Assignments

Financial Plan Assignments

Your assignment is to review the history of stocks over the past 5, 10, 25, 50, and 75 years. How have stocks performed overall? What do stocks add to a portfolio? What disadvantages do stocks have? How can you minimize the disadvantages of stocks, while at the same time enjoying the advantages stocks offer? While stocks may be risky in the short term, they deliver higher risk-adjusted returns in the long term. Consider the following concepts:

Benchmarks: What are the major benchmarks or indexes that correspond with stocks? (See Learning Tool 15: Possible Benchmarks for Investment Plans). It is likely you will include stocks in your diversified portfolio, so it is important that you select the major benchmarks you will follow to help you understand how stocks perform.

Generally, investors consider stocks more risky than bonds. What do they mean by that? To see graphically the volatility of stocks versus other asset classes, open Learning Tool 23: Return Simulation for Asset Classes. Go to the Asset Class Data tab and use the light-blue drop-down boxes to select your asset classes (or you can just use the asset classes listed). Use the dark-blue drop-down boxes to select your time period. Then go to the Charts tab. Push the F9 button to see the impact of standard deviation.

This worksheet builds random portfolios with the expected return and standard deviation of the period and asset class chosen. It then assumes that each asset class builds 10 different portfolios, and those portfolios are run for 20 years. The differences between the 10 different portfolios are shown in the same colored lines. The more the colored lines move together, i.e., the more each of the random portfolios move together, the less risky or less volatile the asset class. The more the same colored lines diverge, the more risky or more volatile the asset class. Now compare the portfolios for large-capitalization stocks, small-capitalization stocks, and international stocks. You may get a sense for the volatility in this asset class.

While stocks are generally more volatile (or risky) than bonds, their returns are higher to compensate for this additional risk. To see what the returns have been for various types of stocks, go to Learning Tool 27: Expected Return Simulation and Benchmarks. Go to the tab labeled Returns and Risk. Look for the 1-, 5-, 10-, 25-, 50-, 75- and 85-year returns for large-capitalization, small-capitalization, international, and emerging-market stocks. How have these assets performed compared with bonds or inflation? You might also look at the return and risk history of Real Estate Investment Trusts, or REITs, which have characteristics of both equities and bonds.

Now that you have reviewed the historical asset class performance, estimate your expected return for your Plan for Stage 1 and Stage 2. This process involves three steps:

1. Determine your asset-allocation targets.
2. Using those targets, use historical estimates over specific time periods to get a recommendation for your expected return.

3. Adjust the historical data to take into account current market conditions and expectations.

First, to get your asset-allocation targets, start with your stocks, bonds, and other asset class allocations determined earlier in Section III.C.1 and III.C.2. For most individuals, your initial emergency fund allocation will be to Treasury Bonds, completing your bond allocation. The more difficult allocation is to divide up your equity or stock allocations. It is important to recognize risk in building your portfolio. Your bond allocations are generally the least risky. Within stocks, the large-cap stocks add the next level of risk and are generally the least risky of all equities. Next in order of risk come small-cap stocks, international stocks, and emerging-market stocks, all of which have much more risk than large-cap stocks. I generally recommend that investors have over half or more of their stock allocations in large-cap stocks because they are the least risky of all stocks or equities. Conservative and very conservative investors may have two-thirds to three-quarters of their equity allocation in these large-cap stocks. Realize that your allocation will differ in comparison to other investors depending on your age, risk tolerance, and investment experiences.

Finally, there are asset classes that are neither bonds nor equities but have some characteristics of both. Real Estate Investment Trusts (REITs) fall under this category and may be useful to include in your allocation. I include these as “Other Asset Classes.”

I strongly recommend you have a minimum of four asset classes, consistent with building your investment portfolio. I generally recommend investors include more asset classes than four, with the riskier asset classes (i.e., small-cap and emerging-market stocks) limited in their allocations to between 5 percent and 15 percent. Determine your asset allocation targets for Stage 1 (now) and Stage 2 (retirement) and include these targets in Section III.B.1 and III.B.2.

Second, you need to get an idea of how that allocation would have done using historical data and your proposed asset allocation. To determine this historical return, use Learning Tool 27: Expected Return Simulation and Benchmarks and include this as Exhibit 1. Using the light-blue drop-down boxes, include the asset classes you are interested in. Using the dark-blue drop-down boxes, include the time periods over which you are interested. Finally, using the green boxes, type in your allocation targets for each asset class, making sure the totals add up to 100 percent. For example, a period of 80 means you are using the last 80 years of data ending in 2007 and calculating the geometric return for that asset class. Note that your choice of time periods will have a significant effect on the historical data. I generally recommend that investors use the longest time period available.

After you have entered your allocations and time periods, Learning Tool 27 will give you a weighted return using historical data. I encourage you to change the time periods (look at 1, 5, 10, 50, and 80 years to see what impact that has on your weighted returns). Determine your weighted return for Stages 1 and 2, your periods before and during retirement.
Finally, adjust the expected returns from **Learning Tool 27** to account for current market conditions. I strongly recommend that if your weighted return is greater than 10 percent from the historical returns for **Learning Tool 27**, use an expected return of less than 10 percent (7–9 percent). I also recommend that your expected return for Stage 2, or retirement, be less than your expected return on Stage 1. Determine your expected return and enter these into your Plan in Sections I.A.1 and I.A.2. Print off Exhibit 1 from **Learning Tool 27**.

To calculate risk, instead of using standard deviation, beta, or other measure of risk, we have simplified the plan to state that we accept the risk of our weighted benchmarks. Copy your allocations from Section III.B.1 and II.B.2 to the sections on risk in Section I.B.1 and I.B.2.

**Learning Tools**

The following Learning Tools may be helpful as you prepare your Personal Financial Plan:

15. **Possible Benchmarks for Investment Plans**
   
   This document shows possible benchmarks for most of the major asset classes.

23. **Return Simulation for Asset Classes**
   
   This spreadsheet shows the impact of various investment strategies and also shows the volatility for different asset classes. This spreadsheet will also show you the historical impact of different asset allocation decisions for several asset classes.

26. **After-Tax, Equivalent Taxable Yield, and After-Inflation Returns**
   
   This spreadsheet calculates the after-tax return, equivalent taxable yield, and after-inflation return on various assets.

27. **Expected Return Simulation and Benchmarks**
   
   This spreadsheet shows a historical perspective on returns and standard deviation (risk) for the major asset classes over the last 1, 5, 10, 25, 50, 75, and 80 years. The spreadsheet also includes recommended benchmarks for some of the major asset classes.

**Review Materials**

**Review Questions**

1. What are eight risks that stocks are susceptible to?
2. What is leverage? How does leverage affect risk?
3. What is common stock? Preferred stock?
4. What are the two ways an investor can make money in stocks?
5. What is the goal of stock valuation? Why is it important for an investor to know a company’s intrinsic value? Based on a company’s intrinsic value, when should an investor buy or sell a stock?

Case Studies

Case Study 1

Data

Peter and Jessica, acting on the advice of their next-door neighbor, recently purchased their first stock, 500 shares of a small-capitalization Internet company trading at $80 per share. The neighbor told them that the stock was a “real money maker” because it recently had a two-for-one stock split and would probably split again soon. Even better, according to the neighbor, the company was expected to earn $1 per share and pay a $0.25 dividend next year. Peter and Jessica have so far been unimpressed with the stock’s performance—the stock had underperformed the S&P 500 index this year.

Application

Peter and Jessica have come to you for advice. What is your recommendation?

Case Study 1 Answer

Peter and Jessica lack an important part of investing process—knowledge of what they are invested in. Apparently their next-door neighbor lacks that same understanding. Buying stock is the process of understanding and owning a piece of a company. It is not enough to just know the numbers; they must know what the numbers mean, especially with individual stocks. Peter and Jessica do not know what the numbers mean.

Before they invest in individual stocks, they should learn more about the investment process. When buying individual stocks, it is critical to understand what is going on in the world, region, country, economy, industry, and company. They need to understand Investing Principles 6 and 8: If you must invest in individual assets, know what you invest in and who you invest with, and don’t waste too much time, money, and energy trying to beat the market.

For people who have never invested before, I believe buying mutual funds (which are portfolios of stocks or bonds) is a much better first step in the investment-education process. Buying individual stocks is the last step on the bottom of the investment hourglass, not the first step.

Case Study 2

Data
Anne owns 200 shares of ABC stock, selling at $410 per share. In order to make the stock more affordable for the average investor, ABC’s management has decided to split the stock.

**Calculations**
A. How much was Anne’s investment before the split?
B. Assuming ABC’s management decides to split the stock three-for-one, how many shares would Anne own after the split?
C. What is the new price per share after the split?
D. How much would Anne’s investment be worth after the three-for-one split?

**Case Study 2 Answers**

Calculations
A. Before the split, Anne’s investment was worth $82,000, or 200 shares multiplied by $410 per share.

B. Afterward, Anne would have 600 shares, or 200 shares multiplied by 3.

C. Afterward, the price of the share should decline to $136.67, or $410 divided by 3.

D. After the split, the value of Anne’s investment should remain at $82,000, or $136.67 multiplied by 600 shares.

**Case Study 3**

**Data**
MAM Corporation recently announced that its year-end earnings per share (EPS) for this last year was $4.50, and they estimate next year’s EPS will be $5 per share. MAM stock is currently selling at $85 per share.

**Calculations**
A. What is the historical (last year’s) PE ratio for MAM?
B. What is the estimated (or forward) PE ratio for MAM?
C. Assume the earnings prospects for MAM deteriorate and the company now estimates next year’s earnings to be $4 per share. What would be MAM’s new forward PE ratio?

**Case Study 3 Answers**

Divide the price per share by the earnings per share to calculate the respective PE ratios. PE ratios are normally computed with an x after them to denote “times.”

A. The historical PE is $85 / $4.5, or 18.9x.
B. The forecast or forward PE ratio is $85 / $5, or 17.0x.
C. Assuming prospects decline for next year, the forecast or forward PE ratio would be $85 / $4, or 21.3x.
Case Study 4

Data
Clinton owns 1,000 shares of Boston Scientific Stock, selling at $50 per share at the beginning of the year. He is in the 25 percent federal marginal tax rate, and he live in a state that has no state income tax. At the end of the year, the stock rose to $55 and he received $1.50 in dividends.

Calculations
A. What was Clinton’s before-tax return?
B. What is Clinton’s after-tax return, assuming he held the stock?

Case Study 4 Answers

Calculations
A. Clinton only pays taxes on realized income, not unrealized income. Clinton’s before-tax return is:
   
   \[
   \frac{55 - 50 + 1.5}{50}, \text{ or } 13.0\%.
   \]

B. Clinton’s after-tax return would include the unrealized capital gains and the dividend after he paid taxes. Since this is a stock dividend, it is taxed at the preferential rate of 15%. The after-tax return is:
   
   \[
   \frac{55 - 50 + [1.50 * (1 - .15)]}{50} = 12.55\%.
   \]
   Of the $1.50 dividends, Clinton pays 22.5 cents in taxes and keeps the remaining amount.