Principles