

Managing Client Portfolios

Module One

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Introduction

When I started investing, I just purchased a stock that I liked and kept adding more stocks. I had no road map to investing, and was unaware of the steps in the investment management process. After I completed my Ph.D. and started teaching Finance, I had the good fortune of teaching a student-managed investment portfolio class. A few years after that I was entrusted with managing the University's tiny (at that time) endowment fund. I realized that I needed additional expertise and I enrolled in the Chartered Financial Analyst (CFA) program. Most aspiring investment professionals now enroll in the CFA program, particularly those who wish to be analysts and portfolio managers. *Managing Individual Client Portfolios* is a product of what I had learnt in the CFA program and from my fifteen years of experience in managing investment portfolios for individual and institutional clients. I now use this material in teaching my graduate student-managed portfolio class. In this class, the students manage a portfolio of over \$1,000,000. In addition, they prepare an investment plan for a real client. A survey of the clients has indicated that the program has been a great success and the clients have used the investment plans to better tailor their portfolios to their needs. This module covers *The Investment Management Process* and *The Investment Policy Statement*. These are essential steps that investment advisors and financial planners need to understand.

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Part 1

The Investment Management Process

The Investment Management process consists of the following steps:

- Setting Investment Objectives
- Establishing Investment Policy
- Selecting Portfolio Strategy
- Selecting Assets
- Measuring and Evaluating Performance
- Monitoring and Revising

1.1 Setting Investment Objectives

The first step in the portfolio management process is to set investment objectives. Investing is a process of deferring consumption during the period when earned income is higher than expenses, so that in the future, when expenses are higher than earned income, the investor can use income from investments to make up the shortfall. Investors may have other plans with their investments like charitable donations and inheritances for children and other close relations. However, many investors start investing without first identifying their goals. This results in a haphazard mix of investments that may not produce desirable results.

Cash Flow Needs

The first step in setting investment objectives is identification of cash flow needs. For example, an investor may project her last salary drawn prior to retirement and determine that she will need 80% of that amount when she retires. She can

then estimate income from pension and social security and identify the shortfall that has to be made up from investment income.

Return Requirements

The next step is to determine return requirements. In order to do this the investor must estimate the value of investments at retirement and compute the return required on this to generate the investment income required. In determining the return requirement, the investor needs to factor in the expected inflation, so that purchasing power can be maintained.

Risk Tolerance

It is well known that the higher the level of risk, the higher is the expected return. The level of risk an investor is willing to take is determined by the investor's tolerance for risk. Some investors are only willing to invest in treasury securities and bank CDs whereas others invest their entire portfolios in stocks. The persons who invest in stocks are likely to earn higher returns over the long run, but run the risk of more unpredictable returns in the short run. The investor has to determine if, with her risk tolerance, she will be able to earn her required return.

1.2 Establishing Investment Policy

The most critical investment policy decision is asset allocation. A study by Brinson, Singer and Beebower (1991) concluded that 91.5% of the variation in returns of 82 mutual funds could be explained by the funds' asset allocation to bills, bonds and stocks. Later research that considered asset allocation over a broader range of asset classes found that as much as 97% of fund returns can be explained by asset allocation. For simplicity we will consider three classes of assets: stocks, bonds, and treasury bills. For the period 1926 – 2005, the average annual returns on stocks, bonds, and treasury bills were 12.29%, 5.80%,

and 3.76% respectively. Asset allocation is influenced by the investor's return requirement and risk tolerance. If an investor has a very low risk tolerance and a return requirement of 5%, a portfolio of treasury bonds will meet his needs. On the other hand, if the return requirements are 10%, a significant portion of the portfolio has to be invested in stocks and the investor has to have a fairly high tolerance for risk.

Other factors that affect investment policy are client and regulatory constraints, and the client's tax bracket. Some examples of client constraints are:

- Credit rating for bonds
- Duration of bond portfolios
- Limits on the maximum percentage of the portfolio in one industry
- Limits on the maximum percentage of the portfolio in one company
- Restrictions on short selling
- Restrictions on purchases on margin

Regulators have rules for the types of securities insurance companies can buy. If investors are in high tax brackets, tax efficient investing is important. For example, in their taxable accounts, municipal bonds will be preferred to taxable bonds, and long term capital gains will be more desirable than short term capital gains. However, in a ROTH IRA, taxable bonds will be preferred to municipal bonds since they field higher returns.

1.3 Selecting Portfolio Strategy

Once the investment policy has been established, the portfolio strategy has to be selected. Portfolio strategy could be passive, active, or a mix of both. The strategy applies to both asset allocation and security selection.

An investor may have decided to allocate 60% of his portfolio to stocks and 40% to bonds. A passive asset allocation strategy implies that the investor will not depart from this strategy in response to changes projected returns on different asset classes. Rebalancing of the portfolio would occur at predetermined intervals, which could be quarterly, semi-annually or annually. An active asset allocation strategy would permit deviation from the target asset allocation in response to projected returns for different asset classes. For example, the projected returns for stocks and bonds are 10% and 6%. Based on this projection, the investor's asset allocation is 60% stocks and 40% bonds. Suppose the projected returns for stocks changes to 12% and for bonds to 5%. The investor may decide to modify the asset allocation to 65% in stocks and 35% in bonds to enhance portfolio return. Similarly, if the projected returns change to 7% for stocks and 8% for bonds, the investor may allocate 55% to stocks and 45% to bonds. Active asset allocation tries to enhance returns without significantly altering the risk profile of the portfolio. Thus the asset allocation used by the active investor is 55% to 65% in stocks and 35% to 45% in bonds as against 60% in stocks and 40% in bonds for the passive investor.

Active investors analyze economic trends and forecast interest rates and earnings. Interest rate forecasts are critical to managing bond portfolios and earnings forecasts are used to value stocks and identify under priced securities. Believers of the efficient market hypothesis postulate that all securities are fairly priced and security analysis is a waste of time and money. They believe in passive investing and prefer to invest in index funds that seek to replicate the index rather than to outperform the market. The primary advantage of indexing is low cost. Mutual fund companies that offer S&P 500 index funds have expense ratios that are 0.2% or lower compared to an average expense ratio of over 1.2% for comparable actively managed funds. Therefore index funds start off with a 1% advantage that actively managed funds have to overcome. Since the total pool of investors will merely match the index, a passive index mutual fund will

beat the average active mutual fund by 1%. However, there are a few fund managers who consistently beat the index.

1.4 Selecting Assets

Asset selection involves picking stocks, bonds, cash assets like money market funds or treasury bills, real estate and other assets like paintings, coins, and commodities. We will limit our discussion to stocks and bonds. The goal of selecting stocks and bonds is to earn above average risk-adjusted returns. There are two popular methods used for identifying such securities, technical analysis and fundamental analysis.

Technical analysis is based on the belief that stock prices move in trends that persist for reasonably long periods of time. These trends can be detected at an early stage and can be used to earn above average returns. Trading rules are developed based on price and volume data for individual stocks and the overall stock market. Technical analysis is not dependent on financial statements of firms.

Fundamental analysis involves economic, industry and company analysis to forecast determinants of stock value such as earnings, dividends, interest rates, and risk. The valuation is compared to market prices to identify undervalued stocks. The expectation is that the stock is undervalued temporarily and will eventually be valued at its correct price and will yield above average returns.

Some investors use a combination of fundamental analysis and technical analysis to select stocks. In addition to identifying stocks that will provide above average returns, investors need to ensure that the portfolios are diversified and efficient portfolios are constructed. An efficient portfolio is one that results in the highest return for a given level of risk or the lowest risk for a given level of return. Computer software is available to help construct efficient portfolios. However, in

order to get correct results, projected returns and standard deviations for the stocks must be computed, and covariances between returns on the stocks in the portfolio must also be estimated. Based on the inputs, the computer will indicate the how much should be invested in each stock in the portfolio.

1.5 Measuring and Evaluating Performance

The performance measurement and evaluation process must be accurate, informative and simple. There are two steps in this process: measuring performance and evaluating performance.

Measuring performance

To accurately measure returns, it is important to recognize the time when each cash flow occurs. Simplified measures assume that all cash flows occur at the end of the period. If the period is as long as one year, this assumption could lead to serious measurement errors. The measurement becomes more accurate the shorter the period. When returns for multiple periods are calculated, three commonly used measures are arithmetic average, geometric average or time weighted rate of return, and dollar weighted rate of return or internal rate of return. When evaluating performance from the perspective of the investor dollar weighted rate of return is the most accurate, whereas from the perspective of a fund manager, the time-weighted rate of return is a better method since the fund manager generally has no control over cash inflows and outflows.

Evaluating performance

Calculating returns is the first step. There are two ways to evaluate performance:

(1) Calculate and compare risk-adjusted returns: The Sharpe measure calculates excess returns per unit of total risk and is appropriate measure when the portfolio

represents the entire investment portfolio, the Treynor measure computes excess returns per unit of systematic risk, and the Jensen measure calculates the risk-adjusted excess returns on diversified portfolios. The Treynor and Jensen measures are appropriate when the portfolio represents one sub-portfolio of many.

(2) Compare the returns with an appropriate benchmark: Some examples of benchmarks are the S&P 500 for large cap stocks, the Russell 2000 for small cap stocks, the Wilshire 5000 for a stock portfolio that represents the total stock market, the Lehman Aggregate Bond Index for a diversified bond portfolio, the Lehman Composite index for a Treasury bond portfolio.

Return Attribution

This is a process of identifying which decisions led to superior or inferior performance. To start with, it is important to identify factors outside the manager's control and factors within the fund manager's control. Factors outside the manager's control are the economic environment, interest rates, performance of the broad stock and bonds markets, and client imposed constraints. Factors within the manager's control are portfolio strategy, asset allocation, sector selection and security selection. A manager should be rewarded or punished for factors within his control and not for factors outside his control.

However, the acid test for performance is whether the needs of the client have been met and to what extent has the client been satisfied.

1.6 Monitoring and Revising

Over a period of time, investor's goals may change and market conditions may be different. Therefore portfolios need to be continually monitoring and modified to reflect the changed circumstances. The investment policy statement should

normally be reviewed every year to reflect any changes in the investor's circumstances.

Significant changes in investors' goals could be caused by a large inheritance, a divorce, winning a major lottery, or retirement. A large inheritance of \$5,000,000 could significantly change the return requirements and risk tolerance of the investor whose current net worth is \$600,000. The investor may now need to follow more tax-efficient strategies like investing in municipal bonds instead of corporate bonds. His risk tolerance could increase and as a result, the proportion invested in equity would increase and part of the portfolio may be invested in hedge funds. Goals and strategies could change significantly when a person retires. The focus would change from accumulating wealth for retirement to living off the assets saved for retirement. The risk tolerance may become higher, and a higher percentage of the portfolio would be invested in income generating assets.

Change in market conditions would also result in revisions in portfolio policies and strategies. High interest rates could induce a higher asset allocation to bonds; a depressed economy could trigger a move from aggressive technology stocks to safer health care stocks; major political unrest in a country could result in investors dumping stocks of firms in that country.

Part 2

The Investment Policy Statement

An investment policy statement is a written document that serves as a road map for an investor. It clearly sets out the client's objectives such as cash flow needs, return requirements and risk tolerance. It documents constraints like liquidity needs, investment horizon, tax considerations, regulatory requirements, and unique circumstances. A carefully constructed investment policy statement helps the investor or his financial advisor develop an appropriate investment policy, select a portfolio strategy and construct a portfolio that meets the needs of the client.

Objectives

Risk Tolerance

The first item that needs to be measured is the client's risk tolerance. Tolerance to risk determines the likely asset allocation and the expected return on the portfolio. Measuring an investor's risk tolerance is not simple. Risk tolerance has two dimensions: the investor's *willingness to take risk* and *ability to take risk*.

The investor's willingness to accept risk is hard to quantify. To get a feel for this it is necessary to understand the behavioral and personality factors that affect the investor's risk tolerance. Under behavioral models of individual decision making, asset pricing is driven by both economic considerations and subjective individual considerations. Individuals have different characteristics that affect their risk tolerance. Questionnaires are used to determine four distinct personality types: cautious investors, methodical investors, spontaneous investors and individualist investors.

Cautious investors dislike losing even small amounts of money and construct portfolios that have low risk and minimum transactions. Examples of their preferred investments are bank CDs and Treasury securities. Methodical investors carefully research their investments and generally invest in conservative securities. Individualist investors also carefully research their investments, but are willing to take higher levels of risk than methodical investors. Spontaneous investors trade frequently to ensure that they do not miss out on the “next great investment.” As a group, they experience below average returns because of high transaction costs.

An investor’s ability to take risk depends upon many factors like

- Spending needs. What percent of the investment portfolio does the investor need to meet her annual expenses? If only 2% or less is required, higher risk investments are possible. A debt-free investor, who can meet all his expenses from pension and social security, can invest in high risk-return investments. On the other hand, if the spending needs are 5% or higher, lower risk investments are called for to ensure that spending needs are met.
- Financial strength. The greater the financial strength, the more risk the investor can take.
- Investment horizon. The longer the investment horizon, the greater the ability to take risk. If the funds are required in the next few months, low risk investments like CDs, treasury bills and money market instruments are preferred. On the other hand if the investment horizon is greater than twenty years, more volatile investments, that produce higher returns, like stocks are appropriate.

A combination of willingness and ability to take risk will determine the investor's risk tolerance. When there is a conflict between willingness and ability to take risk, the financial advisor needs to resolve this conflict by educating the investor. While an exact match between willingness and ability may not be possible, cautious investors with a high ability may be encouraged to take more risk, and spontaneous investors with a low ability could be educated to take a more conservative approach on a part of the portfolio.

Cash Flow Needs

Investors save when their income is higher than their expenses so that they have money to spend when their expenses exceed their income. This generally happens when a person retires or takes a lower paying job. Computation of cash flow needs for retirement requires the following steps:

- Estimate the number of years to retirement
- Determine total cash flow needs at retirement in today's dollars
- Project the likely inflation rate
- Calculate the total cash flow needs in nominal dollars at the time of retirement. Remember that the needs will increase every year with inflation
- Forecast non-investment income on the date of retirement. Such income includes social security and income from defined benefit pension plans.
- Subtract the non-investment income from the nominal cash flow needs at the time of retirement. This is the cash flow needed from investments.

There may be other cash flow needs like children's education, down payment on a house, planned significant donations to charity, inheritance for children and these needs may come at different periods of time.

Return Requirement

Returns generally have two components: investment income and capital gains. Income may be in the form of dividends or interest income. Capital gains arise from price appreciation. Total return is the sum of investment income and capital gains. For example, suppose you purchase 1,000 shares of Boeing Company stock at \$50 per share. Total dividends paid for the year are \$1.50 and the stock price at the end of the year is \$55. The investment income is $1.50/50 = 3\%$ and the capital gain is $(55 - 50)/50 = 10\%$. The total return is 3% plus 10% or 13%. There are two aspects to return requirement:

- *Return desired by the investor.* This figure has to be reconciled with what kind of risk the investor is willing to take and whether the desired return is consistent with the investor's risk tolerance. The risk tolerance determines the asset allocation and asset allocation is the primary determinant of the expected return.
- *Return required by investor to meet cash flow needs.* This is the return required by the investor to meet cash flow needs from investments. Care should be taken to factor in expected inflation so that the returns are adequate to provide for the real cash flow needs of client. If r is the real return required to meet cash flow needs and i is the expected inflation, the return required = $(1+r)(1+i) - 1$. If r is 5% and i is 3%, then the nominal return required is $(1 + .05)(1 + .03) - 1 = 8.15\%$. If the return required to meet the cash flow needs of the investor is unrealistically high, the investor will need to modify some of the parameters that determine cash flow needs. He might work longer, be prepared for a lifestyle that requires lower expenses, curtail charitable contributions, send children to a state school instead to an expensive private school, or leave a smaller estate.

Constraints

Liquidity

A liquid asset is one that can be sold quickly at or near fair market value.

Liquidity in a portfolio is required for the following expenses:

- Day to day expenses such as mortgage payments, utilities, food, and transportation that are fairly predictable and occur on a regular basis
- Predictable regular expenses during the year like insurance, taxes, annual vacations, home and automobile maintenance, and routine health care expenses
- Provision for unexpected expenses, loss of income or other negative liquidity event. Unexpected expenses could include unexpected home repairs, major medical expenses due to diagnosis of a serious illness or due to injuries, automobile expenses caused by accidents or breakdowns. Loss of job or business income downturns/losses for the self employed are negative liquidity events that need to be provided for.

In order to meet their liquidity needs, clients need to keep cash or cash assets and/or have access to cash if an unexpected negative liquidity event occurs. Examples of access to cash are family resources, home equity credit lines, margin accounts with brokers, and liquid non-cash assets. A general rule is to have cash assets equal to three to twelve months living expenses, but this would vary from client to client.

Investment Horizon

Investment horizon refers to the date an investment is likely to be liquidated. Investment horizons could be short (less than 3 years), intermediate (3 to 15 years) or long (over 15 years). Investments horizons could also be multi-stage, a combination of short, intermediate or long term. Examples of investment horizons are:

- Funding for down payment for the purchase of a house two years from now is an example of a short term investment horizon
- Building a fund for college education of an 8-year old child that will occur 10 years from now would be an intermediate-term investment horizon
- A retirement fund for a 30-year old has a long-term investment horizon

Most investors have multistage investment horizons. Consider a 50-year old man who is planning to retire at age 62. He has a 12-year horizon till retirement where his goal is to build his investment portfolio, and assuming his life expectancy is 90 years, he has a 28-year horizon after retirement during which he will live off his investments.

Another example of multistage horizon is a couple in the early thirties having a 5-year old child. They plan to buy a house three years from now and need to make a down payment. Thirteen years from now the child will go to college and the parents will have to pay for college for four years. Both husband and wife wish to retire thirty years from now and need to build a nest egg. After thirty years both will retire and will live off their nest egg.

Tax Considerations

Taxes are major constraints under which portfolios have to be designed. Some examples of taxes are:

- *Income Tax.* Income tax is levied on wages, rental income, dividends, interest income and business income. Different tax rates are applicable to different income levels. Taxes could be different for different types of income. For example, wages could be taxed differently from dividends. Interest from municipal bonds are generally exempt from federal taxes but may or may not be exempt from state taxes.
- *Capital Gains Tax.* In many countries capital gains resulting from sale of stocks, real estate and other long term assets are taxed differently from ordinary income like wages. Capital gains taxes are generally lower, but require a minimum holding period of generally one year.
- *Gift tax.* If an asset is transferred free of charge from one owner to another it is considered to be a gift and may be taxed. There are certain exemptions and these have to be considered when transferring wealth while the transferor is alive.
- *Estate tax.* This tax is assessed on a person inheriting assets due to the death of the owner.
- *Property tax.* Property taxes are generally assessed on real estate, but in some states, personal property may also be taxed. Property taxes are complicated by issues of valuation and compliance

A client's tax bracket will influence the way his funds are invested. High income investors will prefer *tax deferral* and *tax avoidance*. For example, a client in a high tax bracket will prefer to invest in municipal bonds and thus avoid paying taxes, whereas a client in a lower tax bracket may prefer corporate bonds. Corporate bonds pay higher interest rates, but the interest income is taxable. Similarly, high income investors may prefer stocks that provide capital

appreciation, which is taxed only when the stocks are sold, to dividends which are taxed when distributed. This way they defer taxes until the stocks are sold.

Regulatory Constraints

These are regulations that govern how the funds can be invested. The general rule is the *Prudent Man Rule*. For retirement funds like pension plans, Employee Retirement Income Security Act of 1974 (ERISA) regulations apply. ERISA puts certain restrictions on the types of assets pension funds can hold. Recent interpretations by courts and regulatory agencies have become fairly liberal.

Unique Circumstances

These are unique to the investor and are specified by him. Some examples of unique requirements are:

- Leave and endowment of \$1,000,000 to Duke University
- Purchase a yacht for \$5,000,000 next year
- Buy a \$200,000 airplane next month
- Give the maximum gift permitted by law to each child every year
- Leave each child an inheritance of \$2,000,000
- Provide \$200,000 for each grandchild's education
- Avoid depletion of capital

It is very important to prepare a written investment policy statement and get it approved by the client before proceeding with subsequent steps in the investment management process. It provides clear objective that need to be met and specifies constraints that limit the flexibility of the investment manager.

Glossary

Active Investment Strategy: Attempting to achieve risk-adjusted excess returns by identifying mis-priced sectors or securities.

Asset Allocation: The distribution of assets between stocks, bonds, cash and other assets.

Capital Gains: The amount by which the sale price exceeds the purchase price.

Credit Rating: A measure of bond default risk. The highest rating is AAA, BBB is the lowest investment grade rating and bonds rated BB or lower are called junk bonds.

Dollar Weighted Rate of Return: Also known as internal rate of return, it measures the actual rate of return earned by an investor.

Duration: A measure of interest rate sensitivity of a bond or bond portfolio

Efficient Market Hypothesis (EMH): Believers of the EMH postulate that all securities are fairly priced and reflect available information.

Fundamental Analysis: Involves economic, industry and company analysis to forecast determinants of stock value such as earnings, dividends, interest rates, and risk.

Hedge Fund: A private investment pool for institutional and high net worth individuals that can pursue high-risk investments in search of high returns.

Index Fund: A mutual fund holding shares in proportion to their representation in a market index such as the Russell 1000.

Investing: A process of deferring consumption during the period when earned income is higher than expenses, so that in the future, when expenses are higher than earned income, the investor can use income from investments to make up the shortfall.

Investment Horizon: Refers to the date an investment is likely to be liquidated.

Investment Income: Income in the form of dividends or interest income.

Jensen Measure: Measures alpha, which is risk-adjusted excess return.

Liquidity: Refers to the speed and ease with which an asset can be converted to cash at or near market value.

Margin Purchases: Securities purchased with money borrowed from a broker.

Municipal Bonds: Tax exempt bonds issued by state and local governments.

Passive Investment Strategy Buying: a well diversified portfolio to represent a broad-based market index without attempting to search out mispriced securities.

Pension: An employer provided retirement benefit.

Return Attribution: A process of identifying which decisions led to superior or inferior performance.

Risk Tolerance: The level of risk an investor is willing to take.

Sharpe Measure: Measures reward to volatility or ratio of portfolio excess returns to standard deviation.

Short Selling: A method used by investors to profit from a decline in a security's price. The investor borrows the stock from a broker and sells it with the expectation of buying it back when the price of the stock declines.

Social Security: A package of protection providing retirement, survivors' and disability benefits.

Tax Avoidance: Generating income from investments, like in municipal bonds, that realize tax free returns

Tax Deferral: Generating income from investments, like in IRA or 401(K) accounts, that are not taxed until they are withdrawn.

Technical Analysis: Use of price and trading volume information to forecast stock price trends.

Time Weighted Rate of Return: Also known as the geometric average, it is used to measure the compound rate of return over time.

Total return: The sum of investment income and capital gains.

Treynor Measure: Ratio of portfolio excess return to systematic risk or beta.

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