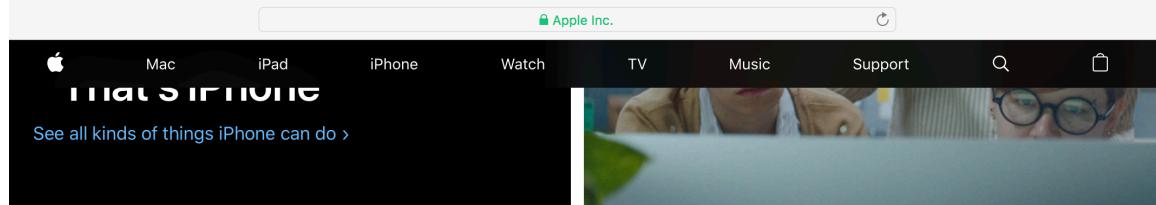


You can work as a group (up to 4 students). One submission per group. Make sure all group member names appear clearly on the submitted document. No additions to the group will be accepted after you submit your HW. **ONLINE SUBMISSIONS ONLY**.

Please submit your HW early, do not wait until the last moment. It is our experience that last minute tech glitches happen. If this is the case, we cannot accept your hw once the deadline passes. It may be a good idea to get into the habit of doing this for the current class and for future obligations.

We will use yahoo.finance as the source of data for the solution set. If you use a source other than yahoo.finance, your numbers may be different as different financial data sites may update their numbers at different times. No points should be taken off due to using alternative sources. Examples of financial data sources: google finance, yahoo finance, company's own site. Each publicly traded company has to publish their financials on their webpage. Typically, a link named "investors" or "financials" will take you to the current and past financial statements.

EXAMPLE: The following page is the main webpage of APPLE:

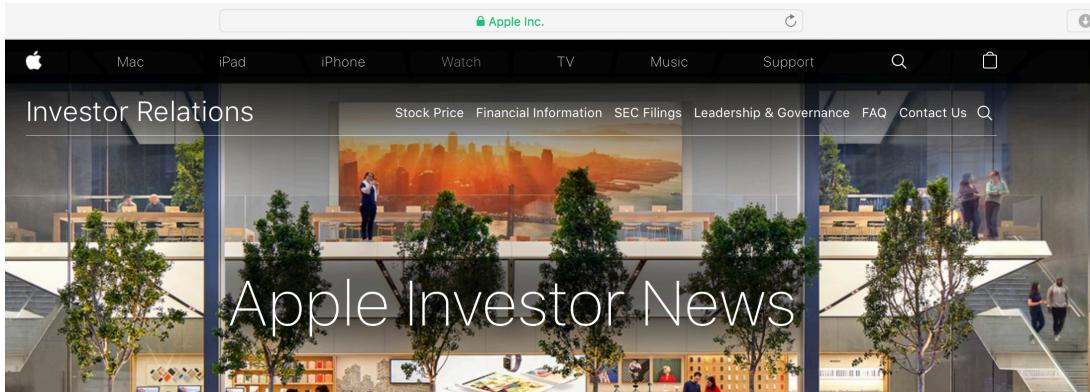


* Trade-in: Trade-in values vary. iPhone XR promotional pricing is after trade-in of iPhone 7 Plus in good condition. Additional trade-in values require purchase of a new iPhone, subject to availability and limits. Sales tax may be assessed on full value of new iPhone. You must be 18 years or older. In-store trade-in requires presentation of a valid, government-issued photo ID (local law may require saving this information). Apple or its trade-in partners reserve the right to refuse or limit any trade-in transaction for any reason. Additional terms from Apple or Apple's trade-in partners may apply. Monthly pricing: Available to qualified customers and requires 0% APR, 24-month installment loan with Citizens One, and iPhone activation with AT&T, Sprint, T-Mobile, or Verizon. Last installment payment may be less depending on remaining balance. Full terms apply.

Shop and Learn	Apple Store	For Education	Account	For Government
Mac	Find a Store	Apple and Education	Manage Your Apple ID	Shop for Government
iPad	Genius Bar	Shop for College	Apple Store Account	Shop for Veterans and Military
iPhone	Today at Apple		iCloud.com	
Watch	Apple Camp	For Business		About Apple
TV	Field Trip	Apple and Business	Apple Values	Newsroom
Music	Apple Store App	Shop for Business	Accessibility	Apple Leadership
iTunes	Refurbished and Clearance		Education	Job Opportunities
HomePod	Financing	Apple in Healthcare	Environment	Investors
iPod touch	Apple GiveBack	Health on Apple Watch	Inclusion and Diversity	Events
Apple Card	Order Status	Health Records on iPhone	Privacy	Contact Apple
Accessories	Shopping Help		Supplier Responsibility	
Gift Cards				



Clicking on "investors" link takes you to the following page, where you can see the "Financial Information" link on the top menu. From there, you can get the 10K report. 10K refers to the "annual report". 10Q refers to the "quarterly report".



STATE YOUR SOURCE CLEARLY. Points will be taken off if you do not include your data source.

Mel's Office Hours THIS WEEK: Wed: 1:15-2:15, Thu: 9:30-10:30. Let me know if these times are not good for you should you want to meet. Afterhours SKYPE meeting is also possible. Please do not hesitate to ask for a meeting.

1. (20 points) Find two companies (of your choice) whose financial statements are publicly available. Fill out the following table using the latest available annual numbers:

	Current Assets	Long Term Debt	Equity	Revenue	Net income
Company I					
Company II					

Can you compare the financial health of these companies by looking at the above numbers? Why or why not? Provide at least three criteria to be able to compare financial numbers of these two companies.

2. (20 points) Following are the account entries for Company X. Organize company's Balance Sheet and Income Statement.

Cash 250
 Plant&Equipment 600
 Owners' Equity 500
 Long Term Debt 400
 Net Income 227.5
 Tax 122.5
 Interest 50
 Cost of Goods Sold 700
 Inventory 200
 Revenue 1,100
 Accounts Payable 150

Income Statement:

Revenue	1,100
Cost of Goods Sold	700
EBIT	400
Interest	50

Pretax Income	350
Tax	122.5
Net Income	227.5

Balance Sheet

Current Assets	Current Liabilities
Cash	Accounts Payable
Inventory	Current Liabilities
Current Assets	Long Term Debt
Plant&Equipment	Owner's Equity
Total Assets	Total Liability&Equity

3. (10 points) Profit margins tend to differ in different industries. An example is that grocery stores have notoriously low profit margins. Albertson's Profit Margin is 1.2% compared to Pfizer's Profit Margin of 15.6%, a pharmaceutical company.

Then, why invest on grocery stores instead of pharmaceutical companies?

Investors are mostly interested in Return On Equity (ROE) which can be decomposed as

ROE = Profit Margin x Asset Turnover x Equity Multiplier. Therefore, Profit Margin, albeit important from an investor's point of view, constitutes only one of the components to consider.

If the company can get high sales per asset (asset turnover), investors would value this.

Also, if the company can successfully leverage itself (high equity multiplier), that is, debt is used to finance assets besides equity, investors value successfully management and funding assets via debt. (If company X is turning every dollar it is putting into the business to more than a dollar, in fact, more than what other businesses would turn it into, than it only makes sense that X should borrow and use this money to create value. Investors would support this kind of debt engagement.)

A low profit margin does not necessarily mean a low ROE. For example the Asset management of the company maybe so efficient (high Asset Turnover) that it compensates for a low profit margin. For example, for grocery stores, sales volume is expected to be comparatively high for the amount of assets needed to support those sales.

4. (25 points) Pull out the Income Statement and the Balance Sheet for Dec 31, 2018 for Alcoa Inc., one of the major aluminum companies in the world. Answer the following questions:

Balance Sheet

All numbers in thousands

Period Ending

Current Assets

Cash And Cash Equivalents

YAHOO.FINANCE

NASDAQ

1,113,000

1,259,000

Short Term Investments

1,003,000

Net Receivables

1,644,000

Inventory

76,000

301,000

Other Current Assets

4,134,000

Total Current Assets

1,360,000

1,442,000

Long Term Investments

8,450,000

8,327,000

Property Plant and Equipment

151,000

Goodwill

57,000

Intangible Assets

Accumulated Amortization

1,786,000

1,475,000

Other Assets

560,000

Deferred Long Term Asset Charges

15,938,000

Total Assets

Current Liabilities

Accounts Payable

1,663,000

2,489,000

Short/Current Long Term Debt

1,000

83,000

Other Current Liabilities

855,000

347,000

Total Current Liabilities

2,919,000

Long Term Debt

1,801,000

2,062,000

Other Liabilities

3,824,000

3,262,000

Deferred Long Term Liability Charges

Minority Interest

2,005,000

Negative Goodwill

Total Liabilities

8,544,000

10,549,000

Stockholders' Equity

Misc. Stocks Options Warrants

-

Redeemable Preferred Stock

-

Preferred Stock

-

Common Stock

2,000

Retained Earnings

341,000

Treasury Stock

-4,565,000

Capital Surplus

9,611,000

Total Stockholder Equity

5,389,000

Revenue

Total Revenue

YAHOO.FINANCE

NASDAQ

13,403,000

Cost of Revenue

10,081,000

Gross Profit

3,322,000

Operating Expenses

Research Development

31,000

Selling General and Administrative

387,000

248,000

Non Recurring

-

527,000

Others

125,000

733,000

Total Operating Expenses

11,357,000

Operating Income or Loss

2,046,000

1,783,000

Income from Continuing Operations

Total Other Income/Expenses Net

-449,000

-64,000

Earnings Before Interest and Taxes

2,046,000

1,719,000

Interest Expense

-122,000

Income Before Tax

1,597,000

Income Tax Expense

726,000

Minority Interest

2,005,000

-644,000

871,000

Net Income From Continuing Ops

Non-recurring Events

Discontinued Operations

-

Extraordinary Items

-

Effect Of Accounting Changes

-

Other Items

-

Net Income

Net Income

227,000

Preferred Stock And Other Adjustments

-

Net Income Applicable To Common Shares

227,000

Not all accounts for Alcoa's financial statements for 2018 were updated on yahoo.finance. First column has the yahoo.finance numbers and the second column is obtained from NASDAQ where Alcoa is listed and given only for those account with a

discrepancy. The ratios obtained using either source are accepted as correct.

a) What is the Quick Ratio for 2018?

$$\text{Quick Ratio} = (\text{Current Assets} - \text{Inventory}) / \text{Current Liabilities} = 0.85$$

b) What is the Equity Multiplier for 2018?

$$\text{Equity Multiplier} = \text{Total Assets} / \text{Total Equity} = 15,938,000 / 5,389,000 = 2.96$$

c) What is the Cash Coverage Ratio for 2018?

$$\text{Cash Coverage} = (\text{EBIT} + \text{Depreciation} + \text{Amortization}) / \text{Interest} = 1,719,000 / 122 = 14.09$$

d) What is the Return on Equity for 2018?

$$\text{Return on Equity} = \text{Net Income} / \text{Total Equity} = 227,000 / 5,389,000 = 0.042$$

e) How did the NWC (Net Working Capital) change from 2017 to 2018 (you need Balance Sheet for 2017) ?

$$2017 \text{ NWC} = 4,238,000 - 3,252,000 = 9,860,000$$

$$2018 \text{ NWC} = 4,134,000 - 2,919,000 = 1,215,000$$

$$\text{Change} = 229,000$$

f) How did the Debt/Equity ratio change from 2017 to 2018?

$$2017: D/E = 12,924,000 / 4,523,000 = 2.86$$

$$2018: D/E = 10,549,000 / 5,389,000 = 1.96$$

g) What was the ADDITION to retained earnings for 2018?

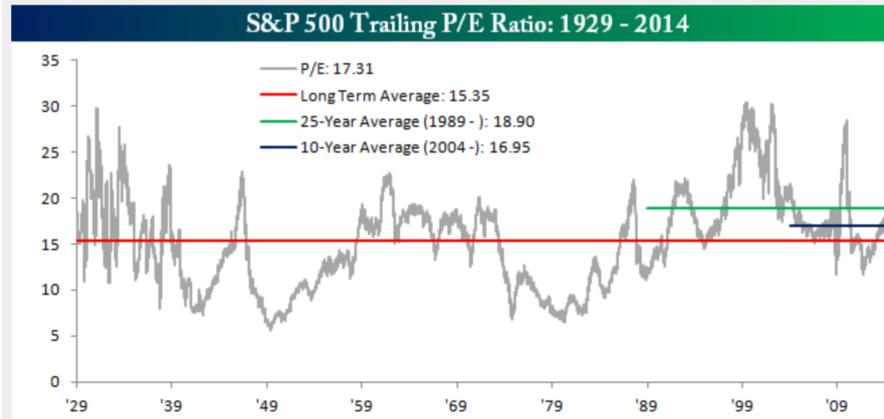
$$341,000 - 113,000 = 228,000$$

5. (25 points) LinkedIn is a professional networking service. It is a relatively young company that filed for an initial public offering(IPO) in January 2011 and traded its first shares on May 19, 2011, under the NYSE symbol "LNKD". It was purchased by Microsoft in June 2016 and continues to trade under LKDN symbol.

Find the latest P/E ratio of LNKD and compare it to an average P/E ratio (You can use the average P/E ratio of S&P 500, which includes selected 500 companies whose shares are traded in NYSE or NASDAQ, two of the major exchanges where stocks are traded). How did the P/E ratio changed since 2011 compared to the average P/E.

Do you see a difference? What maybe the explanation?

P/E ratio of S&P 500 or Dow Jones Industrial Average or any other index that averages various stocks mostly varies between 15 and 20 for the past few decades. During the 2008 financial crisis, Earnings plummeted, hence P/E ratios for 2008 and immediately after may look unusually high, but they came back down to their averages recently.



For LinkedIn, the P/E ratio was 649 for 2013 and has been quite high since its IPO. (When earnings are negative, P/E ratio does not make sense, which seems to be the case for LinkedIn prior to its acquisition.)

So why is this number so high compared to the market?

High P/E ratio may indicate two things:

1. *The company is overvalued, that is, the stock price does not justify the underlying value of the company (which is represented by its earnings).*
2. *The numbers that can be gathered from the Balance Sheet and the Income Statement etc. do not represent the potential future earnings of the company, as we discussed in class. Hence the P/E ratio would be high for growth companies. It should be coming down to market averages once the earnings represent the real earning potential of the company.*