## MGT 6078 - Finance & Investments

**Assignment 1** **Prof. Hsu**

This assignment must be submitted by the beginning of class on **Thursday, Sept.** $18^{th}$, **2025**. Late submissions will not be accepted. The assignment questions are to be completed in groups. You may complete all the problems entirely in the MS Excel spreadsheet. You can also complete it using word documents with Excel spreadsheet attachments. Please HIGHLIGHT your final answers. The assignment will be marked based on (1) how you arrive at the solution, (2) is the solution correct or does it make sense? (3) the presentation of your results. Remember, you must present your work in a clear and concise manner. Show your work!

**Please keep in mind that copying assignments from past years is considered a honor code violation, and it will hurt your ability to perform on the exams.**

**Turn in:** One Excel file with calculations and a short write-up pitching a trade involving the companies analyzed. Make sure to detail assumptions about growth rates and equity discount rates.

**Goal:** Determine if a company's equity is over or undervalued using fundamental analysis and make a long/short recommendation.

Please choose 1 publicly traded corporation of interest and 2-3 competitors. The number of firms should equal the number of team members. At least one firm must currently pay dividends. The companies should be listed in the U.S. Financial firms (e.g., banks) can be especially complicated. You can value financial firms, but there will be an extra level of difficulty.

Assign one firm to each team member (although full cooperation is expected). For each firm, complete the following Steps 1-4 (when possible). In Step 5, you will compare your analysis across firms and make an investment decision.

I will provide a template in Excel for this assignment. This should be viewed as a starting point. Most likely you will need to modify the template a bit.

**Understanding the firm:**

- Download financial statements (income statement, balance sheet and statement of cash flows) for the previous four years (if available) from S&P Global NetAdvantage (access through https://libguides.library.gatech.edu/az.php?a=s).
- Download the firm's most recent 10-K from NetAdvantage or SEC Edgar. Read management's discussion and analysis of risk factors, economic conditions and challenges.
- Read through recent news articles (some corporate news can be found in the "Corporate Timeline" tab on NetAdvantage)

- If available, read recent analyst reports covering the firm (see "Equity Research" tab on NetAdvantage)
- If available, read an industry report covering the firm's industry (see "Industry Surveys" tab on NetAdvantage)
- In the next steps, use this information to supplement your discussion and provide evidence for assumptions used in calculations.
- Note: You will have to make a number of assumptions about future growth rates in this exercise. Make reasonable assumptions based on the available information.

1. **Equity Discount Rate Calculation**
   - Estimate the firm's equity discount rate using the CAPM formula
     1. $E[r] = r_f + \beta \times (E[r_m] - r_f)$
     2. Set the risk-free rate ($r_f$) to the yield on the 30-year Treasury bond (Treasury website link)
     3. Set the market risk premium ($E[r_m] - r_f$) to 5%
     4. Find your company's $\beta$ on NetAdvantage (Beta 5Y) or on any finance website

2. **Dividend discount model**
   1. For each firm that pays dividends, use the dividend discount model to estimate the fundamental value of the firm.
      - Determine the appropriate growth model for the firm (stable, 2-stage, multi-stage) based on its stage in the life-cycle, barriers to entry, etc.
      - Calculate or find historical dividends per share paid for the past 3 years
        - You can find dividends paid per share online, search "Company Name Dividends per share"
        - Or you can calculate using information from the cash flow statement and balance sheet (find on NetAdvantage). You have two options:
          (a) Divide total dividends paid by number of shares outstanding each year
          (b) Divide (Dividends Paid + Repurchase of Common Stock - Issuance of Common Stock) by number of shares outstanding each year. This will account for share repurchases made by the firm, which are becoming a very common way for firm's to return cash to shareholders. This measure is typically more volatile as share repurchases can be sporadic and inconsistent.
      - Project your firm's dividends going forward and calculate a fundamental value.

- E.g., for a 2-stage growth firm, project dividend growth for the next 3-5 years using information from 10-Ks, news reports, analyst reports, using the plowback ratio and return on equity, and/or historical trends. After a certain number of years (3-10) the firm's dividends will grow at a constant terminal growth rate below the aggregate economy growth rate (like 0.5% per quarter or 2% per year).
- Make short notes in the Excel file detailing the reasoning behind your assumptions of future dividend growth.

- How sensitive is the fundamental value to discount rate and growth rate assumptions? Conduct sensitivity analysis of fundamental value to growth rate and discount rate assumptions.
  - E.g., if you change the discount rate by 1-2% in either direction, how does this impact the fundamental value?
  - Similarly, how sensitive is the fundamental value calculation to changing projected growth rates by 1-2%?
  - For this analysis, you will just change your discount rate by a bit and see how the fundamental value changes. Do this a few times with different discount rates. Repeat for growth rates. Record the fundamental values with the different values in the table.

**3. Free-Cash Flow Models**

1. Calculate the fundamental value of each firm's equity using the free cash flow to firm model and the free cash flow to equity model.
   (a) Calculate your firm's free cash flow to the firm for the past 3 years.
   (b) Forecast your firm's future free cash flow to the firm based off information in the 10-K's, the news, analyst reports and/or historical trends
   (c) Calculate the weighted average cost of capital
      - Use the cost of debt provided here: `http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/wacc.htm`
      - For the cost of equity, use the CAPM expected return calculated in Step 2.
      - Use the current market capitalization (market value) of equity, which you can find on NetAdvantage or search for online or calculate (current market price $\times$ number of shares outstanding)
      - Number of shares outstanding can be found on NetAdvantage or most finance websites
   (d) Calculate the fundamental value of your firm's equity using the free cash flow to the firm approach

(e) How sensitive is the fundamental value to discount rate and growth rate assumptions? Conduct sensitivity analysis of fundamental value to growth rate and discount rate assumptions.

- For this, change the value of WACC and see how the fundamental value of equity per share changes. Try a few different values of WACC and record the fundamental values in the table.
- Repeat with different growth rates.

(f) Calculate your firm's free cash flow to equity for the past 3 years.

(g) Forecast your firm's future free cash flow to equity based off information in the 10-K's, the news, analyst reports and/or historical trends

(h) Calculate the fundamental value of your firm's equity using the free cash flow to equity approach

- For FCFE, the discount rate used should be the CAPM expected return calculated in Step 1

**4. Relative valuation**

1. Calculate the trailing price-to-earnings ratio ($\frac{\text{Stock Price Today}}{\text{Earnings Last Year}}$), forward price-to-earnings ratio ($\frac{\text{Stock Price Today}}{\text{Earnings Forecasted For This Year}}$),
and price-to-sales ratio ($\frac{\text{Stock Price Today}}{\text{Sales Last Year}}$)
   - These calculations should be done on a "per share" basis
   - Use the current market price per share for the stock price
   - For the trailing P/E ratio, you can search online for either the trailing twelve months earnings per share or use the earnings per share from the most recent fiscal year
   - For the forward P/E ratio, you can search online for analysts' projected earnings per share
   - For price-to-sales, calculate the sales (or revenue) per share using sales or revenue from the most recent annual report
2. Calculate the present value of growth opportunities on a per share basis
   - For the forecasted earnings ($E_1$), you can either search online for analysts' projected earnings per share or assume net income (earnings) per share will grow at the same rate as you forecasted for dividends or free cash flows.
   - Note: the discount rate should be the CAPM discount rate (not WACC)

**5. Investment Decision**

1. Organize analysis into one Excel file. Make sure to note the person that analyzed each firm.
2. Create a short write-up (less than 2 pages) pitching an investment in ONE of the companies analyzed (i.e., answer the question: which company would you recommend taking a long or short position in? Why?). Although your (Excel-based) analysis will cover 3 to 4 companies, the write-up does not need to cover all companies. Instead, focus on the company involved in your investment pitch and use supplemental analysis of other companies to bolster your case.