Applied Corporate Finance: A big picture view

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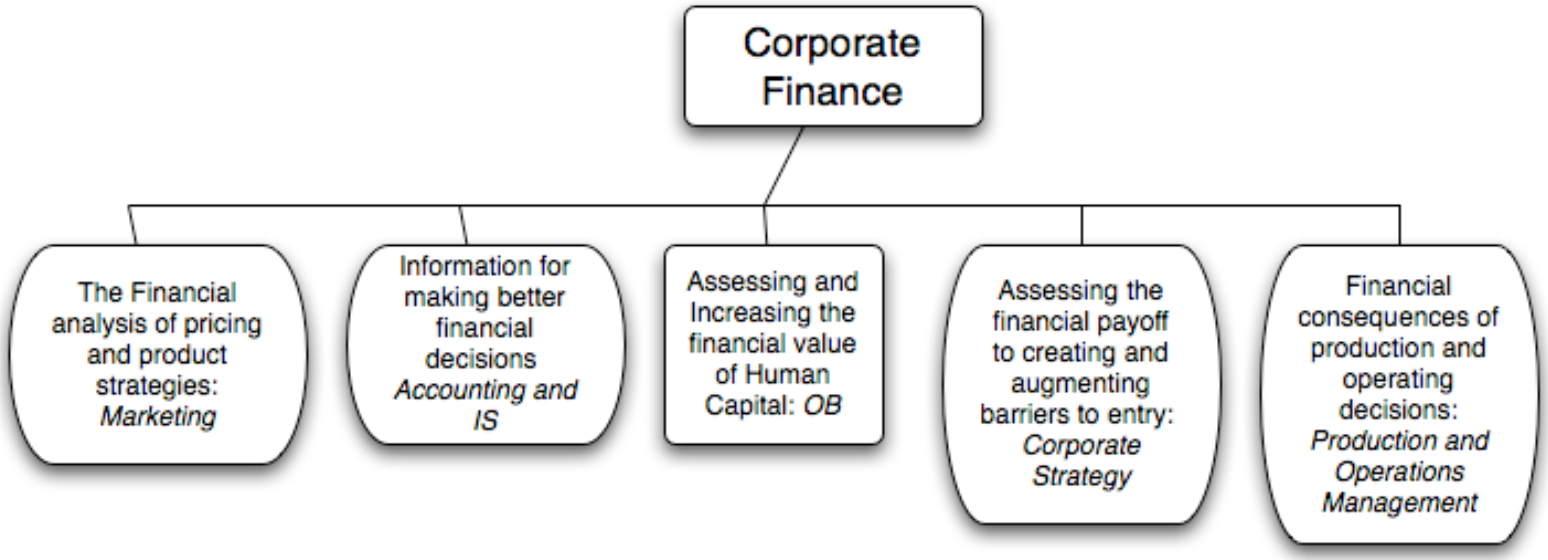
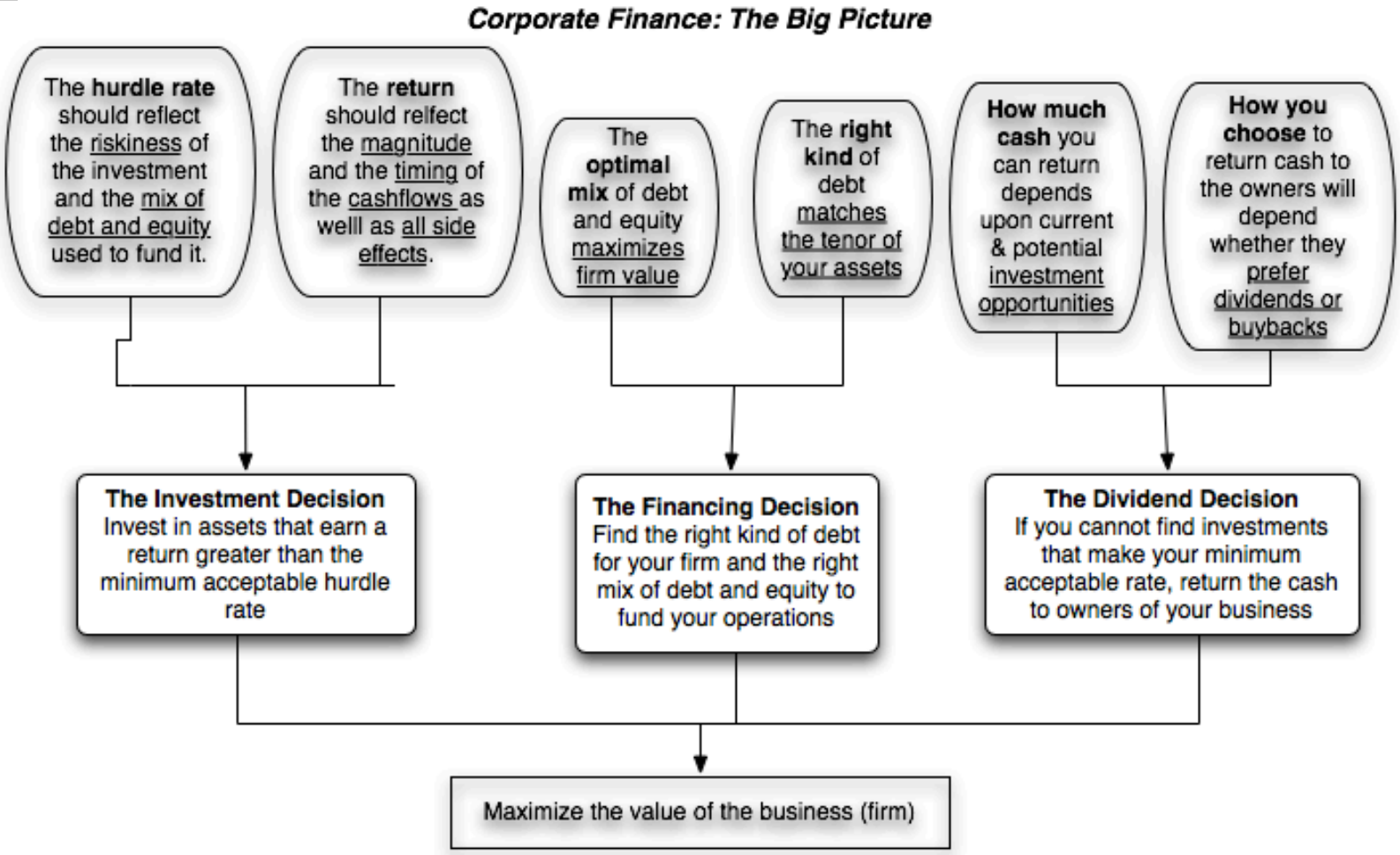
www.stern.nyu.edu/~adamodar/New_Home_Page/triumdesc.htm

What is corporate finance?

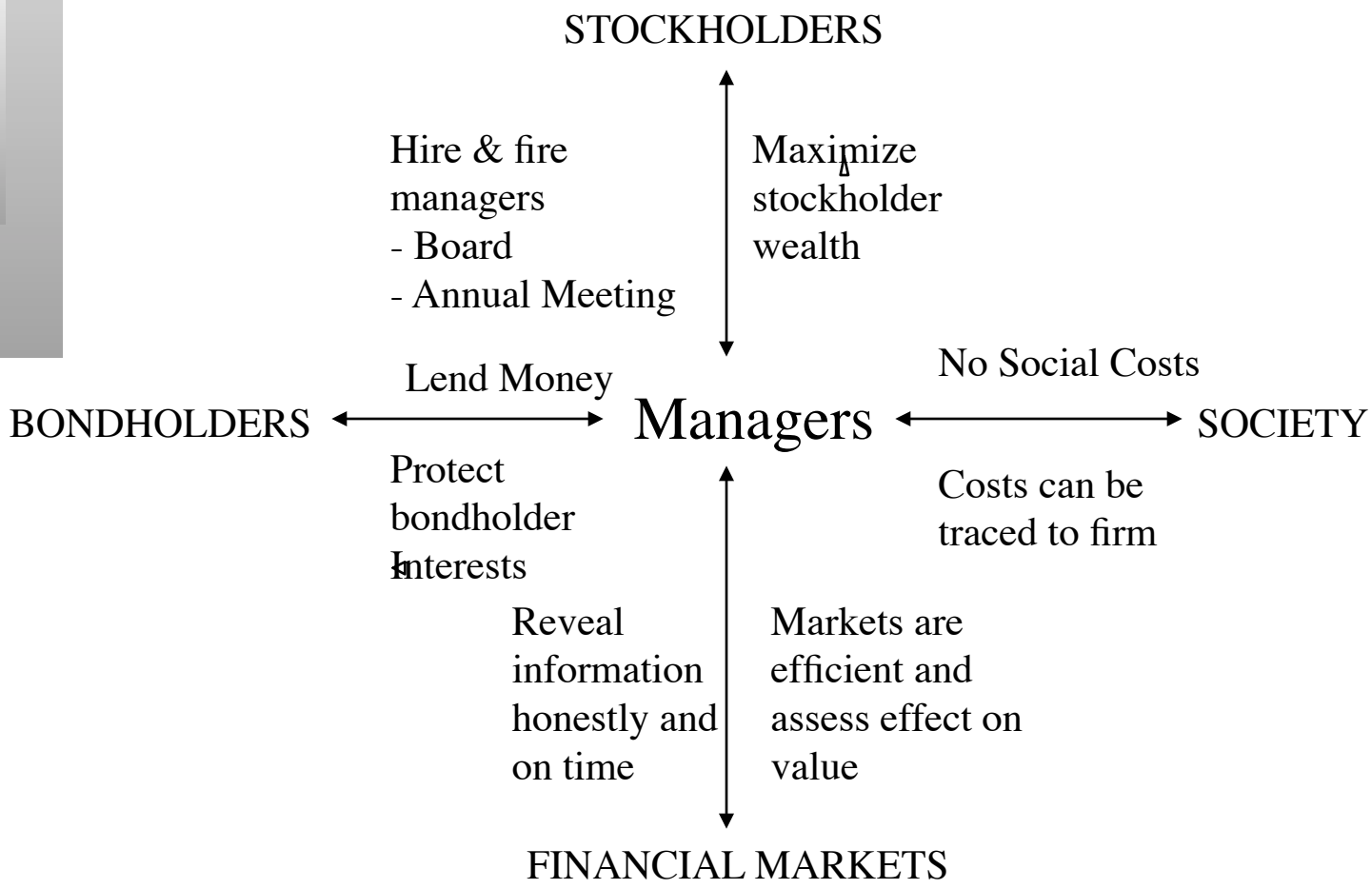
- Every decision that a business makes has financial implications, and any decision which affects the finances of a business is a corporate finance decision.
- Defined broadly, everything that a business does fits under the rubric of corporate finance.



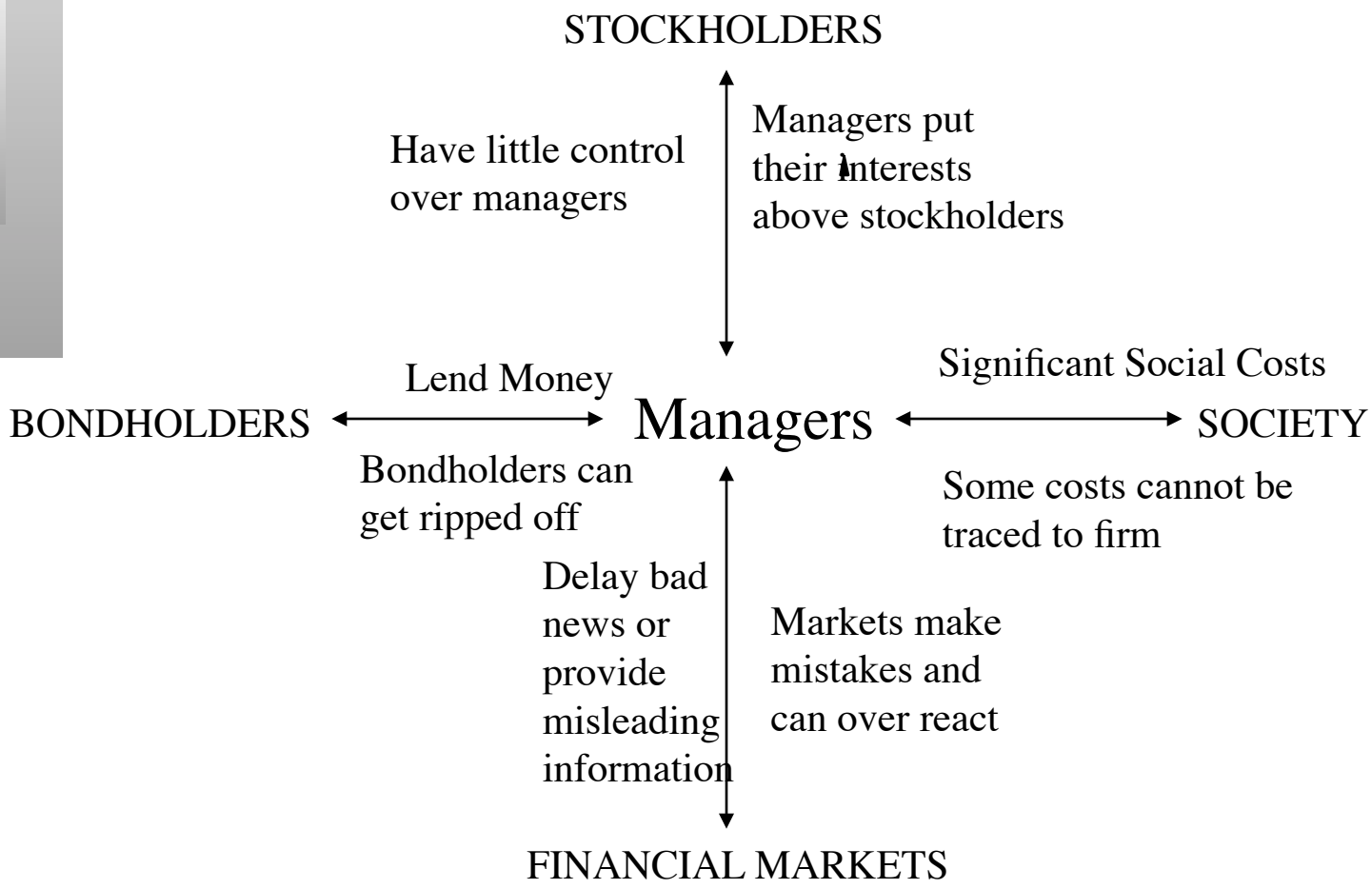
First Principles



The Classical Objective Function



What can go wrong?



Who's on Board? The Disney Experience - 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

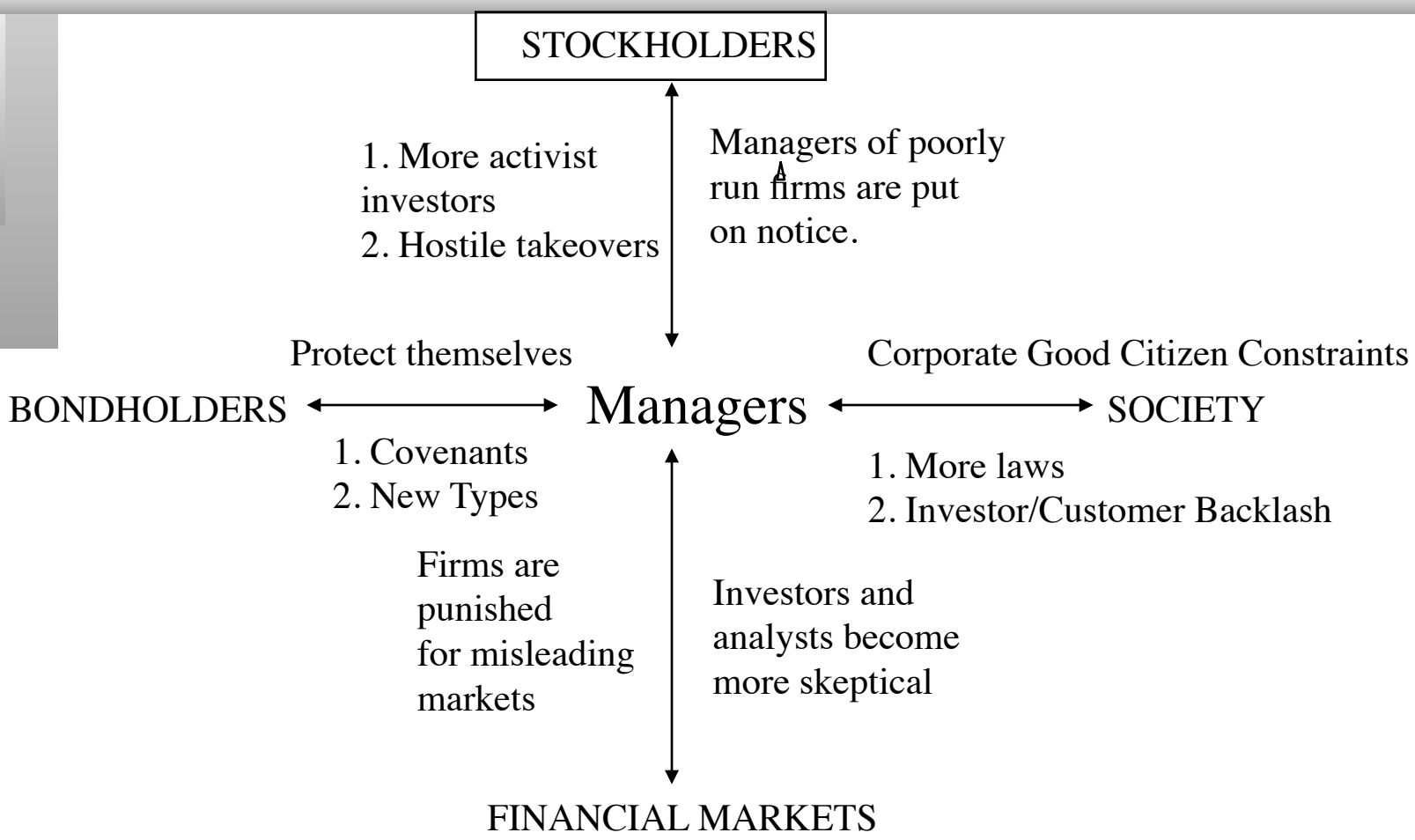
E. Cardon Walker 1
Former Chairman and Chief Executive Officer
The Walt Disney Company

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 Market Based Solution

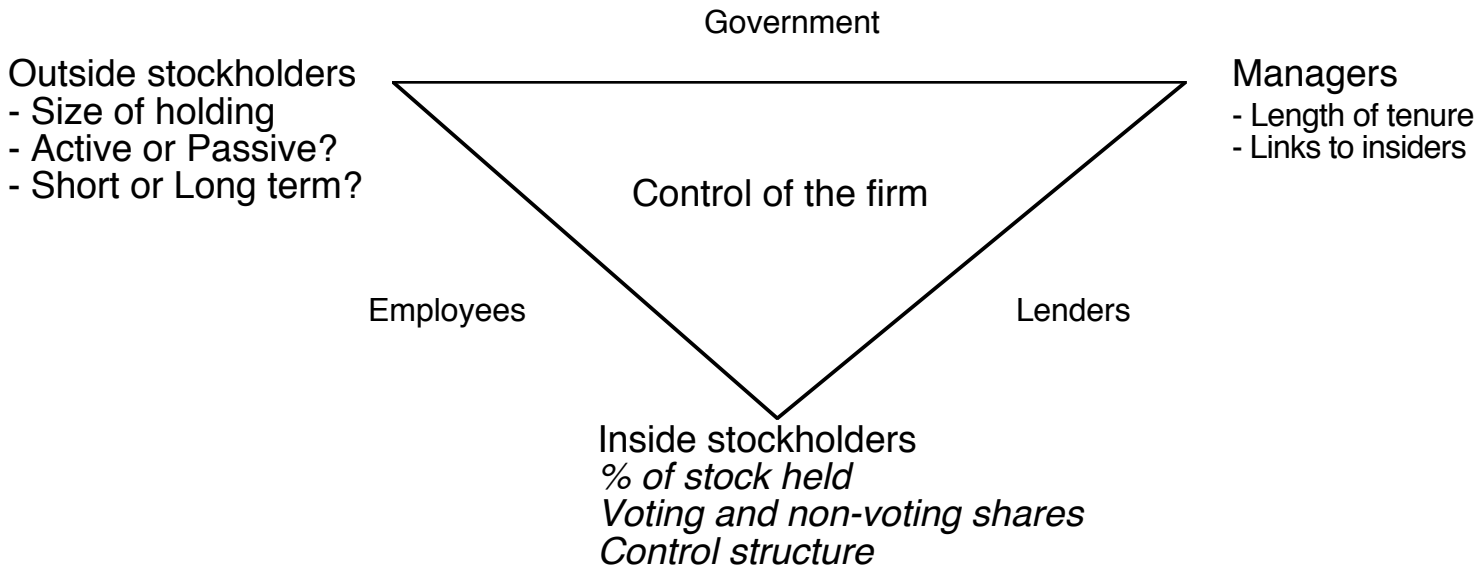


⌛Application Test: Who owns/runs your firm?

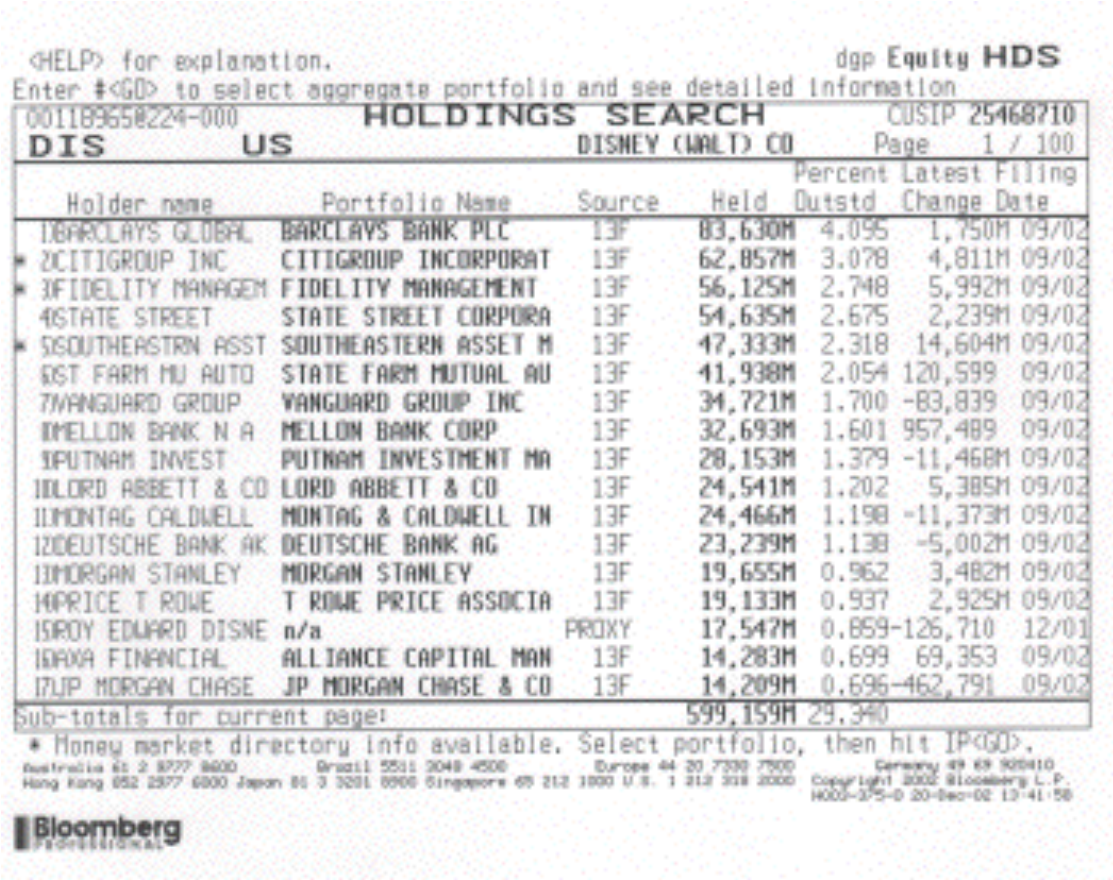
B HDS Page
PB Page 3-12

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?



Splintering of Stockholders
Disney's top stockholders in 2003



<HELP> for explanation. dgp Equity HDS
Enter #<GO> to select aggregate portfolio and see detailed information

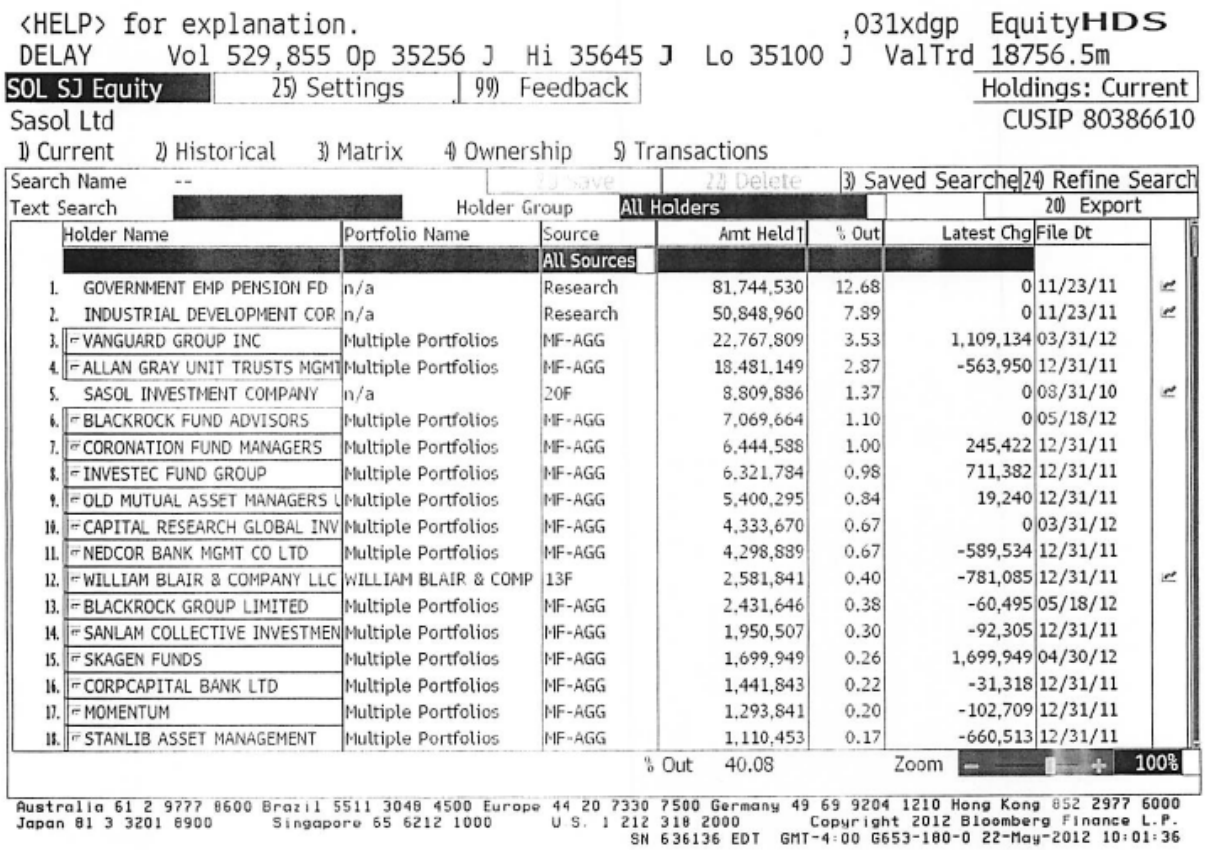
00118965@224-000 HOLDINGS SEARCH CUSIP 25468710
DIS US DISNEY (WALT) CO Page 1 / 100

	Holder name	Portfolio Name	Source	Held	Percent Outstd	Latest Change	Filing Date
1)	BARCLAYS GLOBAL	BARCLAYS BANK PLC	13F	83,630M	4.095	1,750M	09/02
* 2)	CITIGROUP INC	CITIGROUP INCORPORAT	13F	62,857M	3.078	4,811M	09/02
* 3)	FIDELITY MANAGEM	FIDELITY MANAGEMENT	13F	56,125M	2.748	5,992M	09/02
4)	STATE STREET	STATE STREET CORPORA	13F	54,635M	2.675	2,239M	09/02
* 5)	SOUTHEASTRN ASST	SOUTHEASTERN ASSET M	13F	47,333M	2.318	14,604M	09/02
6)	ST FARM MU AUTO	STATE FARM MUTUAL AU	13F	41,938M	2.054	120,599	09/02
7)	VANGUARD GROUP	VANGUARD GROUP INC	13F	34,721M	1.700	-83,839	09/02
8)	MELLON BANK N A	MELLON BANK CORP	13F	32,693M	1.601	957,489	09/02
9)	PUTNAM INVEST	PUTNAM INVESTMENT MA	13F	28,153M	1.379	-11,468M	09/02
10)	LORD ABBETT & CO	LORD ABBETT & CO	13F	24,541M	1.202	5,385M	09/02
11)	MONTAG CALDWELL	MONTAG & CALDWELL IN	13F	24,466M	1.198	-11,373M	09/02
12)	DEUTSCHE BANK AK	DEUTSCHE BANK AG	13F	23,239M	1.138	-5,002M	09/02
13)	MORGAN STANLEY	MORGAN STANLEY	13F	19,655M	0.962	3,482M	09/02
14)	PRICE T ROWE	T ROWE PRICE ASSOCIA	13F	19,133M	0.937	2,925M	09/02
15)	ROY EDWARD DISNE	n/a	PROXY	17,547M	0.859	-126,710	12/01
16)	AXA FINANCIAL	ALLIANCE CAPITAL MAN	13F	14,283M	0.699	69,353	09/02
17)	JP MORGAN CHASE	JP MORGAN CHASE & CO	13F	14,209M	0.696	-462,791	09/02
Sub-totals for current page:				599,159M	29.340		

* Money market directory info available. Select portfolio, then hit IP<GO>.

Bloomberg PROFESSIONAL

SASOL's stockholders..



<HELP> for explanation. ,031xdgp EquityHDS
DELAY Vol 529,855 Op 35256 J Hi 35645 J Lo 35100 J ValTrd 18756.5m
SOL SJ Equity | 25) Settings | 99) Feedback | Holdings: Current
Sasol Ltd CUSIP 80386610
1) Current 2) Historical 3) Matrix 4) Ownership 5) Transactions
Search Name -- 22) Save 22) Delete 3) Saved Searche 24) Refine Search
Text Search Holder Group All Holders 20) Export

	Holder Name	Portfolio Name	Source	Amt Held	% Out	Latest Chg	File Dt
			All Sources				
1.	GOVERNMENT EMP PENSION FD	n/a	Research	81,744,530	12.68	0	11/23/11
2.	INDUSTRIAL DEVELOPMENT COR	n/a	Research	50,848,960	7.89	0	11/23/11
3.	VANGUARD GROUP INC	Multiple Portfolios	MF-AGG	22,767,809	3.53	1,109,134	03/31/12
4.	ALLAN GRAY UNIT TRUSTS MGMT	Multiple Portfolios	MF-AGG	18,481,149	2.87	-563,950	12/31/11
5.	SASOL INVESTMENT COMPANY	n/a	20F	8,809,886	1.37	0	08/31/10
6.	BLACKROCK FUND ADVISORS	Multiple Portfolios	MF-AGG	7,069,664	1.10	0	05/18/12
7.	CORONATION FUND MANAGERS	Multiple Portfolios	MF-AGG	6,444,588	1.00	245,422	12/31/11
8.	INVESTEC FUND GROUP	Multiple Portfolios	MF-AGG	6,321,784	0.98	711,382	12/31/11
9.	OLD MUTUAL ASSET MANAGERS L	Multiple Portfolios	MF-AGG	5,400,295	0.84	19,240	12/31/11
10.	CAPITAL RESEARCH GLOBAL INV	Multiple Portfolios	MF-AGG	4,333,670	0.67	0	03/31/12
11.	NEDCOR BANK MGMT CO LTD	Multiple Portfolios	MF-AGG	4,298,889	0.67	-589,534	12/31/11
12.	WILLIAM BLAIR & COMPANY LLC	WILLIAM BLAIR & COMP	13F	2,581,841	0.40	-781,085	12/31/11
13.	BLACKROCK GROUP LIMITED	Multiple Portfolios	MF-AGG	2,431,646	0.38	-60,495	05/18/12
14.	SANLAM COLLECTIVE INVESTMEN	Multiple Portfolios	MF-AGG	1,950,507	0.30	-92,305	12/31/11
15.	SKAGEN FUNDS	Multiple Portfolios	MF-AGG	1,699,949	0.26	1,699,949	04/30/12
16.	CORPCAPITAL BANK LTD	Multiple Portfolios	MF-AGG	1,441,843	0.22	-31,318	12/31/11
17.	MOMENTUM	Multiple Portfolios	MF-AGG	1,293,841	0.20	-102,709	12/31/11
18.	STANLIB ASSET MANAGEMENT	Multiple Portfolios	MF-AGG	1,110,453	0.17	-660,513	12/31/11

% Out 40.08 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 2012 Bloomberg Finance L.P.
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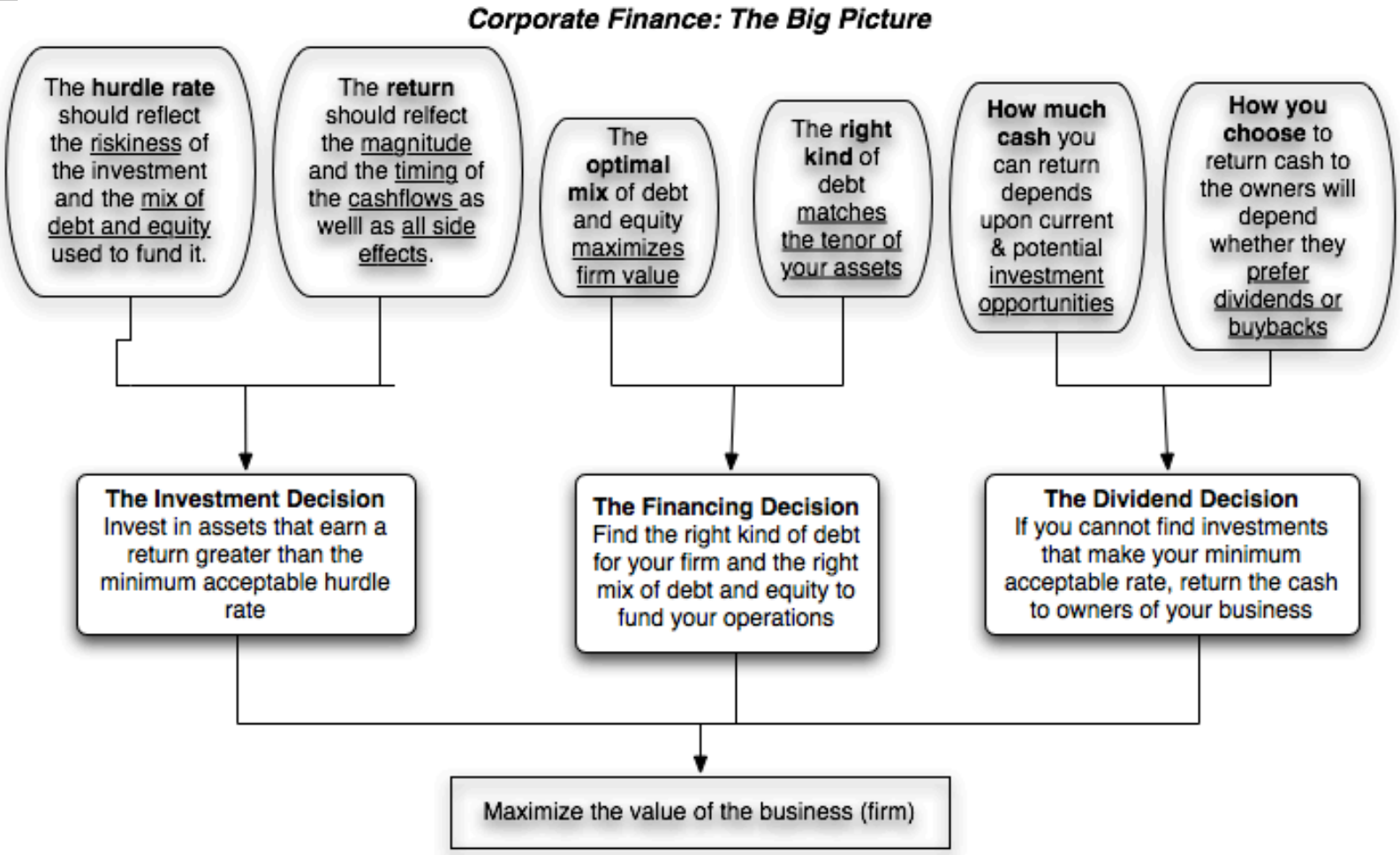
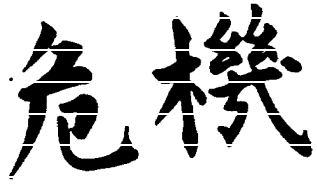
First Principles



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

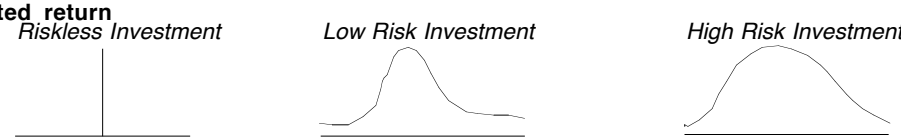


- The first symbol is the symbol for "danger", while the second is the symbol for "opportunity", making risk a mix of danger and opportunity. You cannot have one, without the other.

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:

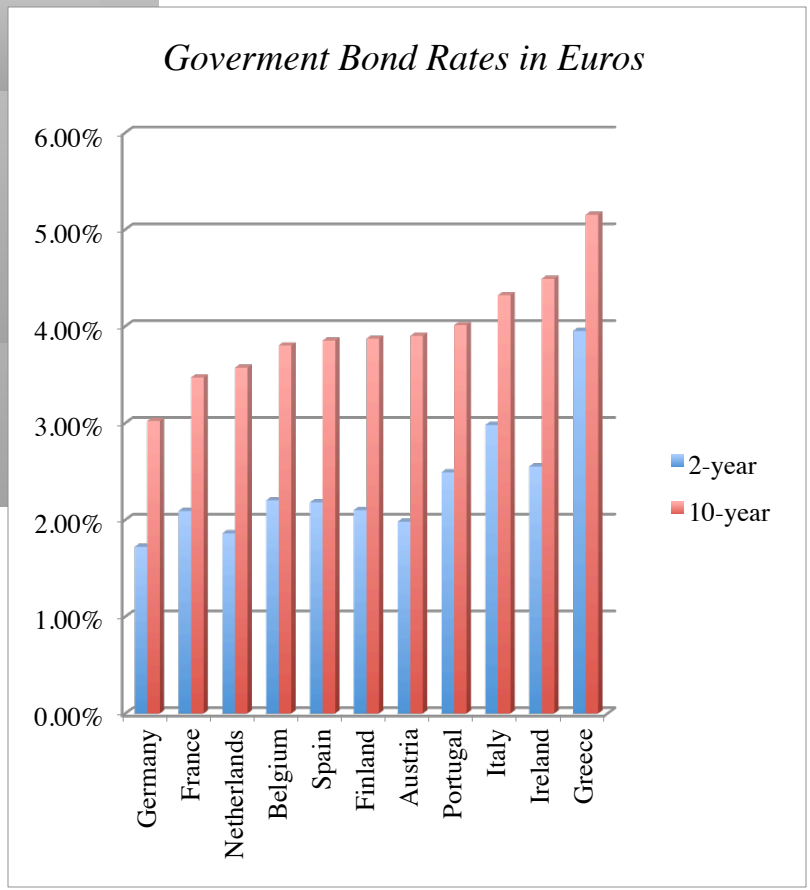
  (a) The current risk-free rate

  (b) The expected market risk premium (the premium expected for investing in risky assets (market portfolio) over the riskless asset)

  (c) The beta of the asset being analyzed.

What is the riskfree rate?

When we use the T.Bond rate as a riskfree rate, what are we assuming about the default risk in the US Treasury? Is that reasonable? What if it is not?



- The South African government had 10-year bonds outstanding, with a yield to maturity of about 8.2% on May 15, 2012. At the time, the South African government had a local currency sovereign rating of A3. The typical default spread for A3 rated country bonds in May 2012 was 1.15%.
- The riskfree rate in South African Zar is

a) The yield to maturity on the 10-year bond (8.2%)

b) The yield to maturity on the 10-year bond + Default spread (7.05%)

c) The yield to maturity on the 10-year bond – Default spread (9.35%)

What is the equity risk premium?

	Arithmetic Average		Geometric Average	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2011	7.55%	5.79%	5.62%	4.10%
	2.22%	2.36%		
1962-2011	5.38%	3.36%	4.02%	2.35%
	2.39%	2.68%		
2002-2011	3.12%	-1.92%	1.08%	-3.61%
	6.46%	8.94%		

← *Historical premium*

In the trailing 12 months, the cash returned to stockholders was 74.17. Using the average cash yield of 4.71% for 2002-2011 the cash returned would have been 59.29.

Analysts expect earnings to grow 9.6% in 2012, 11.9% in 2013, 8.2% in 2014, 4.5% in 2015 and 2% therafter, resulting in a compounded annual growth rate of 7.18% over the next 5 years. We will assume that dividends & buybacks will grow 7.18% a year for the next 5 years.

After year 5, we will assume that earnings on the index will grow at 1.87%, the same rate as the entire economy (= riskfree rate).

63.54 | 68.11 | 73.00 | 78.24 | 83.86

$$1257.60 = \frac{63.54}{(1+r)} + \frac{68.11}{(1+r)^2} + \frac{73.00}{(1+r)^3} + \frac{78.24}{(1+r)^4} + \frac{83.86}{(1+r)^5} + \frac{83.86(1.0187)}{(r-.0187)(1+r)^5}$$

January 1, 2012
S&P 500 is at 1257.60
Adjusted Dividends & Buybacks for 2011 = 59.29

Expected Return on Stocks (1/1/12) = 7.91%
T.Bond rate on 1/1/12 = 1.87%
Equity Risk Premium = 7.91% - 1.87% = 6.04%

Data Sources:
Dividends and Buybacks last year: S&P
Expected growth rate: News stories, Yahoo! Finance, Bloomberg

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 May 2012, the local currency rating, from Moody's, for South Africa was A3. There are three ways in which this can be converted into a default spread:
  - If the country has US $ or Euro denominated bonds, you can compare the interest rate on the bond to the US treasury bond rate (if US $) or the German Bund rate (if it is Euro).
  - If the country a CDS spread, you can use the spread as a measure of sovereign risk. South Africa had a CDS spread of 1.82%.
  - You can use the typical spread for the rating, based upon other rated countries, to estimate a spread for the country. In May 2012, this would have yielded 1.15%.
- 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 7.15% for South Africa, if we use 6% 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 South Africa in May 2012
  - Standard Deviation in JSE = 21%
  - Standard Deviation in South African government Bond = 14%
  - Default spread on Bond = 1.15%
  - Country Risk Premium (CRP) for South Africa= 1.15% (21%/14%) = 1.73%
  - Total Risk Premium for South Africa= US risk premium (in '12) + CRP
    = 6% + 1.73% = 7.73%

Country Risk Premiums
January 2012

Canada	6.00%
United States of America	6.00%

Argentina	15.00%
Belize	15.00%
Bolivia	12.00%
Brazil	8.63%
Chile	7.05%
Colombia	9.00%
Costa Rica	9.00%
Ecuador	18.75%
El Salvador	10.13%
Guatemala	9.60%
Honduras	13.50%
Mexico	8.25%
Nicaragua	15.00%
Panama	9.00%
Paraguay	12.00%
Peru	9.00%
Uruguay	9.60%
Venezuela	12.00%

Austria [1]	6.00%
Belgium [1]	7.05%
Cyprus [1]	9.00%
Denmark	6.00%
Finland [1]	6.00%
France [1]	6.00%
Germany [1]	6.00%
Greece [1]	16.50%
Iceland	9.00%
Ireland [1]	9.60%
Italy [1]	7.50%
Malta [1]	7.50%
Netherlands [1]	6.00%
Norway	6.00%
Portugal [1]	10.13%
Spain [1]	7.28%
Sweden	6.00%
Switzerland	6.00%
United Kingdom	6.00%

Angola	10.88%
Botswana	7.50%
Egypt	13.50%
Mauritius	8.63%
Morocco	9.60%
Namibia	9.00%
South Africa	7.73%
Tunisia	9.00%

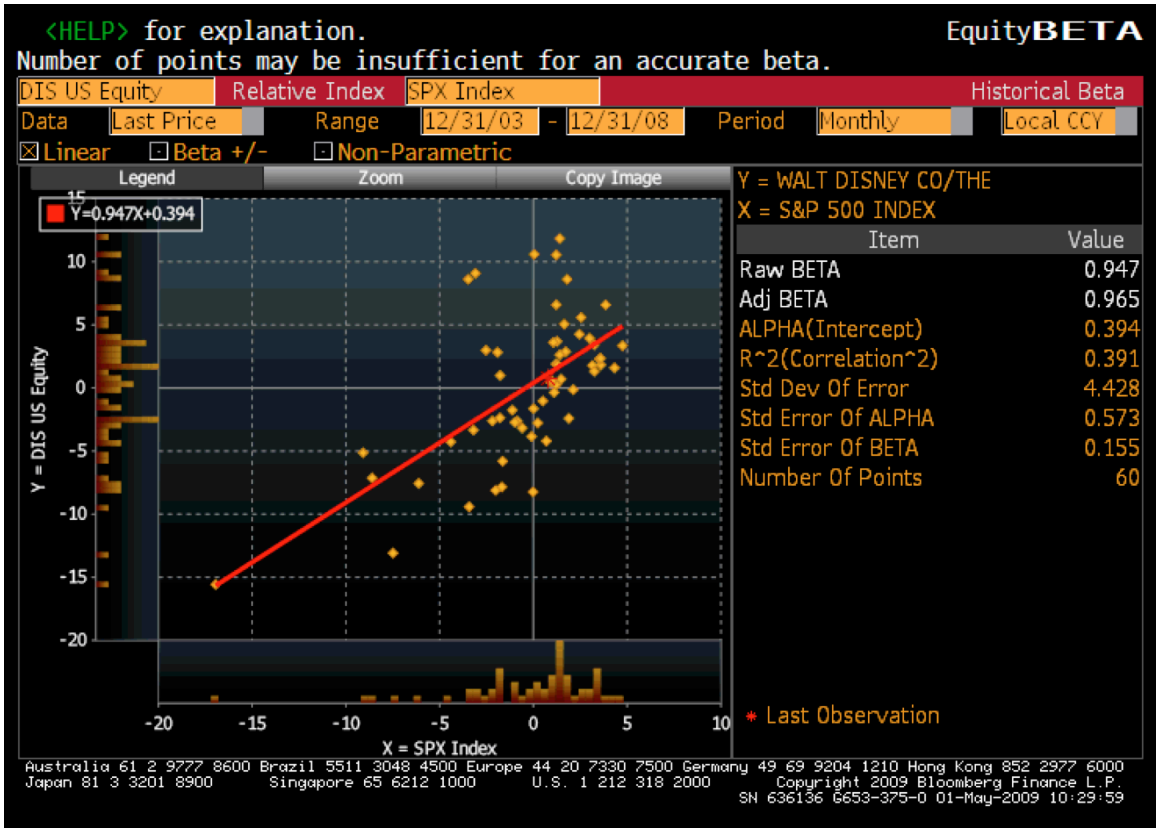
Albania	12.00%
Armenia	10.13%
Azerbaijan	9.60%
Belarus	15.00%
Bosnia and Herzegovina	13.50%
Bulgaria	8.63%
Croatia	9.00%
Czech Republic	7.28%
Estonia	7.28%
Georgia	10.88%
Hungary	9.60%
Kazakhstan	8.63%
Latvia	9.00%
Lithuania	8.25%
Moldova	15.00%
Montenegro	10.88%
Poland	7.50%
Romania	9.00%
Russia	8.25%
Slovakia	7.28%
Slovenia [1]	7.28%
Ukraine	13.50%

Bahrain	8.25%
Israel	7.28%
Jordan	10.13%
Kuwait	6.75%
Lebanon	12.00%
Oman	7.28%
Qatar	6.75%
Saudi Arabia	7.05%
Senegal	12.00%
United Arab Emirates	6.75%

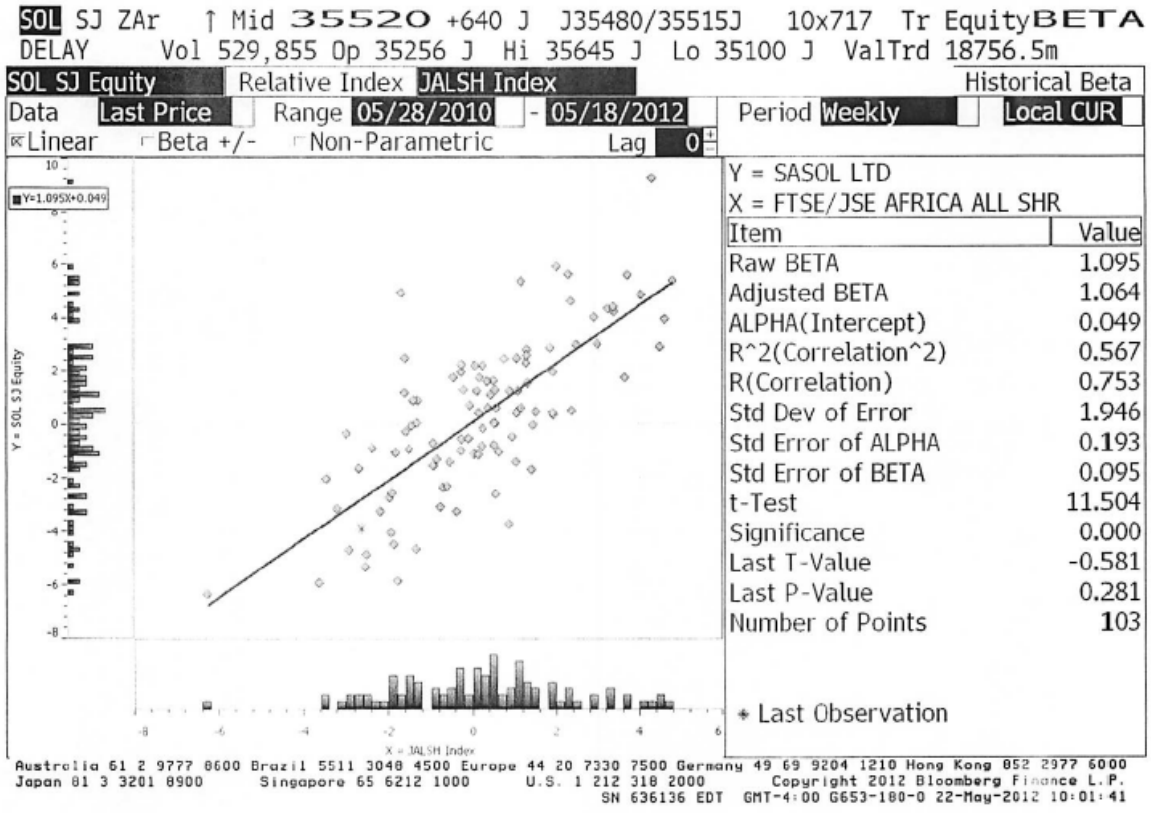
Bangladesh	10.88%
Cambodia	13.50%
China	7.05%
Fiji Islands	12.00%
Hong Kong	6.38%
India	9.00%
Indonesia	9.60%
Japan	7.05%
Korea	7.28%
Macao	7.05%
Malaysia	7.73%
Mongolia	12.00%
Pakistan	15.00%
Papua New Guinea	12.00%
Philippines	10.13%
Singapore	6.00%
Sri Lanka	12.00%
Taiwan	7.05%
Thailand	8.25%
Turkey	10.13%
Vietnam	12.00%

Australia	6.00%
New Zealand	6.00%

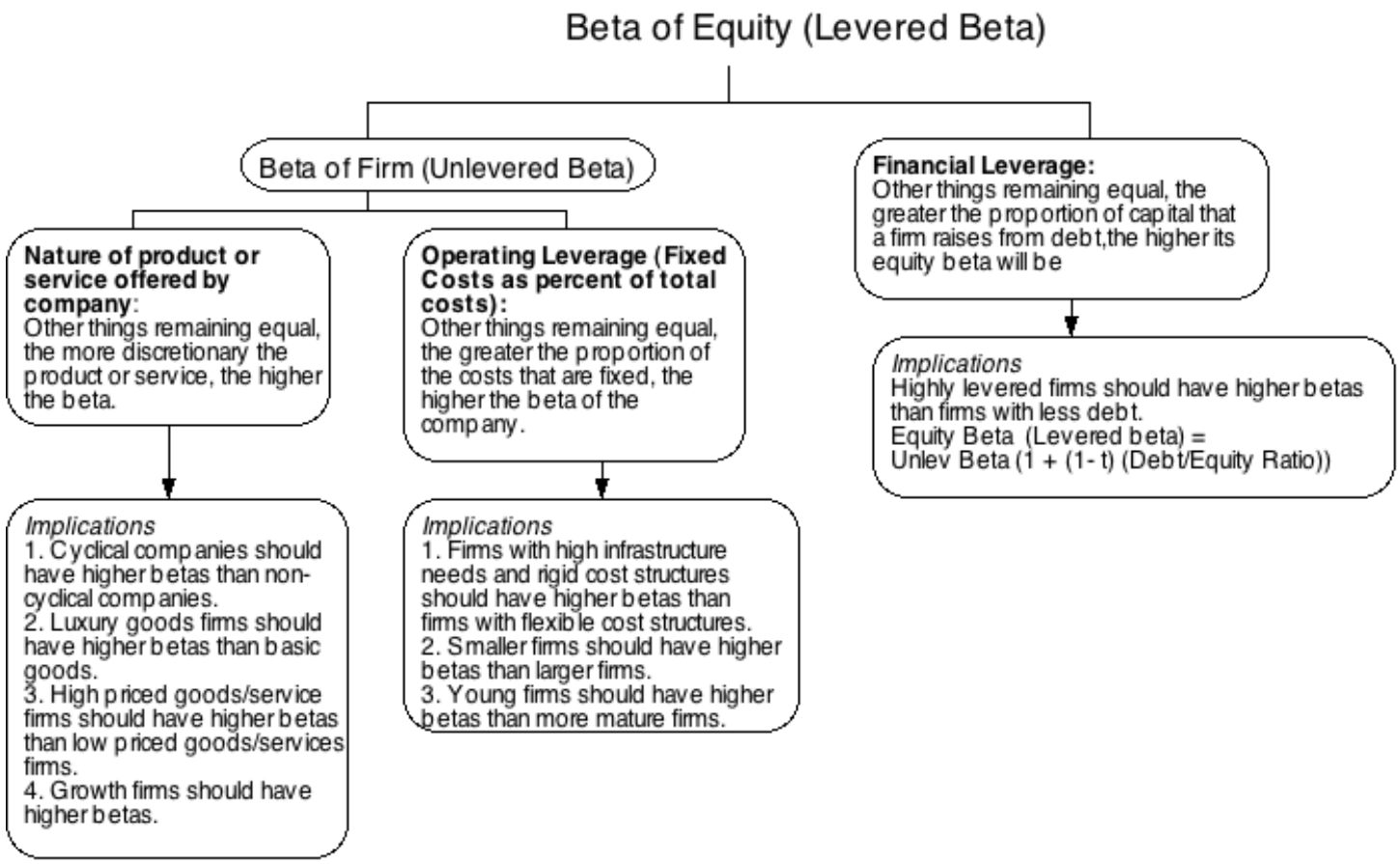
Estimating Beta: The Regression Approach



And another regression…



Determinants of Betas



Bottom up betas for Disney and SASOL

- Disney is in four businesses, and we estimate the beta of each business

Business	Revenues in 2008	EV/Sales	Estimated Value	Firm Value Proportion	Unlevered beta
Media Networks	$16,116	2.13	$34,327.78	58.92%	0.7056
Parks and Resorts	$11,504	1.51	$17,408.14	29.88%	0.5849
Studio Entertainment	$7,348	0.78	$5,754.86	9.88%	1.3027
Consumer Products	$2,875	0.27	$768.20	1.32%	1.0690
Disney	$37,843		$58,258.99	100.00%	0.7333

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.

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

Step 3: Multiply the revenues in step 1 by the industry average multiple in step 2.

- To estimate a beta for SASOL

Business	Revenues	Estimated Value	Beta
Petroleum	86 billion	75 billion	1.14
Chemicals	55 billion	50 billion	0.67
Sasol			0.95

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.

Estimating Synthetic Ratings

- The rating for a firm can be estimated using the financial characteristics of the firm. In its simplest form, we can use just the interest coverage ratio:

  Interest Coverage Ratio = EBIT / Interest Expenses

- For the two companies, we obtain the following:
  - Disney = Operating Income/ Interest Expense = 6819/ 821 = 8.3
  - Sasol = Operating Income/ Interest Expense = 36217/1806 = 20.05

Interest Coverage Ratios, Ratings and Default Spreads- Early 2009

Interest Coverage Ratio: Small market cap(<$5 billion)	*Interest Coverage Ratio: Large market cap (>US $ 5 billion)*	*Rating*	*Typical Default*
> 12.5	>8.5	AAA	1.25%
9.50–12.50	6.5-8.5	AA	1.75%
7.50–9.50	5.5-6.5	A+	2.25%
6.00–7.50	4.25- 5.5	A	2.50%
4.50–6.00	3- 4.25	A–	3.00%
4.00-4.50	2.5-3.0	BBB	3.50%
3.50–4.00	2.25-2.5	BB+	4.25%
3.00–3.50	2.0-2.25	BB	5.00%
2.50–3.00	1.75-2.0	B+	6.00%
2.00–2.50	1.5-1.75	B	7.25%
1.50–2.00	1.25-1.5	B–	8.50%
1.25–1.50	0.8-1.25	CCC	10.00%
0.80–1.25	0.65-0.8	CC	12.00%
0.50–0.80	0.2-0.65	C	15.00%
< 0.65	<0.2	D	20.00%

Disney's actual rating is A and the default spread is 2.5%.

Disney, Market Cap > $ 5 billion: 8.31 → AA

Sasol: Market Cap<$5 billion: 20.05 → AAA

Current Cost of Capital: Disney

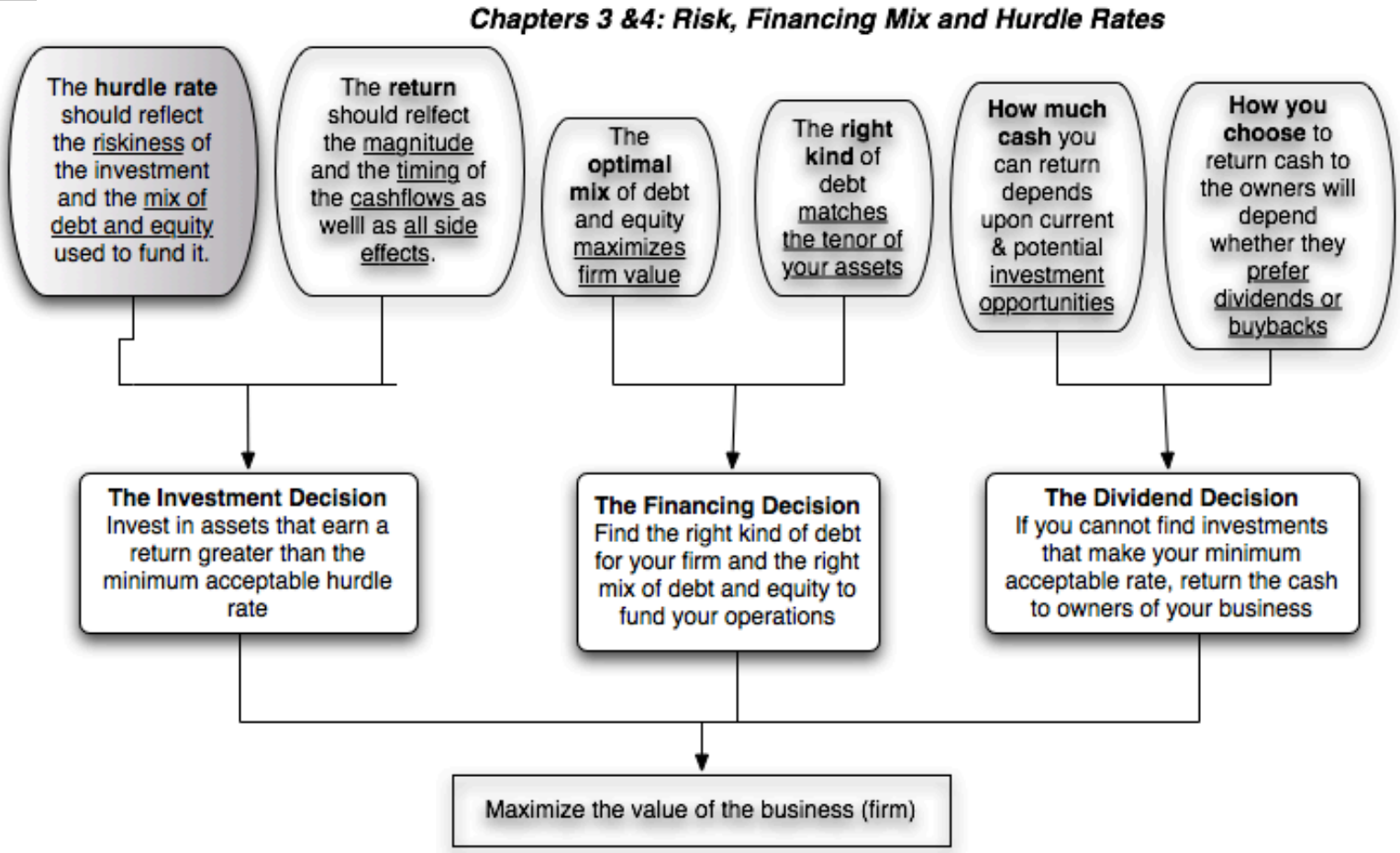
- Equity
  - Cost of Equity = Riskfree rate + Beta * Risk Premium
    = 3.5% + 0.9011 (6%) = 8.91%
  - Market Value of Equity = $45.193 Billion
  - Equity/(Debt+Equity) = 73.04%
- Debt
  - After-tax Cost of debt =(Riskfree rate + Default Spread) (1-t)
    = (3.5%+2.5%) (1-.38) = 3.72%
  - Market Value of Debt = $ 16.682 Billion
  - Debt/(Debt +Equity) = 26.96%
- Cost of Capital = 8.91%(.7304)+3.72%(.2696) = 7.51%

45.193/ (45.193+16.682)

Current Cost of Capital for Sasol

- Equity
  - Cost of Equity = Riskfree rate + Beta * Risk Premium
    = 7.05% + 0.9966 (7.73%) = 14.75%
  - Market Value of Equity = 226,936 million ZAR
  - Equity/(Debt+Equity) = 93.12%
- Debt
  - After-tax Cost of debt =(Riskfree rate + Country Spread+ Company Spread) (1-t)
    = (7.05%+1.15%+0.65%) (1-.3455) = 5.79%
  - Market Value of Debt = 17,022 million ZAR
  - Debt/(Debt +Equity) = 6.98%
- Cost of Capital = 14.75%(.9312)+ 5.72%(.0698) = 14.13%

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., cashflows 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"

Earnings versus Cash Flows: A Disney Theme Park

- The theme parks to be built near Rio, modeled on Euro Disney in Paris and Disney World in Orlando.
- The complex will include a "Magic Kingdom" to be constructed, beginning immediately, and becoming operational at the beginning of the second year, and a second theme park modeled on Epcot Center at Orlando to be constructed in the second and third year and becoming operational at the beginning of the fourth year.
- The earnings and cash flows are estimated in nominal U.S. Dollars.

Step 1: Estimate Accounting Earnings on Project

	0	1	2	3	4	5	6	7	8	9	10
Magic Kingdom - Revenues		$0	$1,000	$1,400	$1,700	$2,000	$2,200	$2,420	$2,662	$2,928	$2,987
Epcot Rio - Revenues		$0	$0	$0	$300	$500	$550	$605	$666	$732	$747
Resort & Properties - Revenues		$0	$250	$350	$500	$625	$688	$756	$832	$915	$933
Total Revenues			**$1,250**	**$1,750**	**$2,500**	**$3,125**	**$3,438**	**$3,781**	**$4,159**	**$4,575**	**$4,667**
Magic Kingdom – Direct Expenses		$0	$600	$840	$1,020	$1,200	$1,320	$1,452	$1,597	$1,757	$1,792
Epcot Rio – Direct Expenses		$0	$0	$0	$180	$300	$330	$363	$399	$439	$448
Resort & Property – Direct Expenses		$0	$188	$263	$375	$469	$516	$567	$624	$686	$700
Total Direct Expenses			**$788**	**$1,103**	**$1,575**	**$1,969**	**$2,166**	**$2,382**	**$2,620**	**$2,882**	**$2,940**
Depreciation & Amortization		$50	$425	$469	$444	$372	$367	$364	$364	$366	$368
Allocated G&A Costs		$0	$188	$263	$375	$469	$516	$567	$624	$686	$700
Operating Income		**($50)**	**($150)**	**($84)**	**$106**	**$315**	**$389**	**$467**	**$551**	**$641**	**$658**
Taxes		($19)	($57)	($32)	$40	$120	$148	$178	$209	$244	$250
Operating Income after Taxes		**($31)**	**($93)**	**($52)**	**$66**	**$196**	**$241**	**$290**	**$341**	**$397**	**$408**

Direct expenses: 60% of revenues for theme parks, 75% of revenues for resort properties
Allocated G&A: Company G&A allocated to project, based on projected revenues. Two thirds of expense is fixed, rest is variable.
Taxes: Based on marginal tax rate of 38%

And the Accounting View of Return

Year	After-tax Operating Income	Book value of Pre-project investment	Book value of Fixed assets	Book value of Working capital	Book value of Total Capital	Average BV of Capital	ROC (a)	ROC (b)
0		$500	$2,000	$0	$2,500		NA	NA
1	-$31	$450	$3,000	$0	$3,450	$2,975	-1.04%	-1.24%
2	-$93	$400	$3,813	$63	$4,275	$3,863	-2.41%	-2.70%
3	-$52	$350	$4,145	$88	$4,582	$4,429	-1.18%	-1.22%
4	$66	$300	$4,027	$125	$4,452	$4,517	1.46%	1.44%
5	$196	$250	$3,962	$156	$4,368	$4,410	4.43%	4.39%
6	$241	$200	$3,931	$172	$4,302	$4,335	5.57%	5.52%
7	$290	$150	$3,931	$189	$4,270	$4,286	6.76%	6.74%
8	$341	$100	$3,946	$208	$4,254	$4,262	8.01%	8.00%
9	$397	$50	$3,978	$229	$4,257	$4,255	9.34%	9.34%
10	$408	$0	$4,010	$233	$4,243	$4,250	9.61%	9.59%
Average							4.05%	3.99%

(a) Based upon book capital at the start of each year
(b) Based upon average book capital over the year

Estimating a hurdle rate for Rio Disney

- We did estimate a cost of capital of 6.62% for the Disney theme park business, using a bottom-up levered beta of 0.7829 for the business.
- This cost of equity may not adequately reflect the additional risk associated with the theme park being in an emerging market.
- The only concern we would have with using this cost of equity for this project is that it may not adequately reflect the additional risk associated with the theme park being in an emerging market (Brazil).

  Country risk premium for Brazil = 2.50% (34/21.5) = 3.95%

  Cost of Equity in US$= 3.5% + 0.7829 (6%+3.95%) = 11.29%

  We multiplied the default spread for Brazil (2.50%) by the relative volatility of Brazil's equity index to the Brazilian government bond. (34%/21.5%)
- Using this estimate of the cost of equity, Disney's theme park debt ratio of 35.32% and its after-tax cost of debt of 3.72% (see chapter 4), we can estimate the cost of capital for the project:

  Cost of Capital in US$ = 11.29% (0.6468) + 3.72% (0.3532) = 8.62%

The cash flow view of this project..

	0	1	2	3	4	5	6	7	8	9	10
Operating Income		-$50	-$150	-$84	$106	$315	$389	$467	$551	$641	$658
Taxes		-$19	-$57	-$32	$40	$120	$148	$178	$209	$244	$250
Operating Income after Taxes		-$31	-$93	-$52	$66	$196	$241	$290	$341	$397	$408
+ Depreciation & Amortization		$50	$425	$469	$444	$372	$367	$364	$364	$366	$368
- Capital Expenditures	$2,500	$1,000	$1,188	$752	$276	$258	$285	$314	$330	$347	$350
- Change in Working Capital	$0	$0	$63	$25	$38	$31	$16	$17	$19	$21	$5
Cash flow to Firm	-$2,500	-$981	-$918	-$360	$196	$279	$307	$323	$357	$395	$422

To get from income to cash flow, we

- added back all non-cash charges such as depreciation. Tax benefits:

	1	2	3	4	5	6	7	8	9	10
Depreciation	$50	$425	$469	$444	$372	$367	$364	$364	$366	$368
Depreciaton * t	$19	$162	$178	$169	$141	$139	$138	$138	$139	$140

- subtracted out the capital expenditures
- subtracted out the change in non-cash working capital

The incremental cash flows on the project

$ 500 million has already been spent & $ 50 million in depreciation will exist anyway

	0	1	2	3	4	5	6	7	8	9	10
Operating Income		-$50	-$150	-$84	$106	$315	$389	$467	$551	$641	$658
Taxes		-$19	-$57	-$32	$40	$120	$148	$178	$209	$244	$250
Operating Income after Taxes		-$31	-$93	-$52	$66	$196	$241	$290	$341	$397	$408
+ Depreciation & Amortization		$50	$425	$469	$444	$372	$367	$364	$364	$366	$368
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- Change in Working Capital	$0	$0	$63	$25	$38	$31	$16	$17	$19	$21	$5
Cash flow to Firm	-$2,500	-$981	-$918	-$360	$196	$279	$307	$323	$357	$395	$422
+ Pre-Project Investment	500										
- Pre-project Deprecn * t		$19	$19	$19	$19	$19	$19	$19	$19	$19	$19
+ Fixed G&A (1-t)		$0	$78	$109	$155	$194	$213	$234	$258	$284	$289
Incremental Cash flow to Firm	-$2,000	-$1,000	-$859	-$270	$332	$454	$501	$538	$596	$660	$692

2/3rd of allocated G&A is fixed.
Add back this amount (1-t)
Tax rate = 38%

Closure on Cash Flows

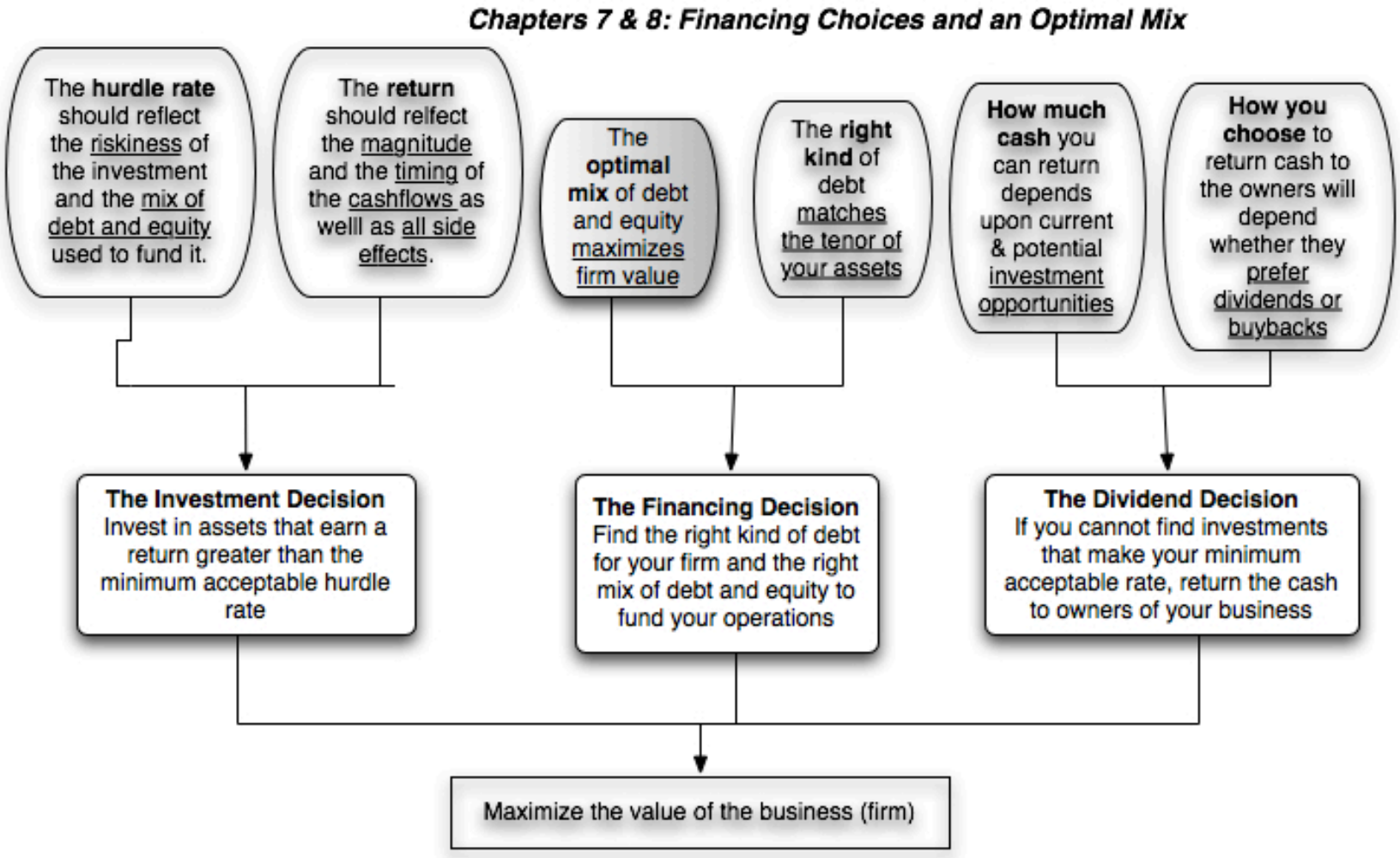
- In a project with a finite and short life, you would need to compute a **salvage value**, which is the expected proceeds from selling all of the investment in the project at the end of the project life. It is usually set equal to book value of fixed assets and working capital
- In a project with an infinite or very long life, we compute cash flows for a reasonable period, and then compute a **terminal value** for this project, which is the present value of all cash flows that occur after the estimation period ends..
- Assuming the project lasts forever, and that cash flows after year 10 grow 2% (the inflation rate) forever, the present value at the end of year 10 of cash flows after that can be written as:
  - Terminal Value in year 10= CF in year 11/(Cost of Capital - Growth Rate)
    =692 (1.02) /(.0862-.02) = $ 10,669 million

Which yields a NPV of..

Discounted at Rio Disney cost of capital of 8.62%

Year	Annual Cashflow	Terminal Value	Present Value
0	-$2,000		-$2,000
1	-$1,000		-$921
2	-$860		-$729
3	-$270		-$211
4	$332		$239
5	$453		$300
6	$502		$305
7	$538		$302
8	$596		$307
9	$660		$313
10	$692	$10,669	$4,970
Net Present Value =			$2,877

First Principles



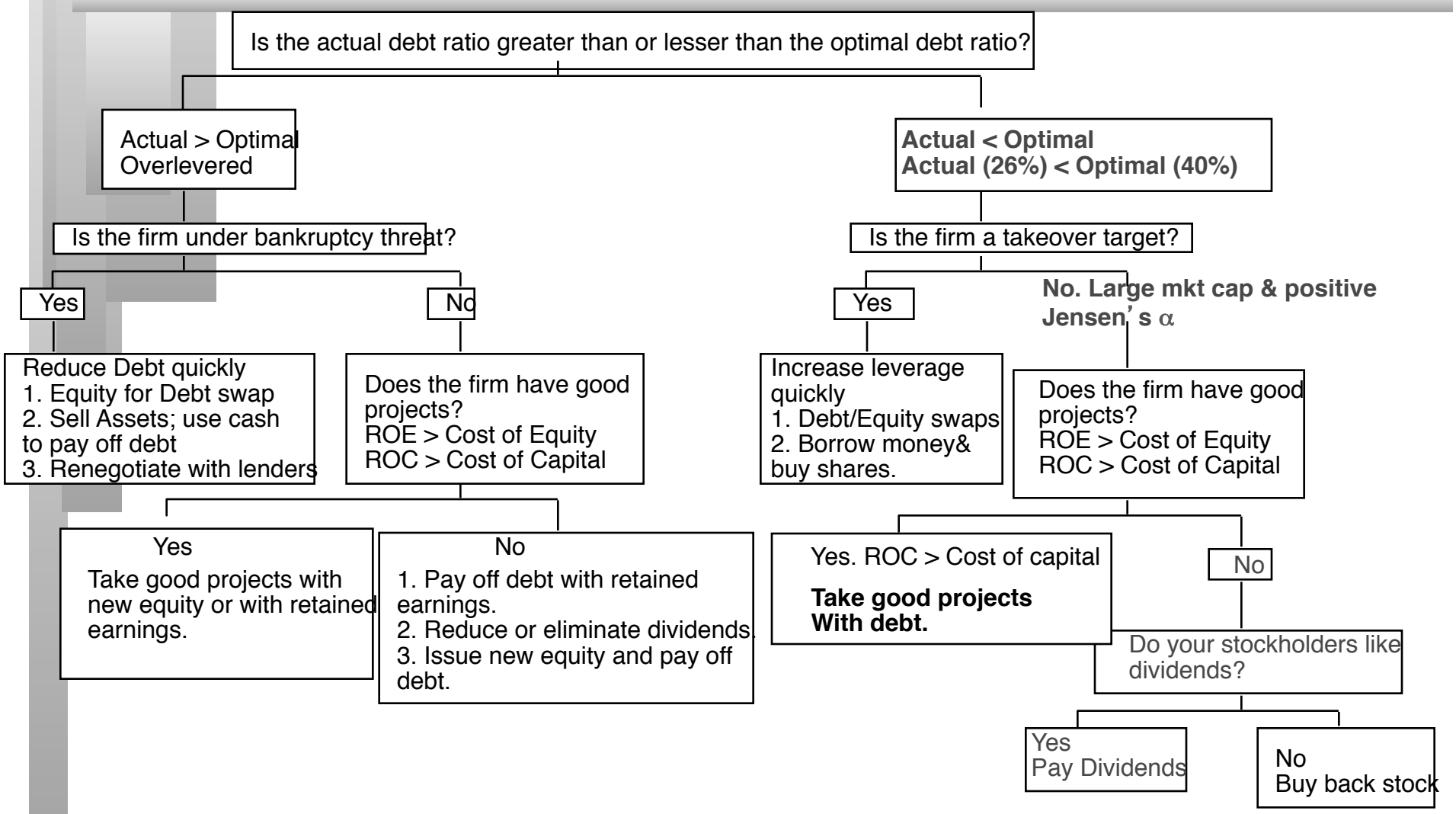
Debt: Summarizing the trade off

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.*

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

Debt Ratio	Beta	Cost of Equity	Cost of Debt (after-tax)	Cost of capital
0%	0.73	7.90%	2.95%	7.90%
10%	0.78	8.20%	2.95%	7.68%
20%	0.85	8.58%	2.95%	7.45%
30%	0.93	9.07%	3.26%	7.32%
40%	1.04	9.72%	3.72%	7.32%
50%	1.19	10.63%	4.03%	7.33%
60%	1.42	11.99%	4.34%	7.40%
70%	1.79	14.26%	7.44%	9.49%
80%	2.55	18.81%	8.37%	10.46%
90%	5.05	33.83%	8.84%	11.34%

Disney: Applying the Framework



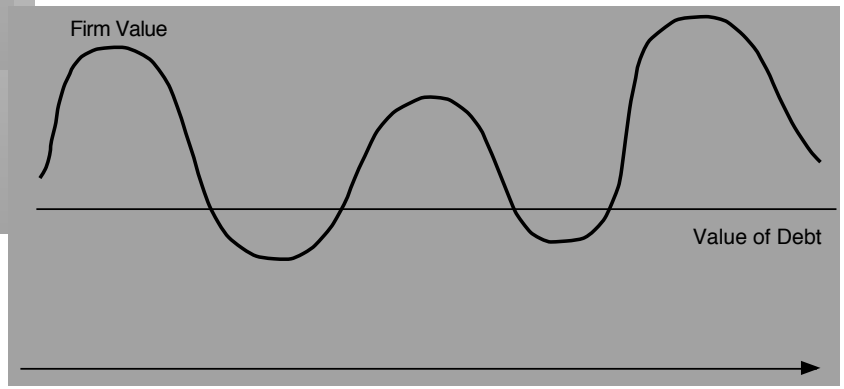
Sasol: Optimal Capital Structure

Debt Ratio	Beta	Cost of Equity	Bond Rating	Interest rate on debt	Tax Rate	Cost of Debt (after-tax)	WACC	Firm Value (G)
0%	0.95	14.39%	AAA	8.85%	34.55%	5.79%	14.39%	ZAR 236,572
10%	1.02	14.93%	AA	9.35%	34.55%	6.12%	14.05%	ZAR 249,155
20%	1.11	15.60%	A-	9.85%	34.55%	6.45%	13.77%	ZAR 260,319
30%	1.22	16.45%	B+	13.70%	34.55%	8.97%	14.21%	ZAR 243,178
40%	1.36	17.60%	B-	14.95%	34.55%	9.78%	14.47%	ZAR 233,872
50%	1.57	19.20%	CC	17.70%	34.55%	11.58%	15.39%	ZAR 206,180
60%	1.88	21.60%	CC	17.70%	34.55%	11.58%	15.59%	ZAR 200,955
70%	2.51	26.42%	CC	17.70%	29.80%	12.42%	16.62%	ZAR 177,432
80%	3.81	36.52%	C	18.70%	24.68%	14.08%	18.57%	ZAR 144,518
90%	7.62	65.99%	C	18.70%	21.94%	14.60%	19.74%	ZAR 129,653

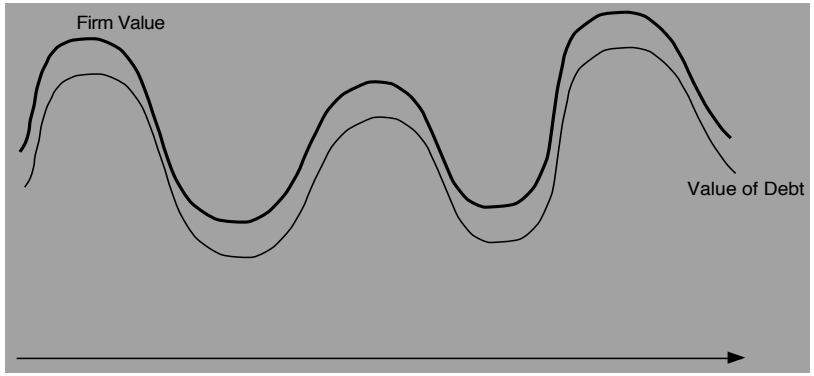
Designing Debt: The Fundamental Principle

- 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.

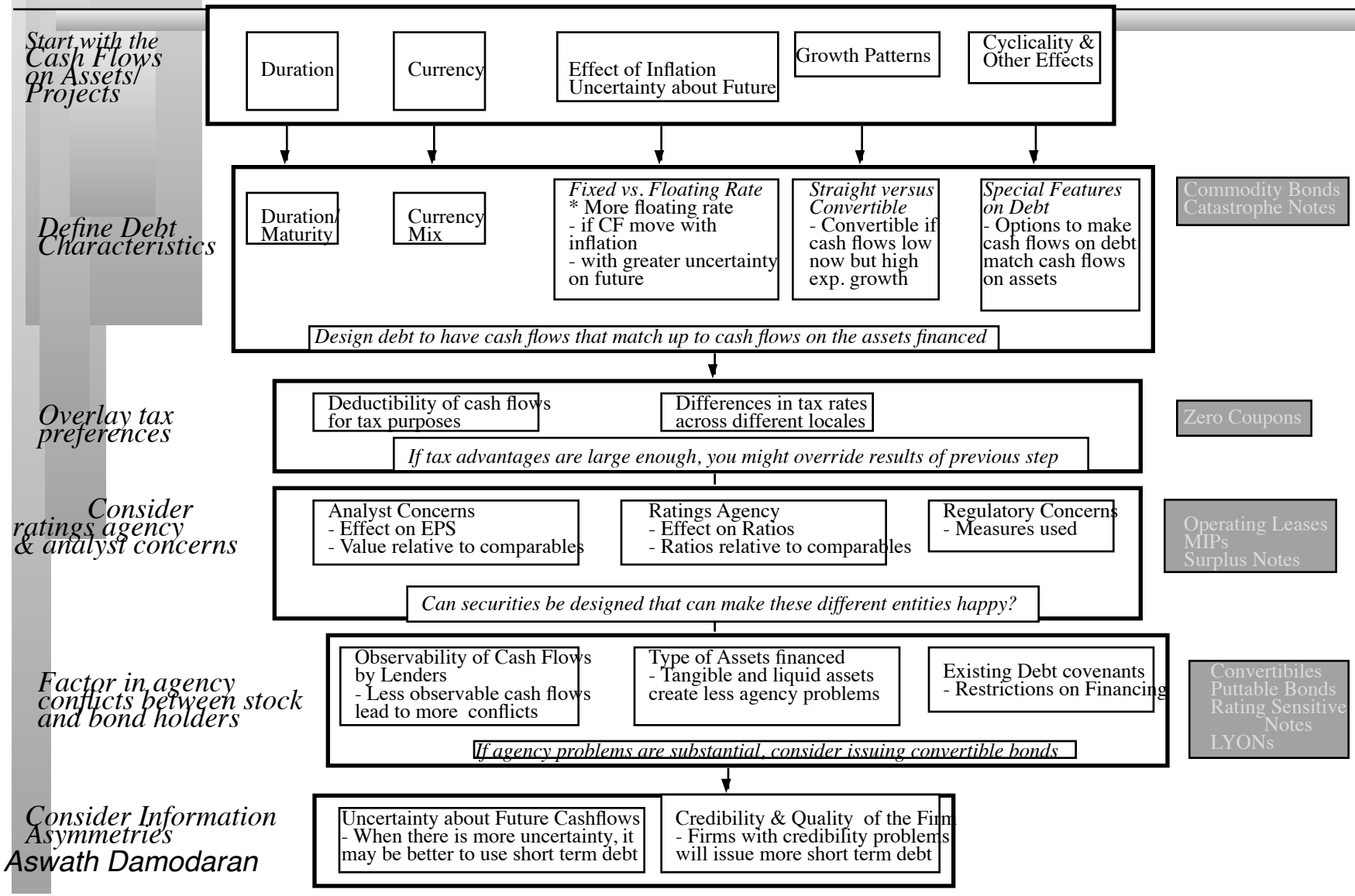
Unmatched Debt



Matched Debt



Designing Debt: Bringing it all together



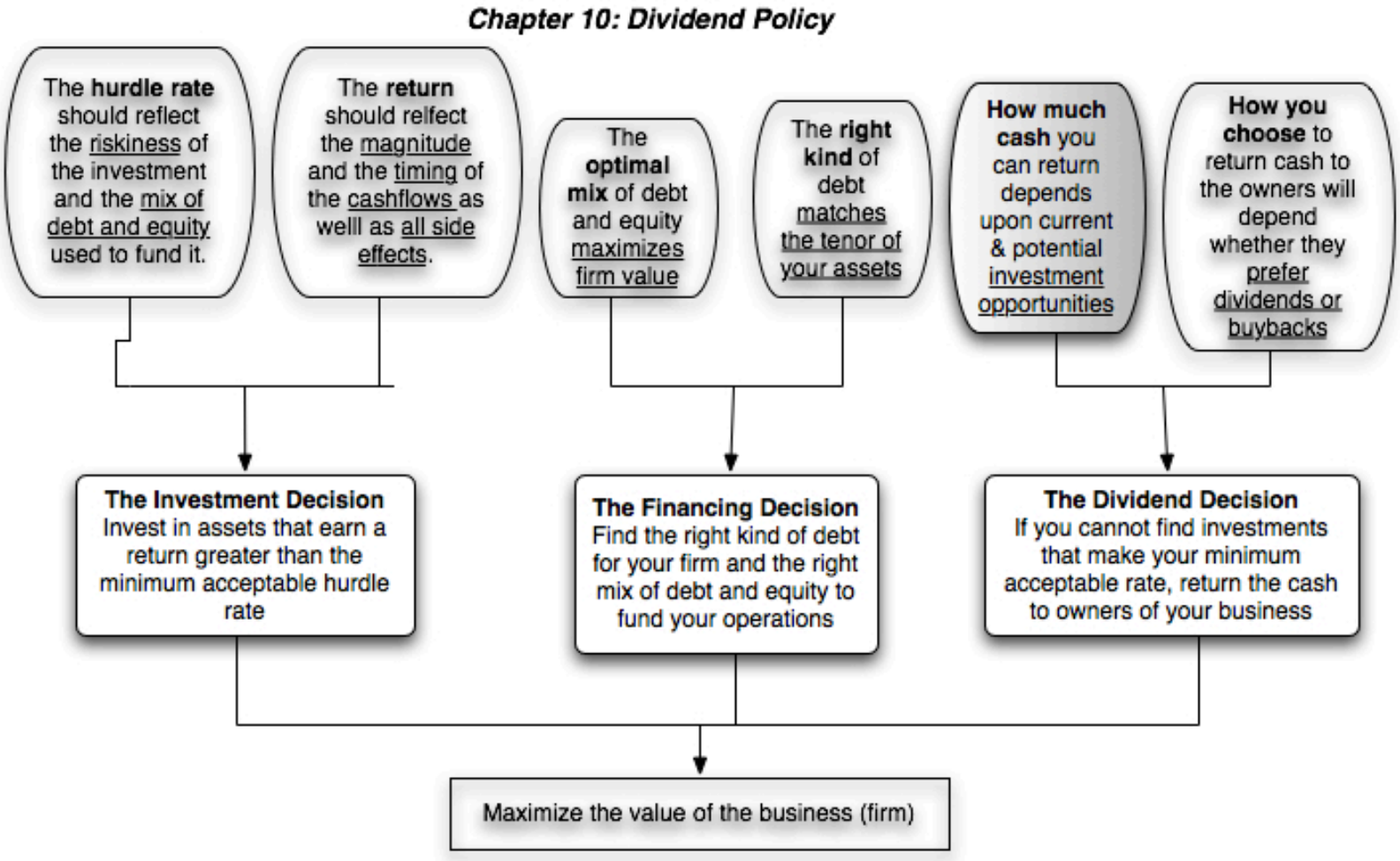
Designing Disney's Debt

Business	*Project Cash Flow Characteristics*	*Type of Financing*
Studio entertainment	Movie projects are likely to 1. Be short-term 2. Have cash outflows primarily in dollars (because Disney makes most of its movies in the U.S.), but cash inflows could have a substantial foreign currency component (because of overseas revenues) 3. Have net cash flows that are heavily driven by whether the movie is a hit, which is often difficult to predict	Debt should be 1. Short-term 2. Primarily dollar debt 3. If possible, tied to the success of movies (Lion King or Mulan bonds)
Media networks	Projects are likely to be 1. Short-term 2. Primarily in dollars, though foreign component is growing 3. Driven by advertising revenues and show success (Nielsen ratings)	Debt should be 1. Short-term 2. Primarily dollar debt 3. If possible, linked to network ratings
Park resorts	Projects are likely to be 1. Very long-term 2. Primarily in dollars, but a significant proportion of revenues come from foreign tourists, who are likely to stay away if the dollar strengthens 3. Affected by success of studio entertainment and media networks divisions	Debt should be 1. Long-term 2. Mix of currencies, based on tourist makeup
Consumer products	Projects are likely to be short- to medium-term and linked to the success of the movie division; most of Disney's product offerings are derived from their movie productions	Debt should be a. Medium-term b. Dollar debt

Analyzing Disney's Current Debt

- Disney has $16 billion in debt with a face-value weighted average maturity of 5.38 years. Allowing for the fact that the maturity of debt is higher than the duration, this would indicate that Disney's debt is of the right maturity.
- Of the debt, about 10% is yen denominated debt but the rest is in US dollars. Based on our analysis, we would suggest that Disney increase its proportion of debt in other currencies to about 20% in Euros and about 5% in Chinese Yuan.
- Disney has no convertible debt and about 24% of its debt is floating rate debt, which is appropriate given its status as a mature company with significant pricing power. In fact, we would argue for increasing the floating rate portion of the debt to about 40%.

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 Disney and Sasol, we obtain the following

	Disney		Sasol	
	Dividends	Buybacks	Dividends	Buybacks
5 years ago	430	335	5766	7300
4 years ago	490	1410	7776	1114
3 years ago	519	6898	5678	0
2 years ago	637	6923	7033	0
Last year	664	4453	8410	0

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

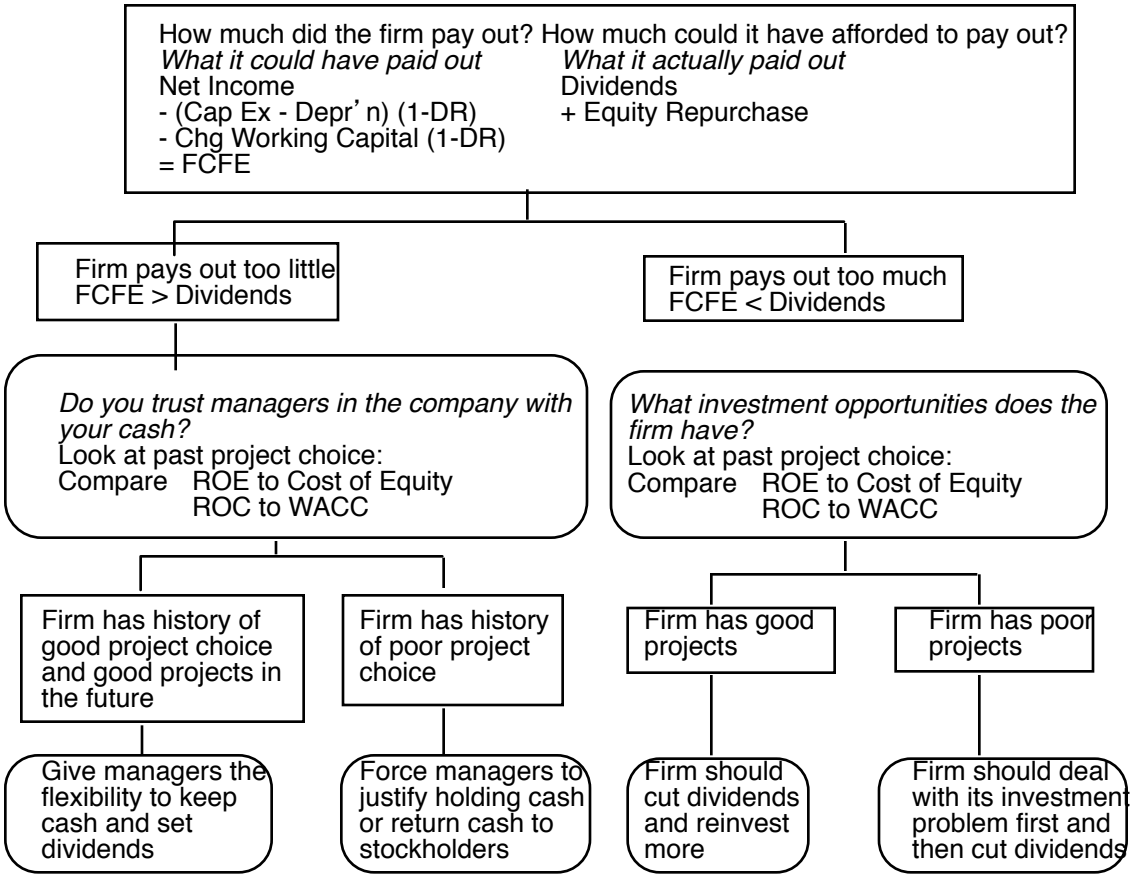
Disney's FCFE

Year	Net Income	Capital Expenditures	Depreciation	Chg in WC	Change in Net Debt	FCFE
1999	$1,300	$6,113	$3,779	-$363	$176	-$495
2000	$920	$1,091	$2,195	-$1,184	$2,118	$5,326
2001	-$158	$2,015	$1,754	$244	-$77	-$740
2002	$1,236	$3,176	$1,042	$27	-$1,892	-$2,817
2003	$1,267	$1,034	$1,077	-$264	$1,145	$2,719
2004	$2,345	$1,484	$1,210	$51	$2,203	$4,223
2005	$2,533	$1,691	$1,339	$270	$699	$2,610
2006	$3,374	$1,300	$1,437	-$136	-$941	$2,706
2007	$4,687	$627	$1,491	$45	-$2,696	$2,810
2008	$4,427	$2,162	$1,582	$485	-$528	$2,834
Aggregate	$21,931	$20,693	$16,906	-$825	$207	$19,176
Average					$21	$1,918

Disney's actual cash returned…

Year	Dividends	Earnings	Payout Ratio	Cash Returned	FCFE	Cash/FCFE
1999	$0.00	$1,300.00	0.00%	$19.00	-$495.00	-3.84%
2000	$434.00	$920.00	47.17%	$600.00	$5,326.00	11.27%
2001	$438.00	-$158.00	-277.22%	$1,511.00	-$740.00	-204.19%
2002	$428.00	$1,236.00	34.63%	$428.00	-$2,817.00	-15.19%
2003	$429.00	$1,267.00	33.86%	$429.00	$2,719.00	15.78%
2004	$430.00	$2,345.00	18.34%	$765.00	$4,223.00	18.12%
2005	$490.00	$2,533.00	19.34%	$2,910.00	$2,610.00	111.49%
2006	$519.00	$3,374.00	15.38%	$7,417.00	$2,706.00	274.09%
2007	$637.00	$4,687.00	13.59%	$7,560.00	$2,810.00	269.04%
2008	$664.00	$4,427.00	15.00%	$5,117.00	$2,834.00	180.56%
Aggregate	$4,469.00	$21,931.00	20.38%	$26,756.00	$19,176.00	139.53%

A Practical Framework for Analyzing Dividend Policy



Disney in 2003

- FCFE versus Dividends
  - Between 1994 & 2003, Disney generated $969 million in FCFE each year.
  - Between 1994 & 2003, Disney paid out $639 million in dividends and stock buybacks each year.
- Cash Balance
  - Disney had a cash balance in excess of $ 4 billion at the end of 2003.
- Performance measures
  - Between 1994 and 2003, Disney has generated a return on equity, on it's projects, about 2% less than the cost of equity, on average each year.
  - Between 1994 and 2003, Disney's stock has delivered about 3% less than the cost of equity, on average each year.
  - The underperformance has been primarily post 1996 (after the Capital Cities acquisition).

Can you trust Disney's management?

- Given Disney's track record between 1994 and 2003, if you were a Disney stockholder, would you be comfortable with Disney's dividend policy?
  - Yes
  - No
- Does the fact that the company is run by Michael Eisner, the CEO for the last 10 years and the initiator of the Cap Cities acquisition have an effect on your decision.
  - Yes
  - No

Following up: Disney in 2009

- Between 2004 and 2008, Disney made significant changes:
  - It replaced its CEO, Michael Eisner, with a new CEO, Bob Iger, who at least on the surface seemed to be more receptive to stockholder concerns.
  - It's stock price performance improved (positive Jensen's alpha)
  - It's project choice improved (ROC moved from being well below cost of capital to above)
- The firm also shifted from cash returned < FCFE to cash returned > FCFE and avoided making large acquisitions.
- If you were a stockholder in 2009 and Iger made a plea to retain cash in Disney to pursue investment opportunities, would you be more receptive?

a) Yes

b) No

Sasol: Making your assessment

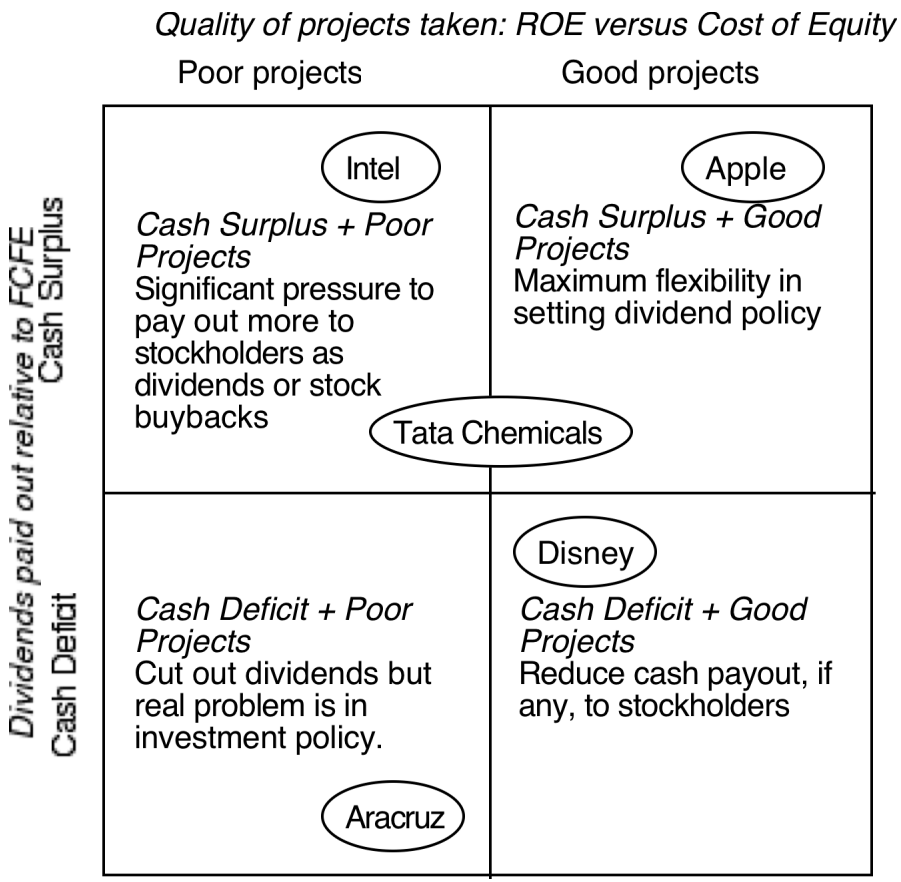
- Sasol has been returning far less cash than it has available in FCFE over time.

	FCFE	Cash returned
2007	11750	13066
2008	21429	8890
2009	2236	5678
2010	12015	7033
2011	11820	8410
Sum	59250	43077

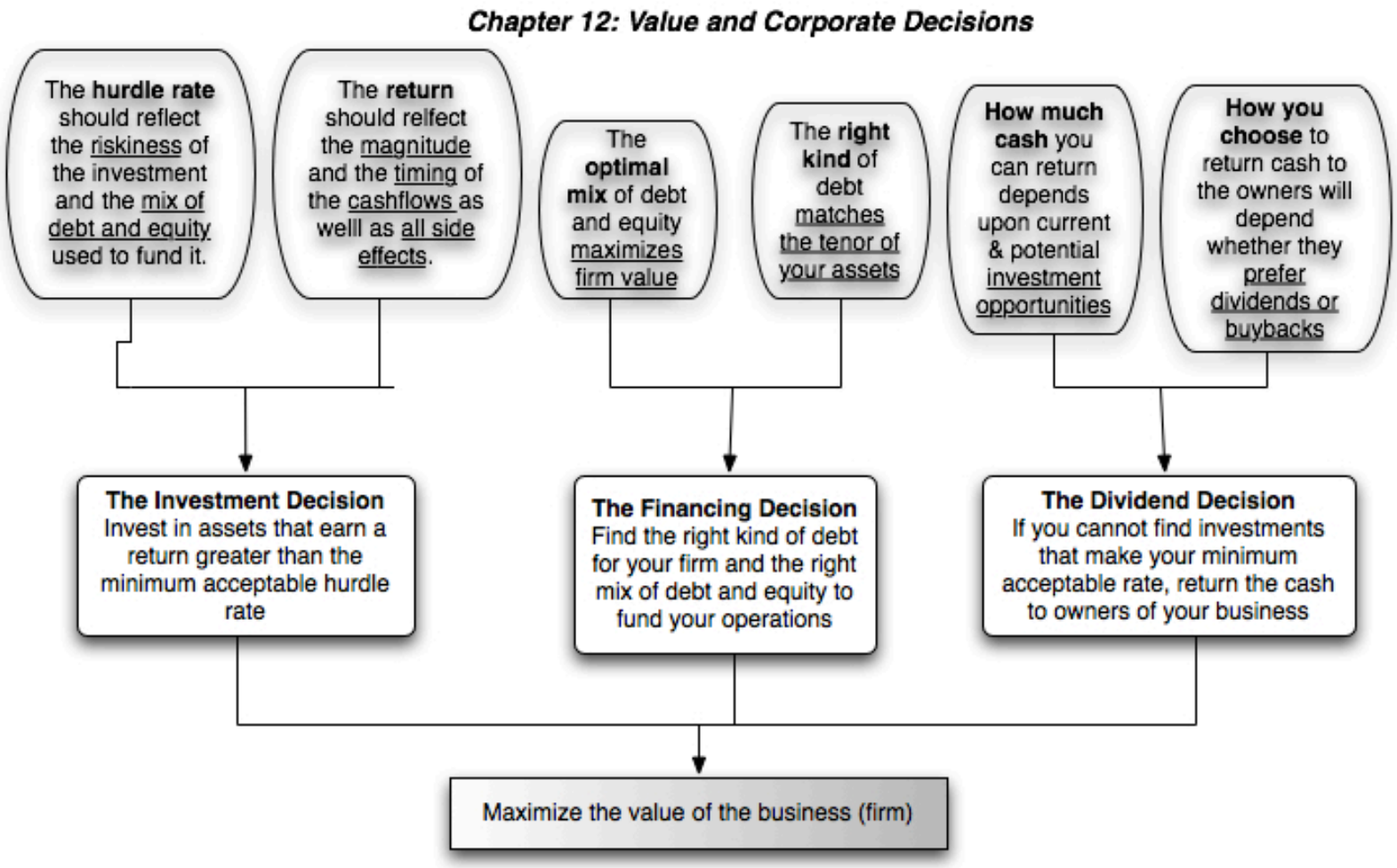
- Do you trust Sasol's manager with your cash? If yes, why? If not, why not?

- Would it make a difference if you were told that Sasol has generated a return on equity of about 19.6% in the last year, higher than its cost of equity of 14.75%?

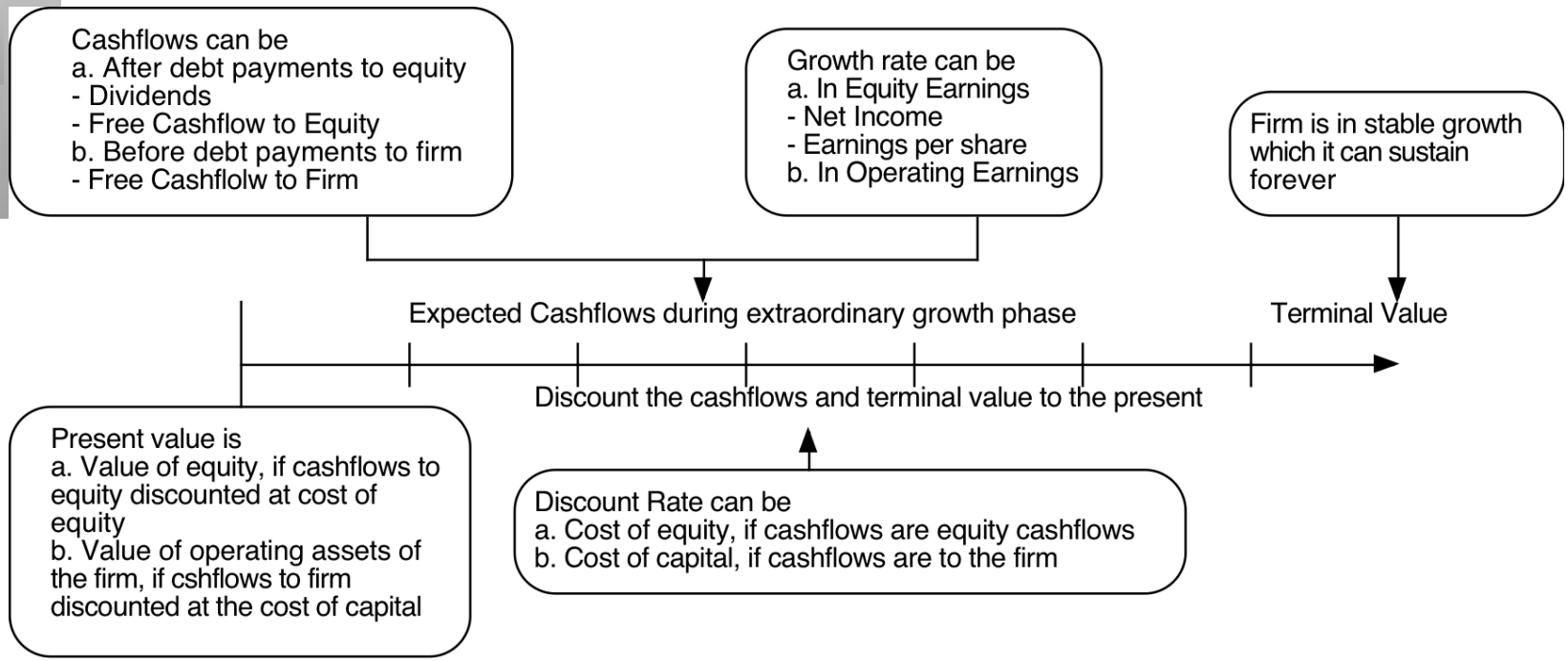
Summing up…


Quality of projects taken: ROE versus Cost of Equity
Poor projects
Good projects
Dividends paid out relative to FCFE
Cash Surplus
Cash Deficit
Intel
Apple
Cash Surplus + Poor Projects
Significant pressure to pay out more to stockholders as dividends or stock buybacks
Cash Surplus + Good Projects
Maximum flexibility in setting dividend policy
Tata Chemicals
Disney
Cash Deficit + Poor Projects
Cut out dividends but real problem is in investment policy.
Cash Deficit + Good Projects
Reduce cash payout, if any, to stockholders
Aracruz

First Principles



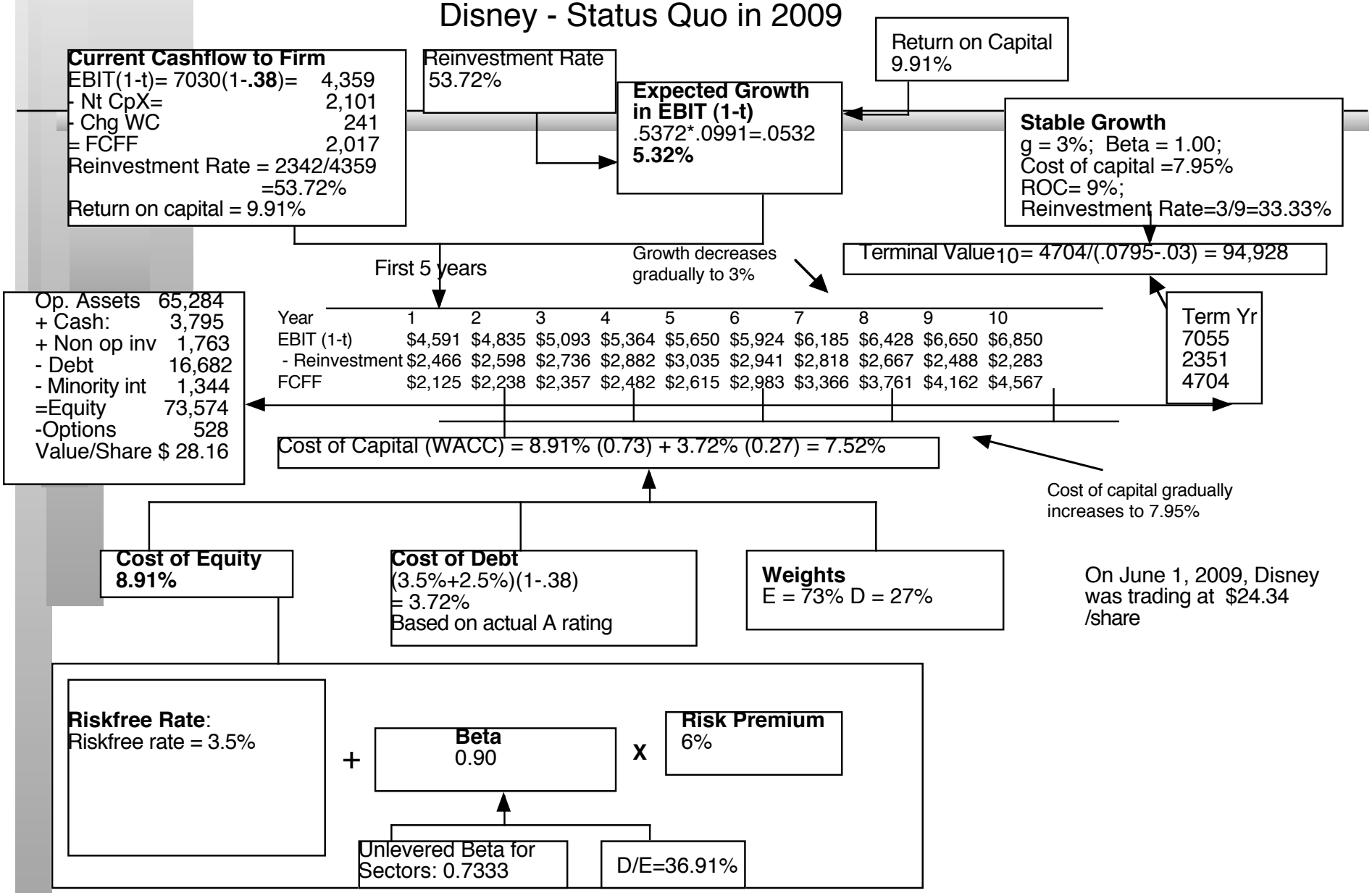
The Ingredients that determine value.



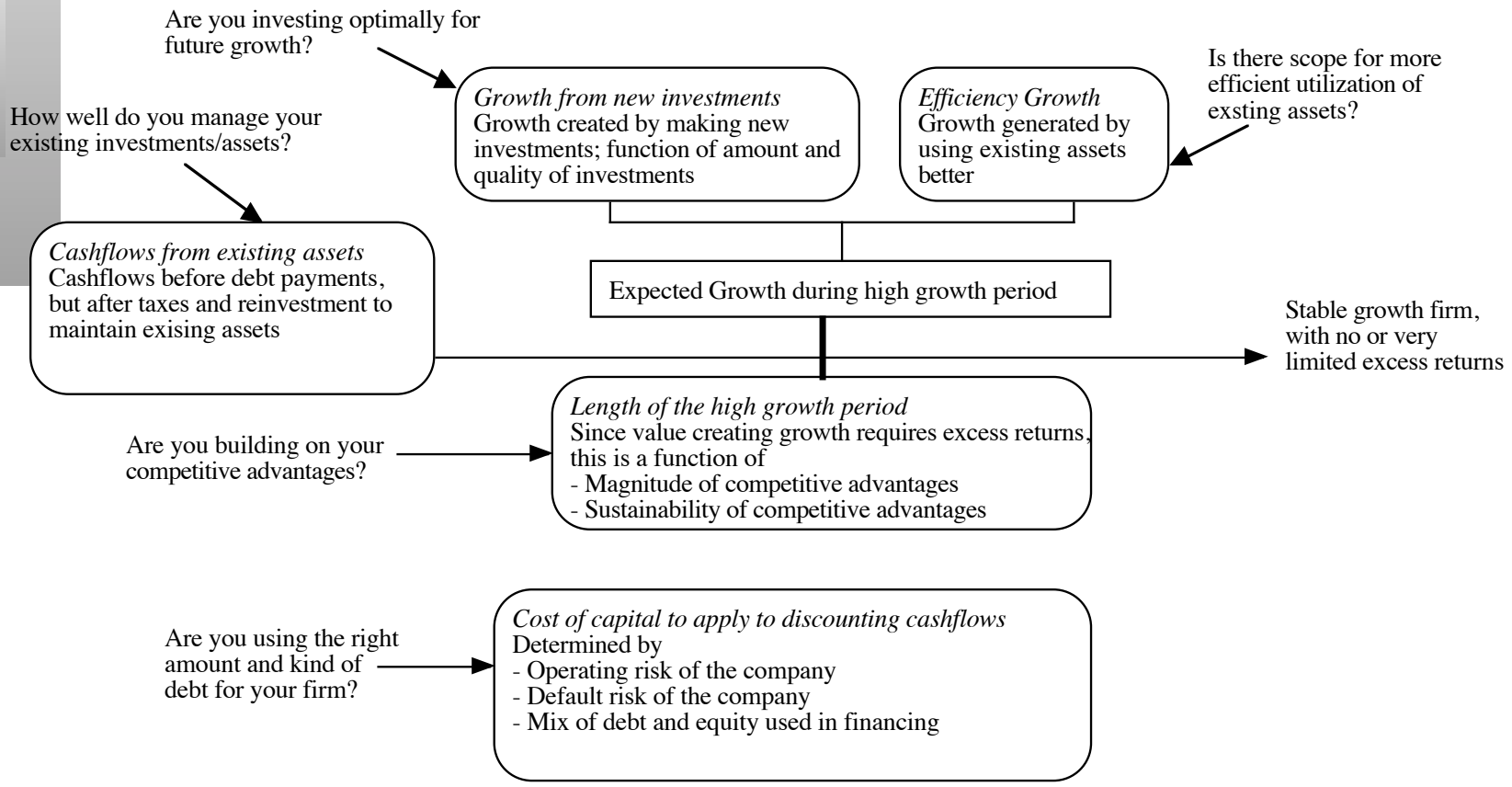
Disney: Inputs to Valuation

	High Growth Phase	*Transition Phase*	*Stable Growth Phase*
Length of Period	5 years	5 years	Forever after 10 years
Tax Rate	38%	38%	38%
Return on Capital	9.91%	Declines linearly to 9%	Stable ROC of 9%
Reinvestment Rate (Net Cap Ex + Working Capital Investments/EBIT)	53.72% (based on normalized acquisition costs)	Declines to 33.33% as ROC and growth rates drop: Reinvestment Rate = g/ROC	33.33% of after-tax operating income, estimated from stable growth rate of 3% and return on capital of 9%. Reinvestment rate = 3/9=33.33%
Expected Growth Rate in EBIT	ROC * Reinvestment Rate = 9.91%*53.72% = 5.32%	Linear decline to Stable Growth Rate of 3%	3%
Debt/Capital Ratio	26.7%	Stays unchanged	Stays unchanged
Risk Parameters	Beta = 0.9033, k_e = 8.91%% Pre-tax Cost of Debt = 6% Cost of capital = 7.52%	Beta changes linearly to 1.00; Cost of debt stays at 6% Cost of capital goes to 7.95%	Beta = 1.00; k_e = 9.5% Cost of debt stays at 6% Cost of capital = 7.95%

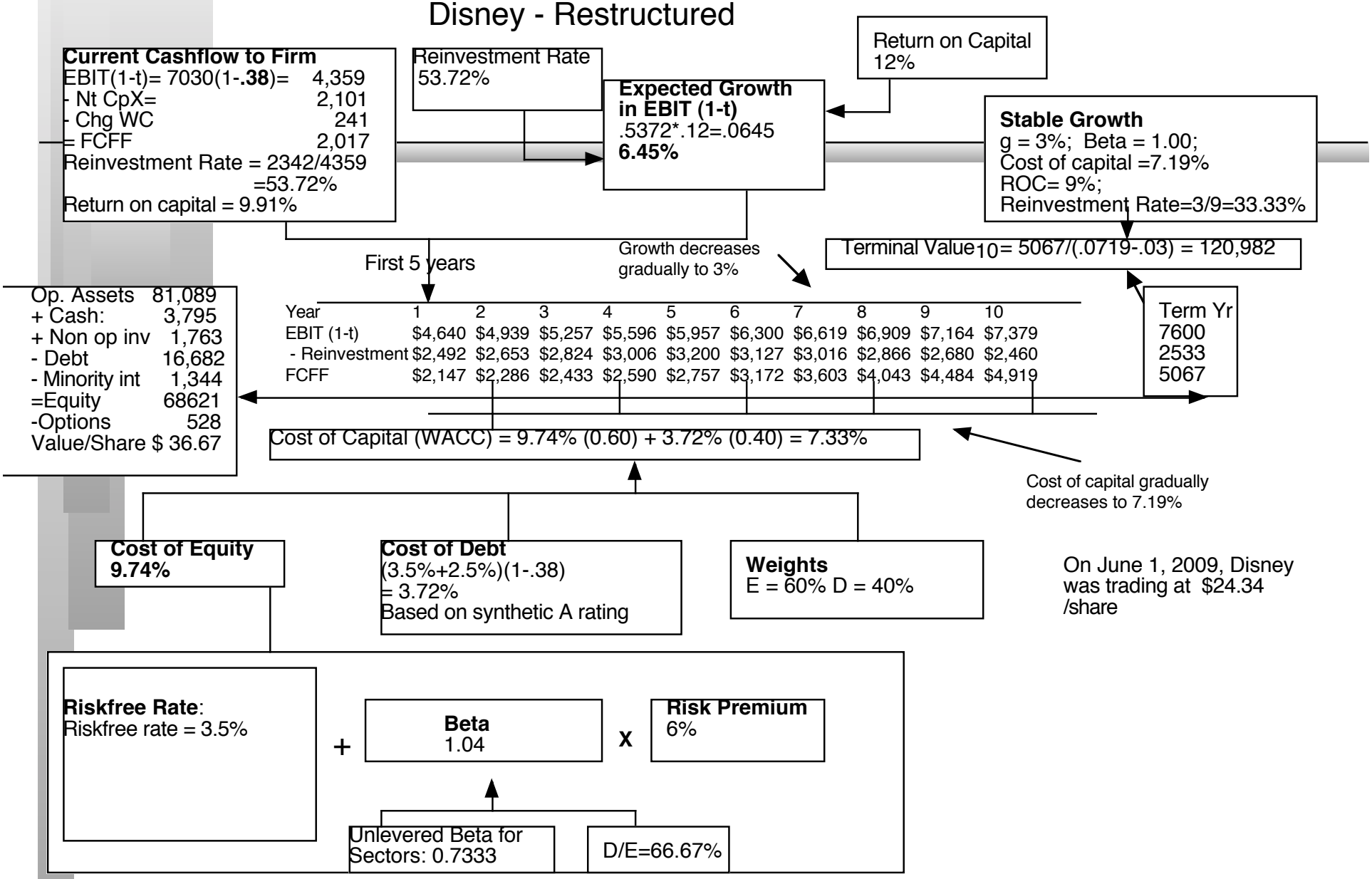
Disney - Status Quo in 2009



Ways of changing value…



Disney - Restructured



First Principles