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Cash Flows III

From the firm to equity

Dividends and Cash Flows to Equity

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- In the strictest sense, the only cash flow 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 (more) than potential dividends, using a model that focuses only on dividends will under (over) 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 over estimate 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

+ (New Debt Issues – Debt Repaid)

= Free Cash flow to Equity

□ Cash flows to equity represent residual cash flows for equity investors, i.e., cash flows left over after every conceivable need has been met.

□ That cash flow can be paid out without damaging the operating business of the company and its growth potential. It is thus a potential dividend.

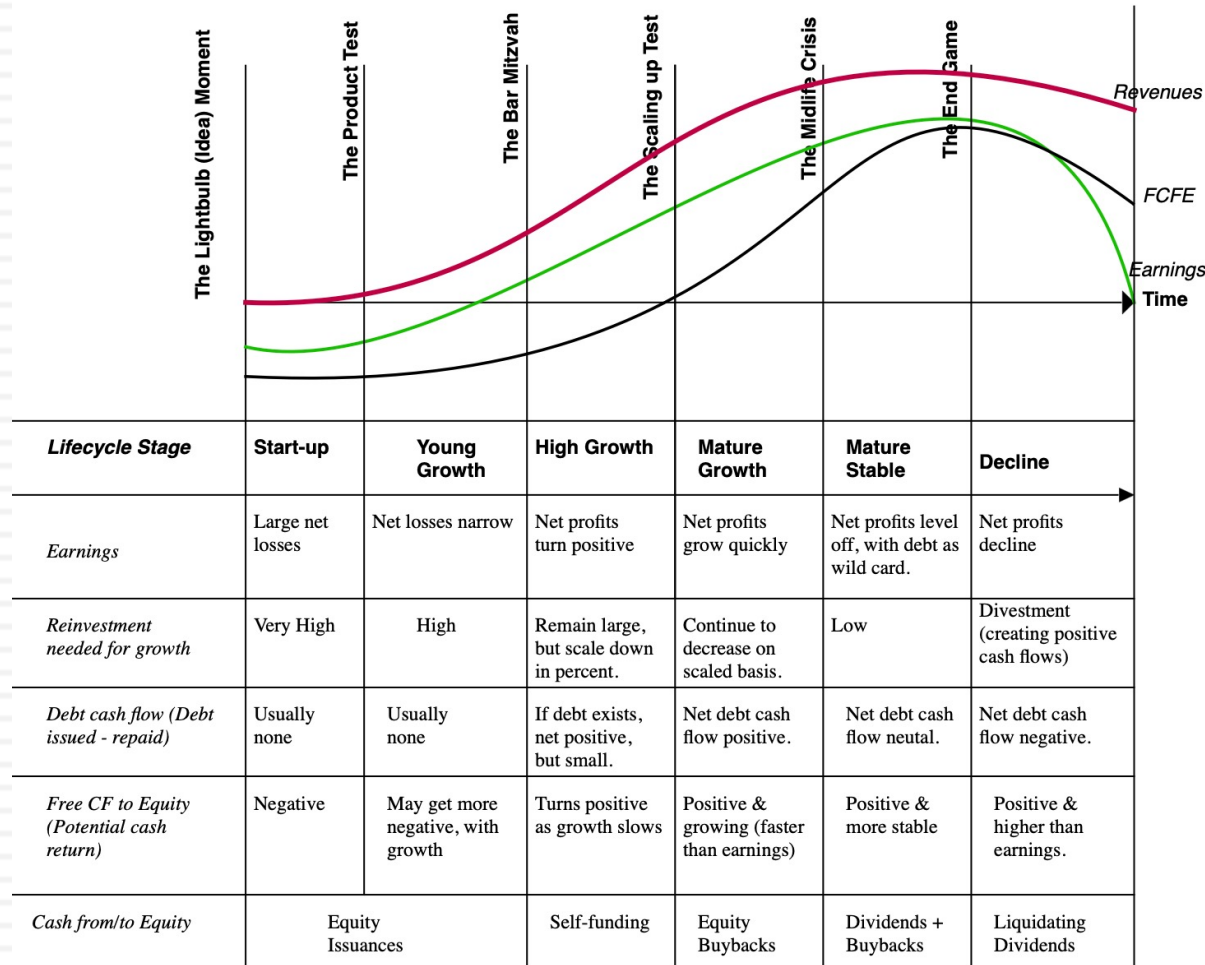
FCFE from the statement of cash flows

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- The statement of cash flows can be used to back into a FCFE, if you are willing to navigate your way through it and not trust it fully.
- FCFE
 - = Cashflow from Operations
 - Capital Expenditures (from the cash flow from investments)
 - Cash Acquisitions (from the cash flow from investments)
 - (Debt Repaid – Debt Issued) (from financing cash flows)
 - = FCFE
- Alternatively, you can also do the following:
 - ▣ $FCFE - Dividends + Stock\ Buybacks - Stock\ Issuances + Change\ in\ Cash\ Balance$

FCFE across the life cycle

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FCFE over time: Tesla

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Tesla: Net Income and FCFE - 2006 to 2021



Dividends versus FCFE: Across the globe

<i>Sub Group</i>	Number of firms	Net Income	FCFE	Dividends	Buybacks	% from Buybacks	Dividends + Buybacks
Africa and Middle East	2,423	\$307,736.16	\$230,376.04	\$178,945	\$13,131	6.84%	\$192,076
Australia & NZ	1,798	\$82,148.86	\$22,464.54	\$65,050	\$9,704	12.98%	\$74,754
Canada	2,791	\$129,021.51	-\$11,327.54	\$74,629	\$47,476	38.88%	\$122,105
China	7,504	\$798,823.69	-\$75,419.80	\$504,087	\$72,049	12.51%	\$576,136
EU & Environs	5,925	\$967,493.21	\$596,696.13	\$424,707	\$161,188	27.51%	\$585,896
Eastern Europe & Russia	325	\$13,064.78	\$7,204.94	\$6,426	\$410	6.00%	\$6,836
India	4,446	\$163,984.70	\$111,933.10	\$50,643	\$6,095	10.74%	\$56,738
Japan	4,020	\$371,873.39	\$16,137.31	\$115,135	\$63,865	35.68%	\$178,999
Latin America & Caribbean	984	\$135,544.59	\$33,386.50	\$67,145	\$16,117	19.36%	\$83,262
Small Asia	9,876	\$331,541.42	-\$42,424.57	\$188,287	\$15,484	7.60%	\$203,772
UK	1,125	\$245,010.10	\$178,627.76	\$114,706	\$61,037	34.73%	\$175,742
United States	6,481	\$1,785,480.61	\$563,221.99	\$700,711	\$928,104	56.98%	\$1,628,816
Global	47,698	\$5,331,723.03	\$1,630,876.38	\$2,490,471	\$1,394,660	35.90%	\$3,885,131

Estimating FCFE when Leverage is Stable

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Net Income

- (1- DR) (Capital Expenditures - Depreciation)
- (1- DR) Working Capital Needs
- = Free Cash flow to Equity

DR = Debt/Capital Ratio

For this firm,

- Proceeds from new debt issues = Principal Repayments + \square (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 (DR) = 23.83%
- Estimating FCFE (1997):

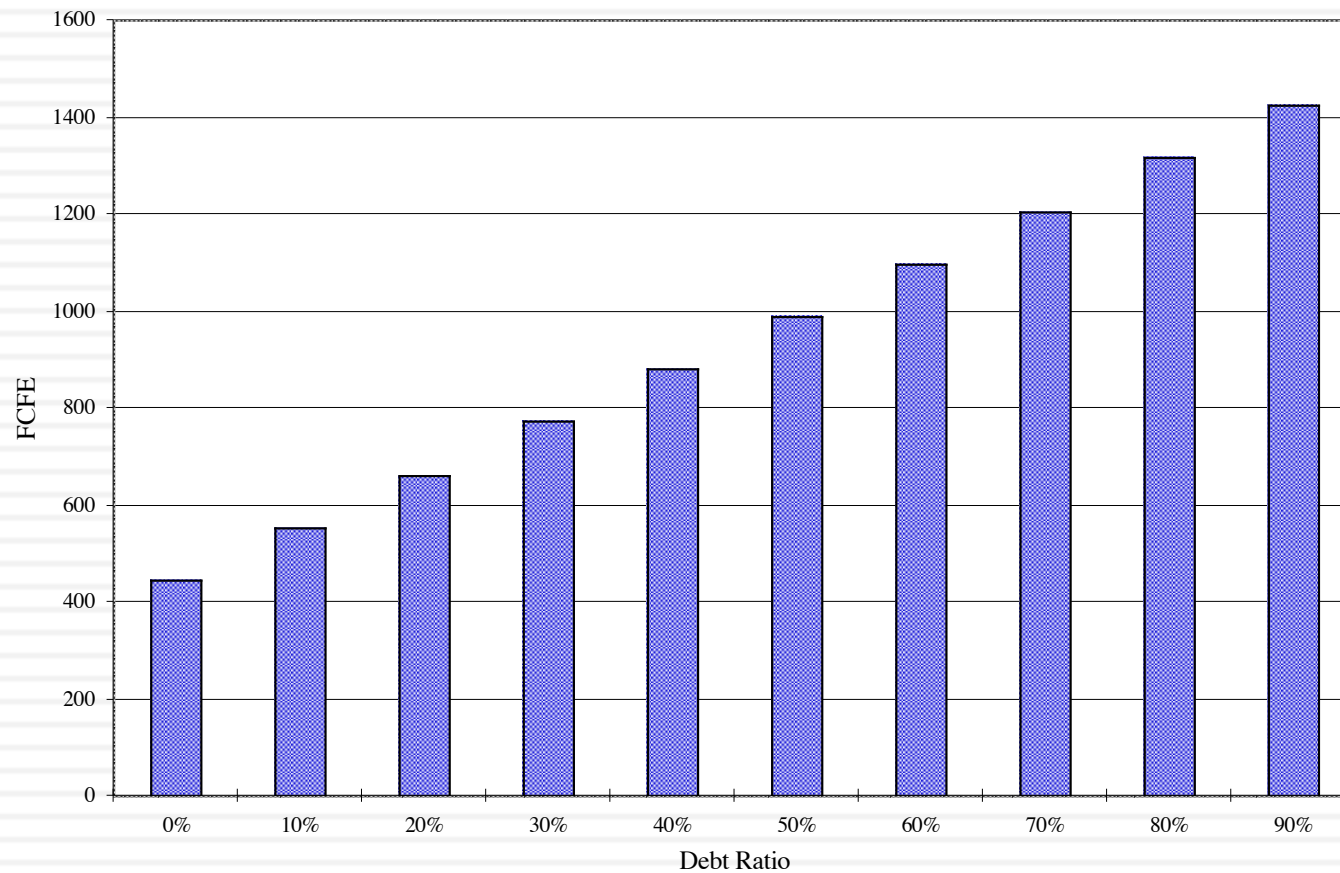
Net Income	\$1,533 Mil
- (Cap. Exp - Depr)*(1-DR)	\$465.90 [(1746-1134)(1-.2383)]
Chg. Working Capital*(1-DR)	\$363.33 [477(1-.2383)]
= Free CF to Equity	\$ 704 Million

Dividends Paid	\$ 345 Million
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FCFE and Leverage: Is this a free lunch?

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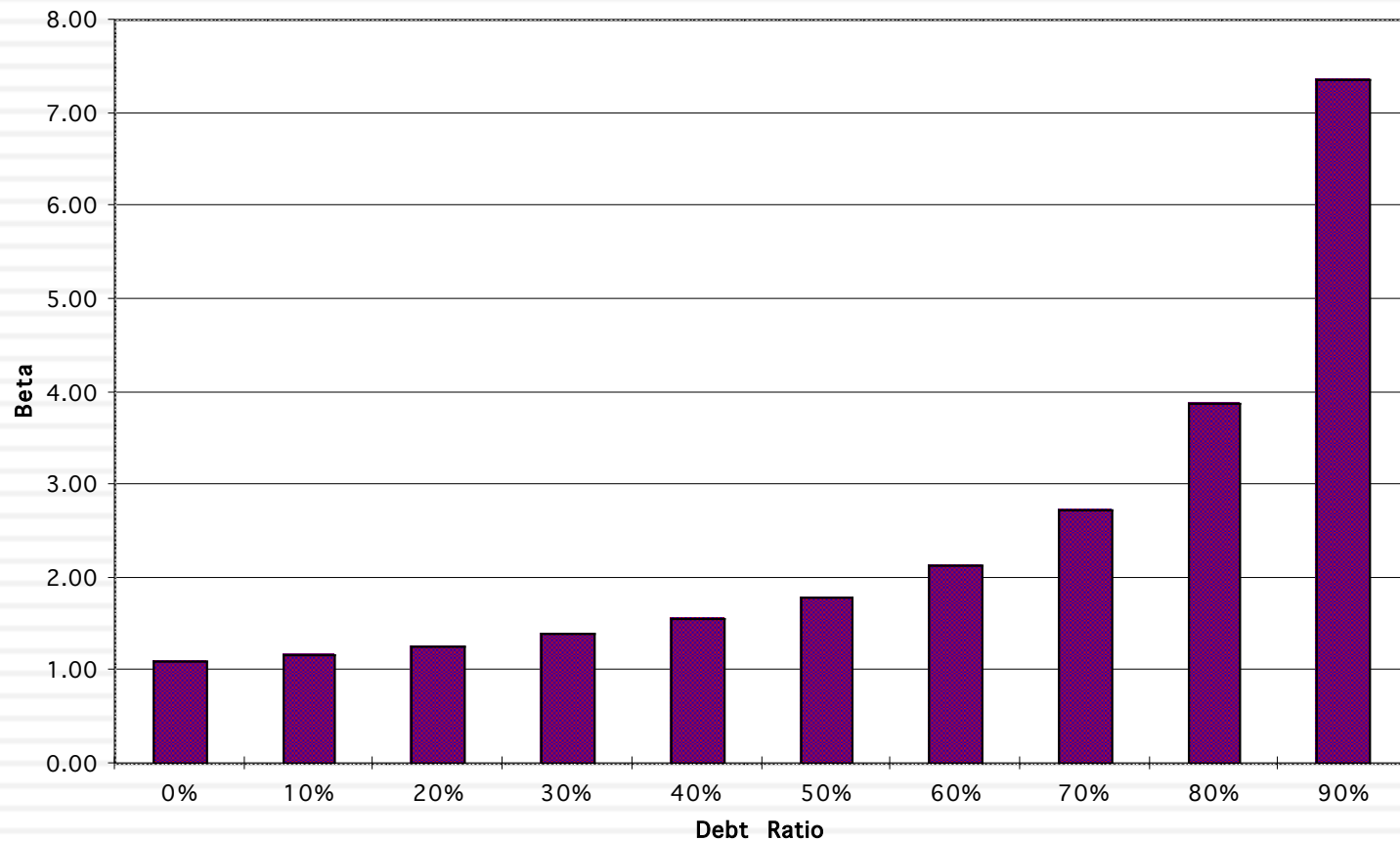
Debt Ratio and FCFE: Disney



FCFE and Leverage: The Other Shoe Drops

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Debt Ratio and Beta



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?
 - a. Increasing leverage will increase value because the cash flow effects will dominate the discount rate effects
 - b. Increasing leverage will decrease value because the risk effect will be greater than the cash flow effects
 - c. Increasing leverage will not affect value because the risk effect will exactly offset the cash flow effect
 - d. Any of the above, depending upon what company you are looking at and where it is in terms of current leverage

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Estimating Growth

Growth can be good, bad or neutral...

The Value of Growth

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- When valuing a company, it is easy to get caught up in the details of estimating growth and start viewing growth as a “good”, i.e., that higher growth translates into higher value.
- Growth, though, is a double-edged sword.
 - The good side of growth is that it pushes up revenues and operating income, perhaps at different rates (depending on how margins evolve over time).
 - The bad side of growth is that you have to set aside money to reinvest to create that growth.
 - The net effect of growth is whether the good outweighs the bad.

Ways of Estimating Growth in Earnings

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- Look at the past
 - ▣ The historical growth in earnings per share is usually a good starting point for growth estimation
- Look at what others are estimating
 - ▣ Analysts estimate growth in earnings per share for many firms. It is useful to know what their estimates are.
- Look at fundamentals
 - ▣ With stable margins, operating income growth can be tied to how much a firm reinvests, and the returns it earns.
 - ▣ With changing margins, you have to start with revenue growth, forecast margins and estimate reinvestment.

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Growth I

Historical Growth

Historical Growth

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- Historical growth rates can be estimated in a number of different ways
 - ▣ Arithmetic versus Geometric Averages
 - ▣ Simple versus Regression Models
- Historical growth rates can be sensitive to
 - ▣ The period used in the estimation (starting and ending points)
 - ▣ The metric that the growth is estimated in..
- In using historical growth rates, you have to wrestle with the following:
 - ▣ How to deal with negative earnings
 - ▣ The effects of scaling up

Motorola: Arithmetic versus Geometric Growth Rates

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	Revenues	% Change	EBITDA	% Change	EBIT	% Change
1994	\$ 22,245		\$ 4,151		\$ 2,604	
1995	\$ 27,037	21.54%	\$ 4,850	16.84%	\$ 2,931	12.56%
1996	\$ 27,973	3.46%	\$ 4,268	-12.00%	\$ 1,960	-33.13%
1997	\$ 29,794	6.51%	\$ 4,276	0.19%	\$ 1,947	-0.66%
1998	\$ 29,398	-1.33%	\$ 3,019	-29.40%	\$ 822	-57.78%
1999	\$ 30,931	5.21%	\$ 5,398	78.80%	\$ 3,216	291.24%
Arithmetic Average		7.08%		10.89%		42.45%
Geometric Average		6.82%		5.39%		4.31%
Standard deviation		8.61%		41.56%		141.78%

A Test

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- You are trying to estimate the growth rate in earnings per share at Time Warner from 1996 to 1997. In 1996, the earnings per share was a deficit of \$0.05. In 1997, the expected earnings per share is \$0.25. What is the growth rate?
 - a. -600%
 - b. +600%
 - c. +120%
 - d. Cannot be estimated

Dealing with Negative Earnings

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- When the earnings in the starting period are negative, the growth rate cannot be estimated. ($0.30/-0.05 = -600\%$)
- There are three solutions:
 - Use the higher of the two numbers as the denominator ($0.30/0.25 = 120\%$)
 - Use the absolute value of earnings in the starting period as the denominator ($0.30/0.05=600\%$)
 - Use a linear regression model and divide the coefficient by the average earnings.
- When earnings are negative, the growth rate is meaningless. Thus, while the growth rate can be estimated, it does not tell you much about the future.

The Effect of Size on Growth: Callaway Golf

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Year	Net Profit	Growth Rate
1990	1.80	
1991	6.40	255.56%
1992	19.30	201.56%
1993	41.20	113.47%
1994	78.00	89.32%
1995	97.70	25.26%
1996	122.30	25.18%

□ Geometric Average Growth Rate = 102%

Extrapolation and its Dangers

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Year	Net Profit
1996	\$ 122.30
1997	\$ 247.05
1998	\$ 499.03
1999	\$ 1,008.05
2000	\$ 2,036.25
2001	\$ 4,113.23

- If net profit continues to grow at the same rate as it has in the past 6 years, the expected net income in 5 years will be \$ 4.113 billion.

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Growth II

Analyst Estimates

Analyst Forecasts of Growth

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- While the job of an analyst is to find under and over valued stocks in the sectors that they follow, a significant proportion of an analyst's time (outside of selling) is spent forecasting earnings per share.
 - ▣ Most of this time, in turn, is spent forecasting earnings per share in the next earnings report
 - ▣ While many analysts forecast expected growth in earnings per share over the next 5 years, the analysis and information (generally) that goes into this estimate is far more limited.
- Analyst forecasts of earnings per share and expected growth are widely disseminated by services such as Zacks and IBES, at least for U.S companies.

How good are analysts at forecasting growth?

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- Analysts forecasts of EPS tend to be closer to the actual EPS than simple time series models, but the differences tend to be small

Study	Group tested	Analyst Error	Time Series Model Error
Collins & Hopwood	Value Line Forecasts	31.7%	34.1%
Brown & Rozeff	Value Line Forecasts	28.4%	32.2%
Fried & Givoly	Earnings Forecaster	16.4%	19.8%

- The advantage that analysts have over time series models
 - tends to decrease with the forecast period (next quarter versus 5 years)
 - tends to be greater for larger firms than for smaller firms
 - tends to be greater at the industry level than at the company level
- Forecasts of growth (and revisions thereof) tend to be highly correlated across analysts.

Are some analysts more equal than others?

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- A study of All-America Analysts (chosen by Institutional Investor) found that
 - There is no evidence that analysts who are chosen for the All-America Analyst team were chosen because they were better forecasters of earnings. (Their median forecast error in the quarter prior to being chosen was 30%; the median forecast error of other analysts was 28%)
 - However, in the calendar year following being chosen as All-America analysts, these analysts become slightly better forecasters than their less fortunate brethren. (The median forecast error for All-America analysts is 2% lower than the median forecast error for other analysts)
 - Earnings revisions made by All-America analysts tend to have a much greater impact on the stock price than revisions from other analysts
 - The recommendations made by the All America analysts have a greater impact on stock prices (3% on buys; 4.7% on sells). For these recommendations the price changes are sustained, and they continue to rise in the following period (2.4% for buys; 13.8% for the sells).