

## Net Capital Expenditures

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- Net capital expenditures represent the difference between capital expenditures and depreciation. Depreciation is a cash inflow that pays for some or a lot (or sometimes all of) the capital expenditures.
- In general, the net capital expenditures will be a function of how fast a firm is growing or expecting to grow. High growth firms will have much higher net capital expenditures than low growth firms.
- Assumptions about net capital expenditures can therefore never be made independently of assumptions about growth in the future.

## Capital expenditures should include

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- Research and development expenses, once they have been re-categorized as capital expenses. The adjusted net cap ex will be  
$$\text{Adjusted Net Capital Expenditures} = \text{Net Capital Expenditures} + \text{Current year's R\&D expenses} - \text{Amortization of Research Asset}$$
- Acquisitions of other firms, since these are like capital expenditures. The adjusted net cap ex will be  
$$\text{Adjusted Net Cap Ex} = \text{Net Capital Expenditures} + \text{Acquisitions of other firms} - \text{Amortization of such acquisitions}$$

Two caveats:

  1. Most firms do not do acquisitions every year. Hence, a normalized measure of acquisitions (looking at an average over time) should be used
  2. The best place to find acquisitions is in the statement of cash flows, usually categorized under other investment activities

## Cisco's Acquisitions: 1999

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<i>Acquired</i>	<i>Method of Acquisition</i>	<i>Price Paid</i>
GeoTel	Pooling	\$1,344
Fibex	Pooling	\$318
Sentient	Pooling	\$103
American Internent	Purchase	\$58
Summa Four	Purchase	\$129
Clarity Wireless	Purchase	\$153
Selsius Systems	Purchase	\$134
PipeLinks	Purchase	\$118
Amteva Tech	Purchase	\$159
		<b>\$2,516</b>

## Cisco's Net Capital Expenditures in 1999

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Cap Expenditures (from statement of CF)	= \$ 584 mil
- Depreciation (from statement of CF)	= \$ 486 mil
Net Cap Ex (from statement of CF)	= \$ 98 mil
+ R & D expense	= \$ 1,594 mil
- Amortization of R&D	= \$ 485 mil
+ Acquisitions	= \$ 2,516 mil
Adjusted Net Capital Expenditures	= \$3,723 mil

(Amortization was included in the depreciation number)

## Working Capital Investments

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- In accounting terms, the working capital is the difference between current assets (inventory, cash and accounts receivable) and current liabilities (accounts payables, short term debt and debt due within the next year)
- A cleaner definition of working capital from a cash flow perspective is the difference between non-cash current assets (inventory and accounts receivable) and non-debt current liabilities (accounts payable)
- Any investment in this measure of working capital ties up cash. Therefore, any increases (decreases) in working capital will reduce (increase) cash flows in that period.
- When forecasting future growth, it is important to forecast the effects of such growth on working capital needs, and building these effects into the cash flows.

## Working Capital: General Propositions

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- Changes in non-cash working capital from year to year tend to be volatile. A far better estimate of non-cash working capital needs, looking forward, can be estimated by looking at non-cash working capital as a proportion of revenues
- Some firms have negative non-cash working capital. Assuming that this will continue into the future will generate positive cash flows for the firm. While this is indeed feasible for a period of time, it is not forever. Thus, it is better that non-cash working capital needs be set to zero, when it is negative.

## Volatile Working Capital?

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	<i>Amazon</i>	<i>Cisco</i>	<i>Motorol</i>
Revenues	\$ 1,640	\$12,154	\$30,931
Non-cash WC	-\$419	-\$404	\$2547
<b>% of Revenues</b>	<b>-25.53%</b>	<b>-3.32%</b>	<b>8.23%</b>
Change from last year	\$ (309)	(\$700)	(\$829)
<b>Average: last 3 years</b>	<b>-15.16%</b>	<b>-3.16%</b>	<b>8.91%</b>
<b>Average: industry</b>	<b>8.71%</b>	<b>-2.71%</b>	<b>7.04%</b>
 <i>Assumption in Valuation</i>			
WC as % of Revenue	3.00%	0.00%	8.23%

## Dividends and Cash Flows to Equity

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- In the strictest sense, the only cash flow that an investor will receive from an equity investment in a publicly traded firm is the dividend that will be paid on the stock.
- Actual dividends, however, are set by the managers of the firm and may be much lower than the potential dividends (that could have been paid out)
  - managers are conservative and try to smooth out dividends
  - managers like to hold on to cash to meet unforeseen future contingencies and investment opportunities
- When actual dividends are less than potential dividends, using a model that focuses only on dividends will under state the true value of the equity in a firm.

## Measuring Potential Dividends

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- Some analysts assume that the earnings of a firm represent its potential dividends. This cannot be true for several reasons:
  - Earnings are not cash flows, since there are both non-cash revenues and expenses in the earnings calculation
  - Even if earnings were cash flows, a firm that paid its earnings out as dividends would not be investing in new assets and thus could not grow
  - Valuation models, where earnings are discounted back to the present, will overestimate the value of the equity in the firm
- The potential dividends of a firm are the cash flows left over after the firm has made any “investments” it needs to make to create future growth and net debt repayments (debt repayments - new debt issues)
  - The common categorization of capital expenditures into discretionary and non-discretionary loses its basis when there is future growth built into the valuation.

## Estimating Cash Flows: FCFE

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### ■ Cash flows to Equity for a Levered Firm

Net Income

- (Capital Expenditures - Depreciation)

- Changes in non-cash Working Capital

- (Principal Repayments - New Debt Issues)

= Free Cash flow to Equity

- I have ignored preferred dividends. If preferred stock exist, preferred dividends will also need to be netted out

## Estimating FCFE when Leverage is Stable

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Net Income

- $(1 - \delta)$  (Capital Expenditures - Depreciation)
- $(1 - \delta)$  Working Capital Needs
- = Free Cash flow to Equity

$\delta$  = Debt/Capital Ratio

For this firm,

- Proceeds from new debt issues = Principal Repayments +  $\delta$  (Capital Expenditures - Depreciation + Working Capital Needs)
- In computing FCFE, the book value debt to capital ratio should be used when looking back in time but can be replaced with the market value debt to capital ratio, looking forward.

## Estimating FCFE: Disney

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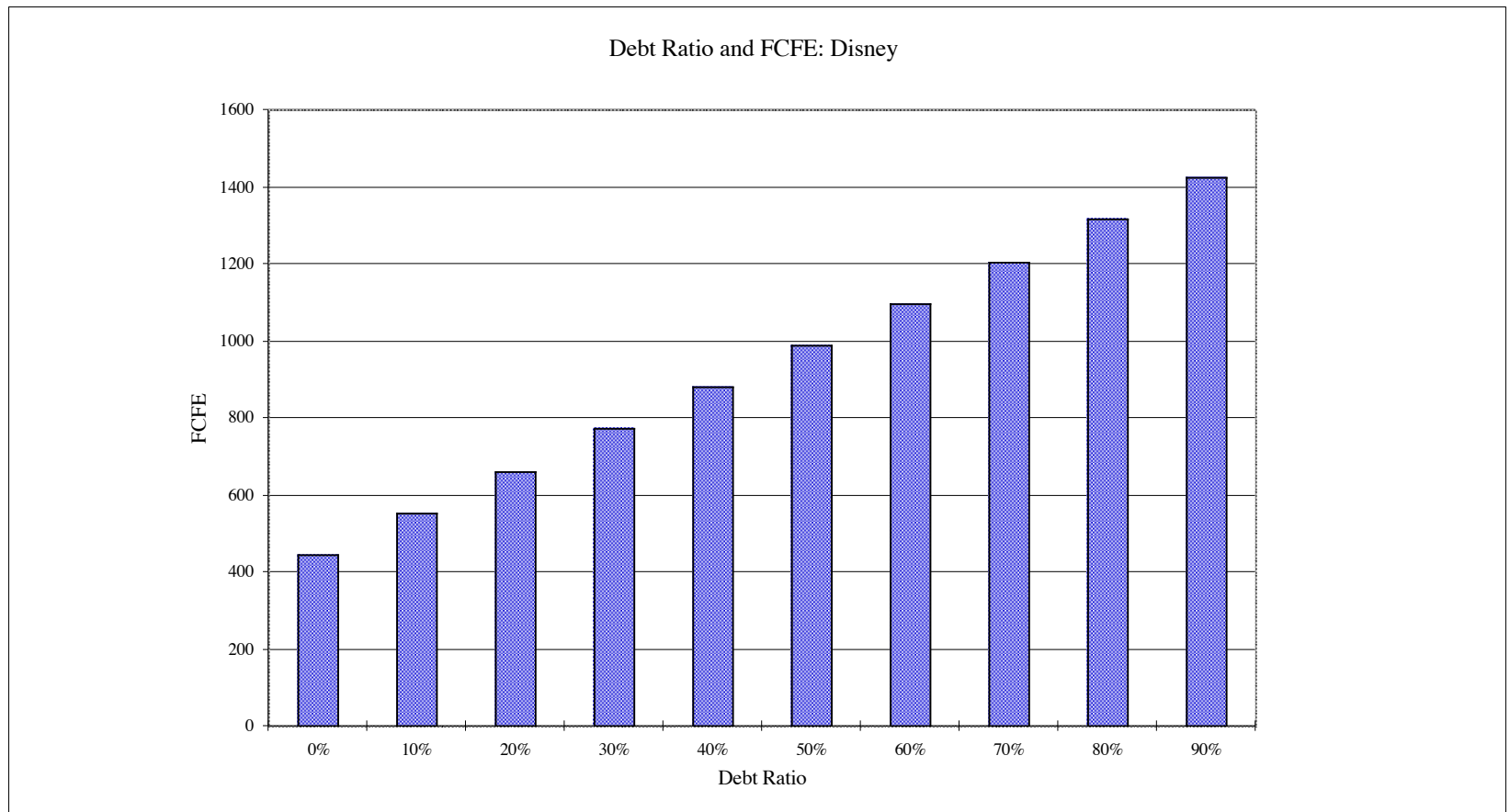
- Net Income=\$ 1533 Million
- Capital spending = \$ 1,746 Million
- Depreciation per Share = \$ 1,134 Million
- Increase in non-cash working capital = \$ 477 Million
- Debt to Capital Ratio = 23.83%
- Estimating FCFE (1997):

Net Income	\$1,533 Mil	
- (Cap. Exp - Depr)*(1-DR)	\$465.90	[(1746-1134)(1-.2383)]
Chg. Working Capital*(1-DR)	\$363.33	[477(1-.2383)]
<b>= Free CF to Equity</b>	<b>\$ 704 Million</b>	

**Dividends Paid**                      **\$ 345 Million**

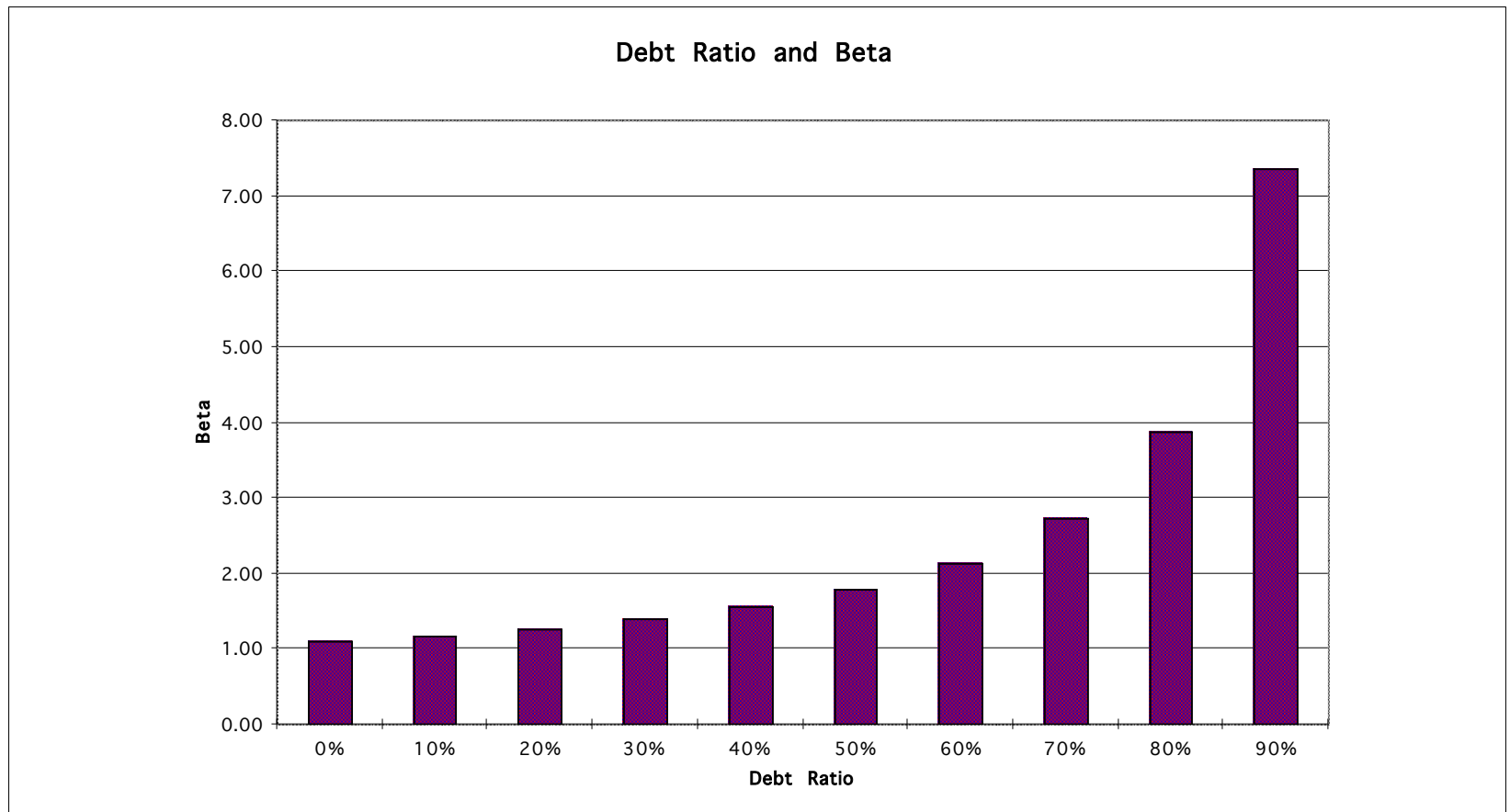
## FCFE and Leverage: Is this a free lunch?

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## FCFE and Leverage: The Other Shoe Drops

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## Leverage, FCFE and Value

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- In a discounted cash flow model, increasing the debt/equity ratio will generally increase the expected free cash flows to equity investors over future time periods and also the cost of equity applied in discounting these cash flows. Which of the following statements relating leverage to value would you subscribe to?
- ❑ Increasing leverage will increase value because the cash flow effects will dominate the discount rate effects
- ❑ Increasing leverage will decrease value because the risk effect will be greater than the cash flow effects
- ❑ Increasing leverage will not affect value because the risk effect will exactly offset the cash flow effect
- ❑ Any of the above, depending upon what company you are looking at and where it is in terms of current leverage