Corporate Finance   **Homework 6**

For the multiple choice questions, give the correct choice and very briefly explain your answer.

1. When evaluating a project, the chance of default is captured by:

   (a) using the CAPM expected rate of return as the discount rate.

   (b) using the expected return on the market as the discount rate.

   (c) calculating the expected cash flows of the project.

   (d) discounting the expected cash flows of the project at the equity premium

2. If your tax rate is 40%,what interest rate do you earn in after-tax terms if the before-tax interest rate is 6%?

3. On Nov. 18, 2020, tax-exempt A-rated 10-year muni bonds yielded 1.25%, and corporate 10-year A-rated bonds yielded 1.8%. What is the marginal tax rate of the marginal taxable investor? If your marginal tax rate is 35%, which is the better buy?

4. You purchased a house for $450,000 and incurred additional costs of $4,000 at the time of the purchase. Because of a job transfer, you were forced to sell the house later for $400,000. The selling broker charged a 6% commission, and you estimated that other costs associated with the sale, both direct and indirect, amounted to $10,000. What was your rate of return on this investment?

   (a) 24.0%

   (b) 17.9%

   (c) -19.4%

   (d) -21.3%

5. If the stock market is at least semi-strong efficient then,

   (a) you should be able to determine when to buy or to sell a stock by studying the pattern of its historical prices.

   (b) trading on information that you read in The Wall Street Journal or on the internet is unlikely to allow you to purchase stocks that are significantly underpriced.

   (c) you cannot expect to find underpriced or overpriced stocks even if you have inside information.

    (d) you are likely to find underpriced and overpriced securities by conducting a thorough analysis of a firms financial statements.

6. If markets are efficient (and maybe even perfect), it doesn't matter what portfolio you hold because the prices are fair. Comment very briefly (2 or 3 sentences are sufficient).

7. The most important financial statement from the viewpoint of a financial analyst is the:

    (a) balance sheet

    (b) income statement

    (c) cash flow statement

    (d) owners' equity statement

8. Pet Sounds had sales of $12 million in 2021. Its cost of goods sold was $9 million, and it had selling, general, and administrative expenses of $1.1 million. The firm paid $100,000 in interest to its bond holders and $50,000 in dividends to its shareholders. For simplicity, assume a flat tax rate of 21%. Pet Sound's net income for 2021 was:

    (a) $3.00 million

    (b) $1.90 million

    (c) $1.80 million

    (d) $1.75 million

    (e) $1.42 million

9. A firm has earnings of $200 and a P/E ratio of 20. What is a possible estimate of its implied growth rate if its cost of capital is about 10%?

10. Excel has some very useful features that can potentially save you a lot of time and make you look competent, even if you aren't. One feature is the pivot table, which is a powerful tool to organize and summarize data in a table. For instance, in a litigation matter you may have a table consisting of tens of thousands of different mortgages originated by different lenders at different interest rates and made to different borrowers in different zip codes. You may be asked to find, for example, all mortgages greater than $500,000 in zip code 07079–a very nice zip code–originated by lender ABC. With a pivot table, this query is simple.

We are going to explore pivot tables by using data on the billable hours of a law firm with offices in LA and NY and 5 practice departments: corporate, estates, labor, litigation, and (the most important) tax. From the homework page, open

the spreadsheet *Billables* and *Billings* tab and you will see the billable hours data arranged in a table with self-explanatory headings.

Tables are also a very useful feature for organizing and analyzing certain types of data. For instance, selecting a table heading, e.g., *Billable Hours*, you could sort the entries in order of associates with the highest billable hours by clicking the down arrow in the *Billable Hours* column and selecting *Descending*. Try it.

Notice that the table has been given a name, *Table1*, which can be seen in the Cell Address window located directly above the top left cell of the spreadsheet–it has the up and down arrows. To see and select Table1, just click on one of the arrows and select Table1. Named ranges such as Table1 are sometimes very useful, as it's much easy to refer to Table1 than to C5:M389, n'est-ce pas? Also when you add another row or column to the table, Table1 automatically adjusts to include the new row or column.

It's easy to add an additional column to a table. In the cell next to *Billing minus Collections* type *Profit* and hit *Return*, and you'll see additional column added that is part of the table. Try it. To undo these changes, use Command+Z.

The data in *Billables* is already formatted as a table, but if you have data that is not already formatted as a table and want to create a table, take a look at these resources (clickable links): MicroS and Contextures.

There are infinite online resources that discuss pivot tables; YouTube is especially helpful. To understand how to create and manipulate a pivot table, you can read this MS overview MicroSPivot or watch any of these videos: Pivot Tables 0 (25 minutes-this would be my recommendation); Pivot Tables 1 (80 minutes); or PivotTables 2 (14 minutes). The Excel version in the videos may not be the same as yours and the appearance may be a bit different, but the functions are identical; you may have to click around to discover how to access them.

Your boss has kindly requested that you create the following four pivot tables that classify and sort the associate billable data. The spreadsheet has a separate tab for each of the pivot tables you will need to create.

(a) Your boss would like to see the total billings and collections for each office, practice area, and associate–she wants to see who are the slackers. It should look something like Figure 1 (although possibly with different names and numbers):

Row Labels ▼	Sum of Billings	Sum of Collections
Los Angeles	$3,220,375.00	$2,687,058.00
Corporate	$724,540.00	$569,194.00
Igor	$724,540.00	$569,194.00
Litigation	$2,495,835.00	$2,117,864.00
Jim	$598,400.00	$515,542.50
Joe	$694,800.00	$623,790.00
Sally	$592,075.00	$448,387.50
Katy	$610,560.00	$530,144.00
New York	$39,102,200.00	$32,746,928.50
Corporate	$5,281,280.00	$4,422,262.00
Candi	$1,719,260.00	$1,430,464.00
Misty	$1,056,020.00	$883,234.00
Prudence	$1,477,840.00	$1,236,248.00

Figure 1: Billings & Collections

It's easy to change the column names in the Pivot Table: just select the cell and give it another name. The only limitation is that you can't use a name that is already a Pivot Table Field name. For example, you can change the column *Sum of Billings* to *Total Billings* but you can't change it to *Month*.

(b) After reviewing it, she decides that for each department (*Corporate, Litigation*, etc.), she would like the entries sorted by *Collections* from highest to lowest. Thus, in Figure 1 under *Los Angeles -Litigation*, Joe would be first followed by Katy, etc. You can just copy the pivot table from (a) and then sort it.

(c) After a few moments of reflection, she realizes that since associates bill at different rates, the total billings may not reflect the hours worked. She asks that you (1) create a separate pivot table showing each associate and his/her billable hours from highest to lowest (see Figure 2), and (2) add an additional sorted column showing the total billable hours to the pivot table in (a) above (see Figure 3). The tables should look like Figure 2 and Figure 3:

Row Labels	Total Billable Hours
Dumpy	2,996
Joanne	2,973
Beau	2,919
Magdalena	2,917
Amber	2,893
Bill	2,878
Emma	2,878
Thor	2,856

Figure 2: Billable Hours

Row Labels	Sum of Billings	Sum of Collections	Sum of Billable Hours
Los Angeles	$3,220,375.00	$2,687,058.00	10,684
Corporate	$724,540.00	$569,194.00	2,131
Igor	$724,540.00	$569,194.00	2,131
Litigation	$2,495,835.00	$2,117,864.00	8,553
Joe	$694,800.00	$623,790.00	2,316
Jim	$598,400.00	$515,542.50	2,176
Sally	$592,075.00	$448,387.50	2,153
Katy	$610,560.00	$530,144.00	1,908

Figure 3: Billings, Collections, & Billable Hours

(d) Never satisfied, now she would like the ability to be able to select and view separately the *billings* and *collections* for each associate broken down by month, department, and office. The different views–month, department, and office–are referred to as *slicers*. For example, Figure 4 shows May *billings* and *collections* in the New York Corporate department. You can select multiple months and departments, for example, by holding down the CTRL buttom or the Command button on a Mac and clicking on the additional months and departments; the PT will update accordingly. Slicers are discussed in the recommended video, but it's probably easiest just to click on *Insert Slicer* button and go from there.
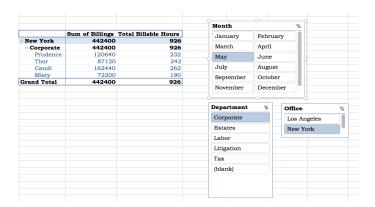
Figure 4: Slicers

(e) Finally, she wants to see how much each associate is adding to the bottom line and fire the under performing ones. One way is to first add an additional column to Table1 called *Profit*, and in the first cell under *Profit* enter the formula that calculates the difference between *Collections* and *Salary*. You hope that it's positive! All of the empty cells in the *Profit* column should fill automatically. This is an example of how useful tables can be. Now, refresh the Pivot Table and make sure that you sum the Salary and Profit for each associate to annualize the numbers. After sorting on the basis of Profit, it should look something like Figure 5.

Associate	Sum of Salary	Sum of Profit
Amber	$366,000	$1,248,731
Bubba	$375,000	$1,178,750
Spike	$402,000	$1,140,273
Billy Bob	$402,000	$1,120,374
Aethelstan	$372,000	$1,113,644
Slick	$402,000	$1,095,852
Candi	$372,000	$1,058,464

Figure 5: Profit Per Associate