

Mandated Dividend Payouts

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- Assume now that the government decides to mandate a minimum dividend payout for all companies. Given our discussion of FCFE, what types of companies will be hurt the most by such a mandate?
 - a. Large companies making huge profits
 - b. Small companies losing money
 - c. High growth companies that are losing money
 - d. High growth companies that are making money
- What if the government mandates a cap on the dividend payout ratio (and a requirement that all companies reinvest a portion of their profits)?

Case 3: BP: Summary of Dividend Policy: 1982-1991

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<i>Summary of calculations</i>				
	<i>Average</i>	<i>Standard Deviation</i>	<i>Maximum</i>	<i>Minimum</i>
<i>Free CF to Equity</i>	\$571.10	\$1,382.29	\$3,764.00	(\$612.50)
<i>Dividends</i>	\$1,496.30	\$448.77	\$2,112.00	\$831.00
<i>Dividends+Repurchases</i>	\$1,496.30	\$448.77	\$2,112.00	\$831.00
<i>Dividend Payout Ratio</i>	84.77%			
<i>Cash Paid as % of FCFE</i>	262.00%			
<i>ROE - Required return</i>	-1.67%	11.49%	20.90%	-21.59%

BP: Just Desserts!

B.P.'s Shares Plummet After Dividend Is Slashed

By MATTHEW L. WALD

British Petroleum said yesterday that it would cut its dividend by 55 percent, take a pretax restructuring charge of \$1.82 billion for the second quarter and lay off 11,500 employees, or 10 percent of its worldwide work force. The moves came five weeks after Robert B. Horton, B.P.'s chairman, resigned under pressure from the company's outside directors.

Analysts anticipated a dividend cut by the oil company, the world's third largest, but the one announced was at the low end of their expectations. In response, shares of the company's American depository rights, each of which represents 12 shares of the London-based company, dropped \$3.625, or 7.36 percent, to \$45.375. It was the most active issue on the New York Stock Exchange, with 5.89 million shares traded.

The Royal Dutch/Shell group also reported a disappointing quarter yesterday, with earnings on a replacement cost basis — excluding gains or losses on inventory holdings — of \$868 million, down 22 percent.

Quel! Recovery Seems Unlikely

Adding to the gloom at B.P., the new chief executive, David A. G. Simon, said the prospects for a quick recovery were poor. "External trading conditions are expected to remain difficult, particularly for the downstream oil and chemicals businesses, with growth prospects for the world's economies remaining uncertain," he said in a statement. Downstream oil is an industry term for refining and marketing operations, as distinct from oil production.

Downstream margins in the United States would be hurt later this year, he predicted, when clean air rules

take effect and gasoline must be reformulated to reduce pollution. "In Europe, recovery will depend upon seasonal heating oil demand," Mr. Simon said.

The crude oil market, he predicted, would remain balanced unless Iraqi oil was allowed to re-enter the market. The company said it was well positioned to take advantage of any

The giant British oil company bet on rising oil prices.

Increase in oil prices, but the company's oil production in the United States is declining. B.P. is the largest producer in Alaska.

The market for petrochemicals in Europe remains weak.

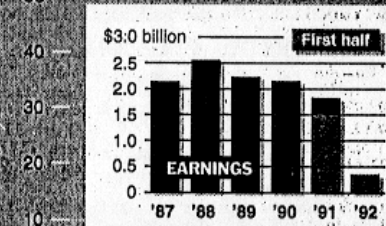
B.P.'s second quarter profits, before one-time transactions, declined to \$193 million from \$515 million, valuing inventories on a replacement-cost basis. James J. Murchie, an analyst at Stanford C. Bernstein, estimated that after exceptional items, earnings per share fell to 30 cents in the second quarter, compared with 62 cents a year earlier.

Analysts attributed B.P.'s problems to the company's acquisitions in the last few years, and heavy capital expenditures. Summing up the company's recent history, Frank P. Kneuttel of Prudential Securities Research said, "Debt rose, interest expense rose, and profits have gone to hell."

Mr. Murchie, who worked for Standard Oil of Ohio and then B.P.

Britain's Oil Colossus

British Petroleum's 1992 stock price weekly closings as traded on the New York Stock Exchange through Aug. 6, and earnings, excluding extraordinary items and gains and losses on inventory, in dollars.



Source: Company Reports, Petroleum

after B.P. acquired Sohio, said, "What you've got is a company that thought oil prices were going to go to \$25 and spent like it, in terms of capital." If B.P.'s costs of finding oil are the same as the industry average, he said, then the company has been spending enough to replace 120 percent to 130 percent of its annual production, which is not a successful strategy if prices do not rise.

In addition, he said, the company had been spending twice as much on its refining and marketing operation

as it was recording in depreciation. Another analyst at a large stock brokerage house, who spoke on the condition of anonymity, said, "They took all the old Sohio stations and turned them into modern B.P. stations; they took all the B.P. stations and turned them into ultramodern stations."

The analyst said that while some of the cuts were obvious, some came

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Managing changes in dividend policy

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<i>Category</i>	<i>Periods Around Announcement Date</i>		
	<i>Prior Quarter</i>	<i>Announcement Period</i>	<i>Quarter After</i>
Simultaneous announcement of earnings decline/loss (<i>N</i> = 176)	-7.23%	-8.17%	+1.80%
Prior announcement of earnings decline or loss (<i>N</i> = 208)	-7.58%	-5.52%	+1.07%
Simultaneous announcement of investment or growth opportunities (<i>N</i> = 16)	-7.69%	-5.16%	+8.79%

Case 4: The Limited: Summary of Dividend Policy: 1983-1992

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	<i>Summary of calculations</i>			
	<i>Average</i>	<i>Standard Deviation</i>	<i>Maximum</i>	<i>Minimum</i>
<i>Free CF to Equity</i>	(\$34.20)	\$109.74	\$96.89	(\$242.17)
<i>Dividends</i>	\$40.87	\$32.79	\$101.36	\$5.97
<i>Dividends+Repurchases</i>	\$40.87	\$32.79	\$101.36	\$5.97
<i>Dividend Payout Ratio</i>	18.59%			
<i>Cash Paid as % of FCFE</i>	-119.52%			
<i>ROE - Required return</i>	1.69%	19.07%	29.26%	-19.84%

Growth Firms and Dividends

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- High growth firms are sometimes advised to initiate dividends because it increases the potential stockholder base for the company (since there are some investors - like pension funds - that cannot buy stocks that do not pay dividends) and, by extension, the stock price. Do you agree with this argument?
 - a. Yes
 - b. No
- Why?

5. Tata Motors

	Aggregate	Average
Net Income	\$421,338.00	\$42,133.80
Dividends	\$74,214.00	\$7,421.40
Dividend Payout Ratio	17.61%	15.09%
Stock Buybacks	\$970.00	\$97.00
Dividends + Buybacks	\$75,184.00	\$7,518.40
Cash Payout Ratio	17.84%	
Free CF to Equity (pre-debt)	(\$106,871.00)	(\$10,687.10)
Free CF to Equity (actual debt)	\$825,262.00	\$82,526.20
Free CF to Equity (target debt ratio)	\$47,796.36	\$4,779.64
Cash payout as % of pre-debt FCFE	FCFE negative	
Cash payout as % of actual FCFE	9.11%	
Cash payout as % of target FCFE	157.30%	

Negative FCFE, largely because of acquisitions.

Summing up...

Quality of projects taken: ROE versus Cost of Equity

		Poor projects	Good projects
Dividends paid out relative to FCFE	Cash Surplus	<p><i>Cash Surplus + Poor Projects</i> Significant pressure to pay out more to stockholders as dividends or stock buybacks</p>	<p><i>Cash Surplus + Good Projects</i> Maximum flexibility in setting dividend policy</p> <p style="text-align: right;">Baidu</p>
	Cash Deficit	<p style="text-align: center;">Deutsche Bank</p> <p><i>Cash Deficit + Poor Projects</i> Cut out dividends but real problem is in investment policy.</p>	<p style="text-align: center;">Disney</p> <p><i>Cash Deficit + Good Projects</i> Reduce cash payout, if any, to stockholders</p> <p style="text-align: center;">Vale Tata Mtrs</p>



Application Test: Assessing your firm's dividend policy

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- Compare your firm's dividends to its FCFE, looking at the last 5 years of information.
- Based upon your earlier analysis of your firm's project choices, would you encourage the firm to return more cash or less cash to its owners?
- If you would encourage it to return more cash, what form should it take (dividends versus stock buybacks)?

II. The Peer Group Approach

- In the peer group approach, you compare your company to similar companies (usually in the same market and sector) to assess whether and if yes, how much to pay in dividends.

Company	Dividend Yield		Dividend Payout		Comparable Group	Dividend Yield	Dividend Payout
	2013	Average 2008-12	2013	Average 2008-12			
Disney	1.09%	1.17%	21.58%	17.11%	US Entertainment	0.96%	22.51%
Vale	6.56%	4.01%	113.45%	37.69%	Global Diversified Mining & Iron Ore (Market cap > \$1 b)	3.07%	316.32%
Tata Motors	1.31%	1.82%	16.09%	15.53%	Global Autos (Market Cap > \$1 b)	2.13%	27.00%
Baidu	0.00%	0.00%	0.00%	0.00%	Global Online Advertising	0.09%	8.66%
Deutsche Bank	1.96%	3.14%	362.63%	37.39%	European Banks	1.96%	79.32%

A closer look at Disney's peer group

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<i>Company</i>	<i>Market Cap</i>	<i>Dividends</i>	<i>Dividends + Buybacks</i>	<i>Net Income</i>	<i>FCFE</i>	<i>Dividend Yield</i>	<i>Dividend Payout</i>	<i>Cash Return/FCFE</i>
The Walt Disney Company	\$134,256	\$1,324	\$5,411	\$6,136	\$1,503	0.99%	21.58%	360.01%
Twenty-First Century Fox, Inc.	\$79,796	\$415	\$2,477	\$7,097	\$2,408	0.52%	6.78%	102.87%
Time Warner Inc	\$63,077	\$1,060	\$4,939	\$3,019	-\$4,729	1.68%	27.08%	NA
Viacom, Inc.	\$38,974	\$555	\$5,219	\$2,395	-\$2,219	1.42%	23.17%	NA
The Madison Square Garden Co.	\$4,426	\$0	\$0	\$142	-\$119	0.00%	0.00%	NA
Lions Gate Entertainment Corp	\$4,367	\$0	\$0	\$232	-\$697	0.00%	0.00%	NA
Live Nation Entertainment, Inc	\$3,894	\$0	\$0	-\$163	\$288	0.00%	NA	0.00%
Cinemark Holdings Inc	\$3,844	\$101	\$101	\$169	-\$180	2.64%	63.04%	NA
MGM Holdings Inc	\$3,673	\$0	\$59	\$129	\$536	0.00%	0.00%	11.00%
Regal Entertainment Group	\$3,013	\$132	\$132	\$145	-\$18	4.39%	77.31%	NA
DreamWorks Animation SKG Inc.	\$2,975	\$0	\$34	-\$36	-\$572	0.00%	NA	NA
AMC Entertainment Holdings	\$2,001	\$0	\$0	\$63	-\$52	0.00%	0.00%	NA
World Wrestling Entertainment	\$1,245	\$36	\$36	\$31	-\$27	2.88%	317.70%	NA
SFX Entertainment Inc.	\$1,047	\$0	\$0	-\$16	-\$137	0.00%	NA	NA
Carmike Cinemas Inc.	\$642	\$0	\$0	\$96	\$64	0.00%	0.00%	0.27%
Rentrak Corporation	\$454	\$0	\$0	-\$23	-\$13	0.00%	NA	NA
Reading International, Inc.	\$177	\$0	\$0	-\$1	\$15	0.00%	0.00%	0.00%
Average	\$20,462	\$213	\$1,083	\$1,142	-\$232	0.85%	41.28%	79.02%
Median	\$3,673	\$0	\$34	\$129	-\$27	0.00%	6.78%	5.63%

Going beyond averages... Looking at the market

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- Regressing dividend yield and payout against expected growth across all US companies in January 2014 yields:

$$\begin{array}{l} \text{PYT} = 0.649 - 0.296 (\text{BETA}) - .800 (\text{EGR}) + .300 (\text{DCAP}) \quad R^2 = 19.6\% \\ \quad (32.16) \quad (15.40) \quad (8.90) \quad (7.33) \\ \\ \text{YLD} = 0.0324 - .0154 (\text{BETA}) - .038 (\text{EGR}) + .023 (\text{DCAP}) \quad R^2 = 25.8\% \\ \quad (38.81) \quad (19.41) \quad (13.25) \quad (13.45) \end{array}$$

PYT = Dividend Payout Ratio = Dividends/Net Income

YLD = Dividend Yield = Dividends/Current Price

BETA = Beta (Regression or Bottom up) for company

EGR = Expected growth rate in earnings over next 5 years (analyst estimates)

DCAP = Total Debt / (Total Debt + Market Value of equity)

Using the market regression on Disney

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- To illustrate the applicability of the market regression in analyzing the dividend policy of Disney, we estimate the values of the independent variables in the regressions for the firm.
 - ▣ Beta for Disney (bottom up) = 1.00
 - ▣ Disney's expected growth in earnings per share = 14.73% (analyst estimate)
 - ▣ Disney's market debt to capital ratio = 11.58%
- Substituting into the regression equations for the dividend payout ratio and dividend yield, we estimate a predicted payout ratio:
 - ▣ Predicted Payout = $.649 - 0.296 (1.00) - .800 (.1473) + .300 (.1158) = .2695$
 - ▣ Predicted Yield = $0.0324 - .0154 (1.00) - .038 (.1473) + .023 (.1158) = .0140$
- ▣ Based on this analysis, Disney with its dividend yield of 1.09% and a payout ratio of approximately 21.58% is paying too little in dividends. This analysis, however, fails to factor in the huge stock buybacks made by Disney over the last few years.

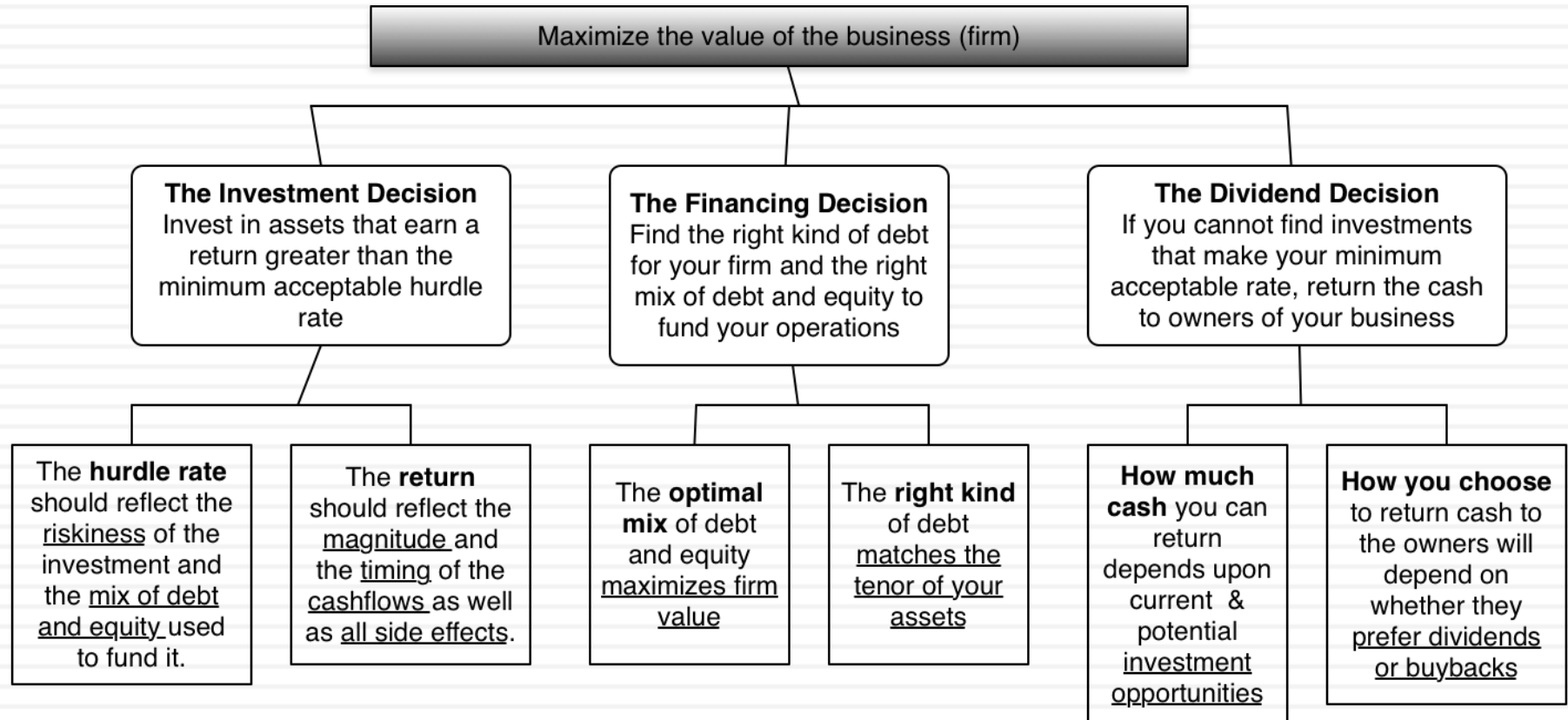


VALUATION

Cynic: A person who knows the price of everything but the value of nothing..
Oscar Wilde

First Principles

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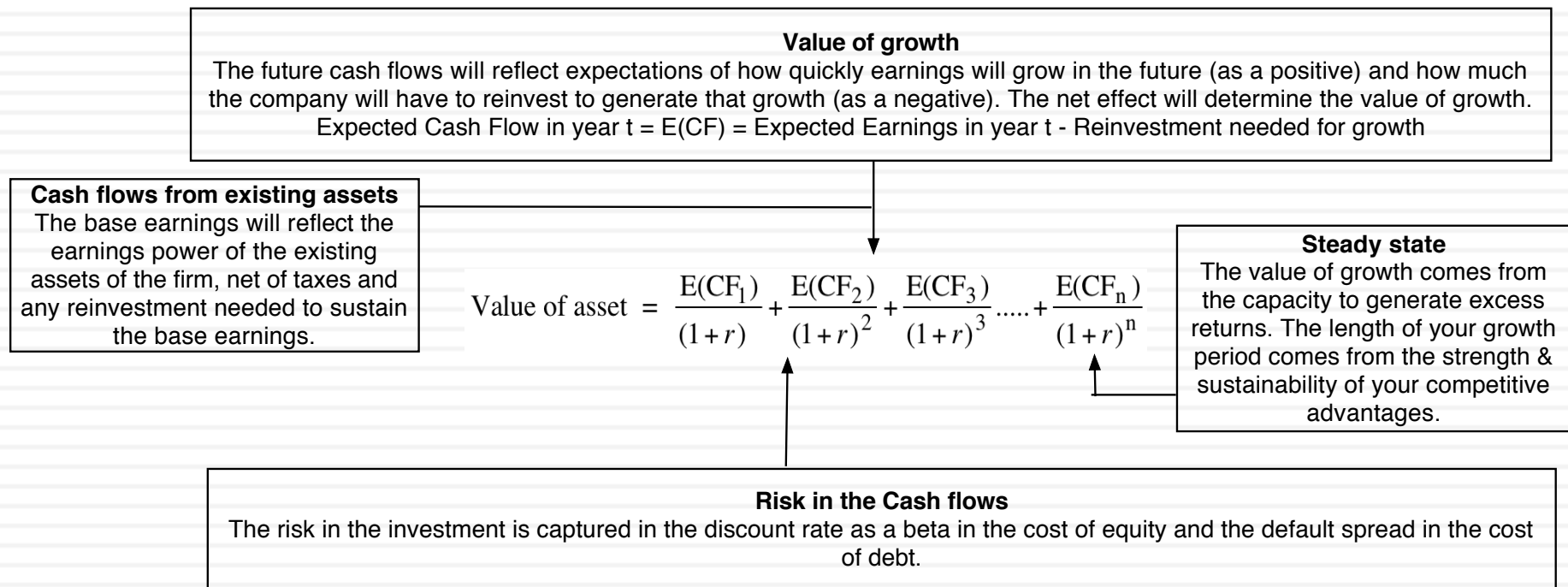
Three approaches to valuation

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- Intrinsic valuation: The value of an asset is a function of its fundamentals – cash flows, growth and risk. In general, discounted cash flow models are used to estimate intrinsic value.
- Relative valuation: The value of an asset is estimated based upon what investors are paying for similar assets. In general, this takes the form of value or price multiples and comparing firms within the same business.
- Contingent claim valuation: When the cash flows on an asset are contingent on an external event, the value can be estimated using option pricing models.

One tool for estimating intrinsic value: Discounted Cash Flow Valuation

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Equity Valuation

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- The value of equity is obtained by discounting expected cashflows to equity, i.e., the residual cashflows after meeting all expenses, tax obligations and interest and principal payments, at the cost of equity, i.e., the rate of return required by equity investors in the firm.

$$\text{Value of Equity} = \sum_{t=1}^{t=n} \frac{\text{CF to Equity}_t}{(1+k_e)^t}$$

where,

CF to Equity_t = Expected Cashflow to Equity in period t

k_e = Cost of Equity

- The dividend discount model is a specialized case of equity valuation, and the value of a stock is the present value of expected future dividends.

Firm Valuation

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- The value of the firm is obtained by discounting expected cashflows to the firm, i.e., the residual cashflows after meeting all operating expenses and taxes, but prior to debt payments, at the weighted average cost of capital, which is the cost of the different components of financing used by the firm, weighted by their market value proportions.

$$\text{Value of Firm} = \sum_{t=1}^{t=n} \frac{\text{CF to Firm}_t}{(1+WACC)^t}$$

where,

CF to Firm $_t$ = Expected Cashflow to Firm in period t

WACC = Weighted Average Cost of Capital

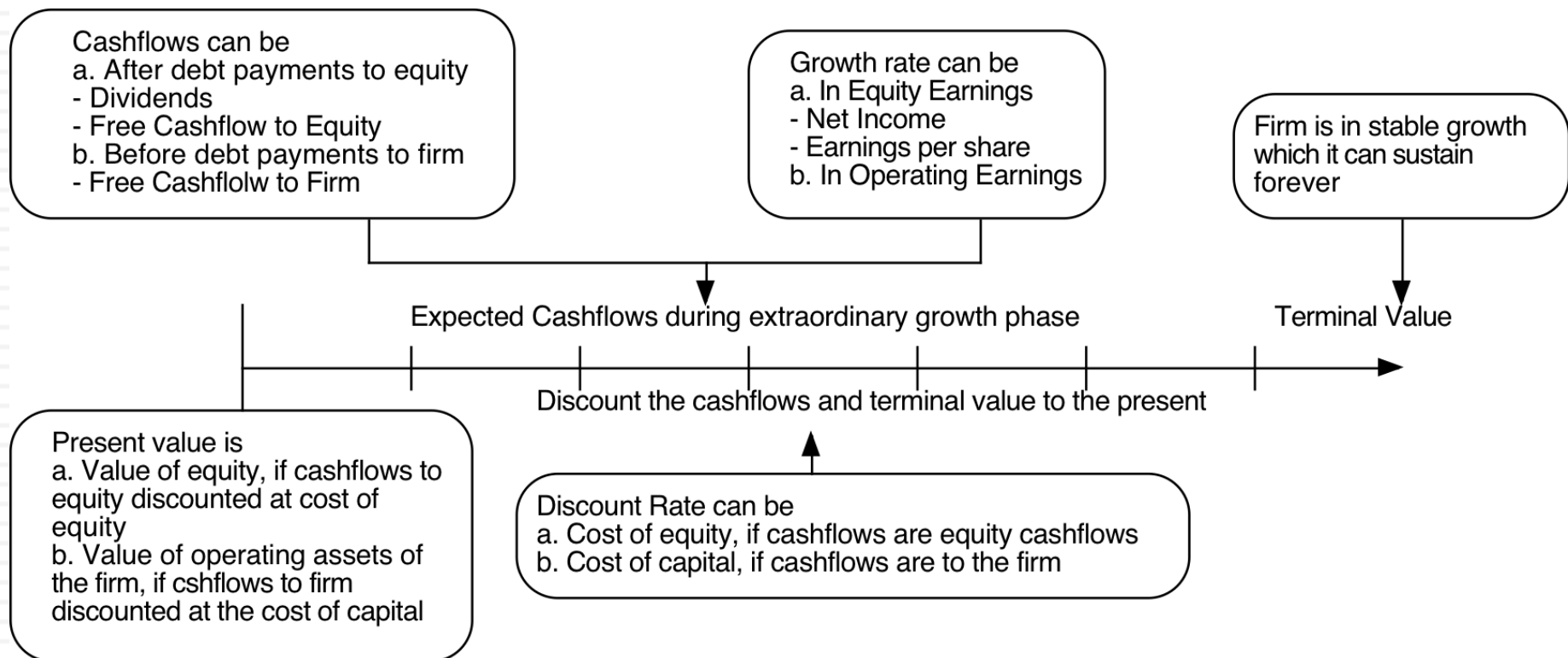
Choosing a Cash Flow to Discount

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- When you cannot estimate the free cash flows to equity or the firm, the only cash flow that you can discount is dividends. For financial service firms, it is difficult to estimate free cash flows. For Deutsche Bank, we will be discounting dividends.
- If a firm's debt ratio is not expected to change over time, the free cash flows to equity can be discounted to yield the value of equity. For Tata Motors, we will discount free cash flows to equity.
- If a firm's debt ratio might change over time, free cash flows to equity become cumbersome to estimate. Here, we would discount free cash flows to the firm. For Vale and Disney, we will discount the free cash flow to the firm.

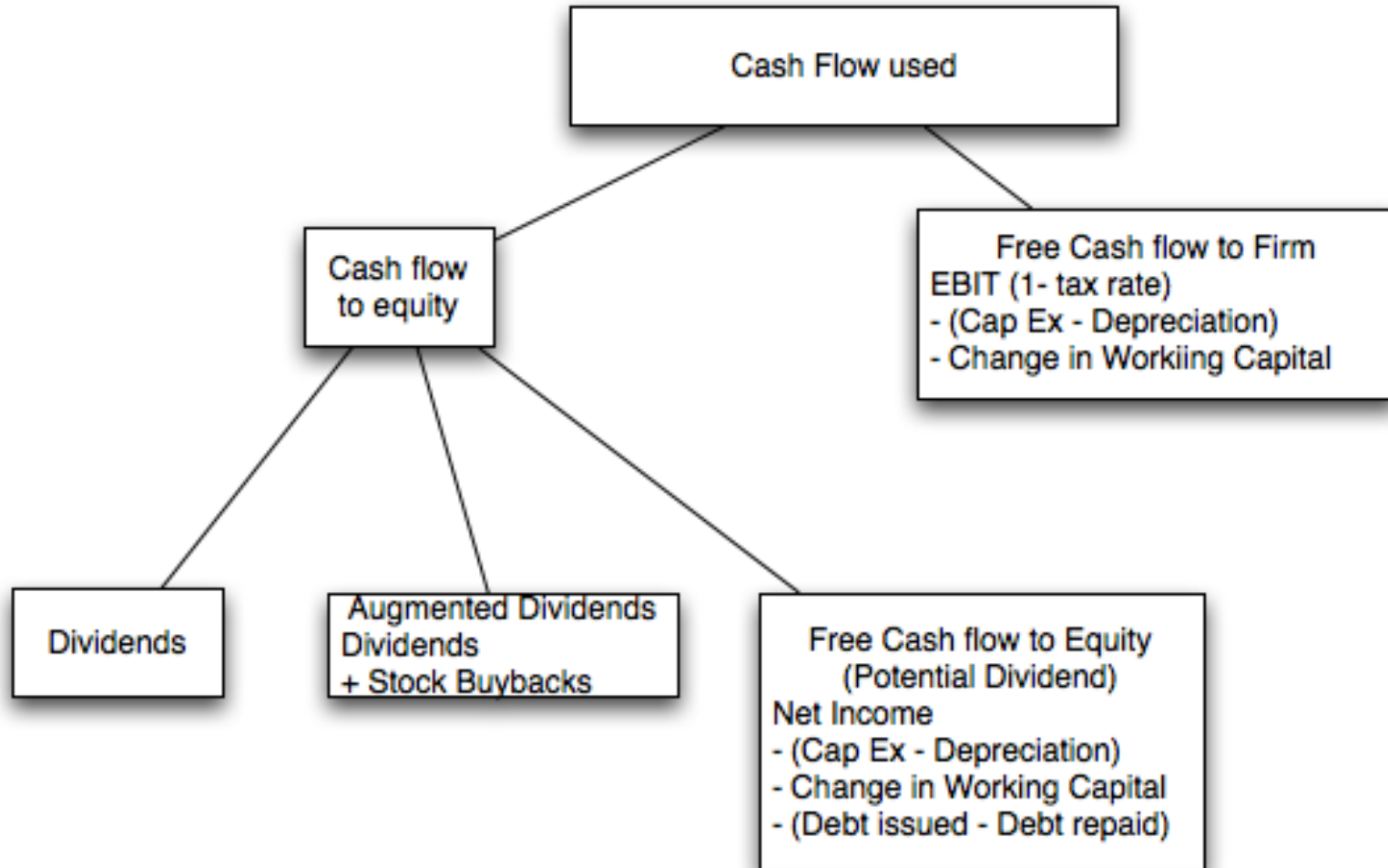
The Ingredients that determine value.

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I. Estimating Cash Flows

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Dividends and Modified Dividends for Deutsche Bank

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- In 2007, Deutsche Bank paid out dividends of 2,146 million Euros on net income of 6,510 million Euros. In early 2008, we valued Deutsche Bank using the dividends it paid in 2007. In my 2008 valuation I am assuming the dividends are not only reasonable but sustainable.
- In November 2013, Deutsche Bank's dividend policy was in flux. Not only did it report losses but it was on a pathway to increase its regulatory capital ratio. Rather than focus on the dividends (which were small), we estimated the potential dividends (by estimating the free cash flows to equity after investments in regulatory capital)

	Current	2014	2015	2016	2017	2018	Steady state
Asset Base	439,851 €	453,047 €	466,638 €	480,637 €	495,056 €	509,908 €	517,556 €
Capital ratio	15.13%	15.71%	16.28%	16.85%	17.43%	18.00%	18.00%
Tier 1 Capital	66,561 €	71,156 €	75,967 €	81,002 €	86,271 €	91,783 €	93,160 €
Change in regulatory capital		4,595 €	4,811 €	5,035 €	5,269 €	5,512 €	1,377 €
Book Equity	76,829 €	81,424 €	86,235 €	91,270 €	96,539 €	102,051 €	103,605 €
ROE	-1.08%	0.74%	2.55%	4.37%	6.18%	8.00%	8.00%
Net Income	-716 €	602 €	2,203 €	3,988 €	5,971 €	8,164 €	8,287 €
- Investment in Regulatory Capital		4,595 €	4,811 €	5,035 €	5,269 €	5,512 €	1,554 €
FCFE		-3,993 €	-2,608 €	-1,047 €	702 €	2,652 €	6,733 €

Estimating FCFE (past) : Tata Motors

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Year	Net Income	Cap Ex	Depreciation	Change in WC	Change in Debt	Equity Reinvestment	Equity Reinvestment Rate
2008-09	-25,053₹	99,708₹	25,072₹	13,441₹	25,789₹	62,288₹	-248.63%
2009-10	29,151₹	84,754₹	39,602₹	-26,009₹	5,605₹	13,538₹	46.44%
2010-11	92,736₹	81,240₹	46,510₹	50,484₹	24,951₹	60,263₹	64.98%
2011-12	135,165₹	138,756₹	56,209₹	22,801₹	30,846₹	74,502₹	55.12%
2012-13	98,926₹	187,570₹	75,648₹	680₹	32,970₹	79,632₹	80.50%
Aggregate	330,925₹	592,028₹	243,041₹	61,397₹	120,160₹	290,224₹	87.70%

Estimating FCFF: Disney

- In the fiscal year ended September 2013, Disney reported the following:
 - ▣ Operating income (adjusted for leases) = \$10,032 million
 - ▣ Effective tax rate = 31.02%
 - ▣ Capital Expenditures (including acquisitions) = \$5,239 million
 - ▣ Depreciation & Amortization = \$2,192 million
 - ▣ Change in non-cash working capital = \$103 million
- The free cash flow to the firm can be computed as follows:

After-tax Operating Income	= 10,032 (1 - .3102)	= \$6,920
- Net Cap Expenditures	= \$5,239 - \$2,192	= \$3,629
- Change in Working Capital	=	= \$103
= Free Cashflow to Firm (FCFF)	=	= \$3,188
- The reinvestment and reinvestment rate are as follows:
 - ▣ Reinvestment = \$3,629 + \$103 = \$3,732 million
 - ▣ Reinvestment Rate = \$3,732 / \$6,920 = 53.93%

II. Discount Rates

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- Critical ingredient in discounted cashflow valuation. Errors in estimating the discount rate or mismatching cashflows and discount rates can lead to serious errors in valuation.
- At an intuitive level, the discount rate used should be consistent with both the riskiness and the type of cashflow being discounted.
- The cost of equity is the rate at which we discount cash flows to equity (dividends or free cash flows to equity). The cost of capital is the rate at which we discount free cash flows to the firm.

Cost of Equity: Deutsche Bank

2008 versus 2013

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- In early 2008, we estimated a beta of 1.162 for Deutsche Bank, which used in conjunction with the Euro risk-free rate of 4% (in January 2008) and an equity risk premium of 4.50%, yielded a cost of equity of 9.23%.

$$\begin{aligned}\text{Cost of Equity}_{\text{Jan 2008}} &= \text{Riskfree Rate}_{\text{Jan 2008}} + \text{Beta} * \text{Mature Market Risk Premium} \\ &= 4.00\% + 1.162 (4.5\%) = 9.23\%\end{aligned}$$

- In November 2013, the Euro riskfree rate had dropped to 1.75% and the Deutsche's equity risk premium had risen to 6.12%:

$$\begin{aligned}\text{Cost of equity}_{\text{Nov '13}} &= \text{Riskfree Rate}_{\text{Nov '13}} + \text{Beta (ERP)} \\ &= 1.75\% + 1.1516 (6.12\%) = 8.80\%\end{aligned}$$

Cost of Equity: Tata Motors

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- We will be valuing Tata Motors in rupee terms. That is a choice. Any company can be valued in any currency.
- Earlier, we estimated a levered beta for equity of 1.1007 for Tata Motor's operating assets. Since we will be discounting FCFE with the income from cash included in the cash, we recomputed a beta for Tata Motors as a company (with cash):

$$\text{Levered Beta}_{\text{Company}} = 1.1007 (1428/1630) + 0 (202/1630) = 0.964$$

- With a nominal rupee risk-free rate of 6.57 percent and an equity risk premium of 7.19% for Tata Motors, we arrive at a cost of equity of 13.50%.

$$\text{Cost of Equity} = 6.57\% + 0.964 (7.19\%) = 13.50\%$$

Current Cost of Capital: Disney

- The beta for Disney's stock in November 2013 was 1.0013. The T. bond rate at that time was 2.75%. Using an estimated equity risk premium of 5.76%, we estimated the cost of equity for Disney to be 8.52%:

$$\text{Cost of Equity} = 2.75\% + 1.0013(5.76\%) = 8.52\%$$

- Disney's bond rating in May 2009 was A, and based on this rating, the estimated pretax cost of debt for Disney is 3.75%. Using a marginal tax rate of 36.1, the after-tax cost of debt for Disney is 2.40%.

$$\text{After-Tax Cost of Debt} = 3.75\% (1 - 0.361) = 2.40\%$$

- The cost of capital was calculated using these costs and the weights based on market values of equity (121,878) and debt (15,961):

Cost of capital =

$$8.52\% \frac{121,878}{(15,961+121,878)} + 2.40\% \frac{15,961}{(15,961+121,878)} = 7.81\%$$

But costs of equity and capital can and should change over time...

Year	Beta	Cost of Equity	After-tax Cost of Debt	Debt Ratio	Cost of capital
1	1.0013	8.52%	2.40%	11.50%	7.81%
2	1.0013	8.52%	2.40%	11.50%	7.81%
3	1.0013	8.52%	2.40%	11.50%	7.81%
4	1.0013	8.52%	2.40%	11.50%	7.81%
5	1.0013	8.52%	2.40%	11.50%	7.81%
6	1.0010	8.52%	2.40%	13.20%	7.71%
7	1.0008	8.51%	2.40%	14.90%	7.60%
8	1.0005	8.51%	2.40%	16.60%	7.50%
9	1.0003	8.51%	2.40%	18.30%	7.39%
10	1.0000	8.51%	2.40%	20.00%	7.29%

III. Expected Growth

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