

Securities Analysis

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Using this study guide.

This study guide is intended for use prior to attempting the accompanying exam. Read the complete study guide at your convenience before beginning the exam. You may cover the material in one session or break the material into several shorter sessions, whichever best fits your learning style. All answers to exam questions are covered in this document.

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Securities Analysis

Introduction

Registered representatives must make investment recommendations to clients nearly every business day. In order to be successful and maintain client satisfaction, those recommendations need to be well suited to the customer's investment objectives. Representatives must know the types and degrees of risk the customer is willing to assume and the investment risks characteristic of each recommendation. Because the securities markets offer very diverse products, this can often be a complex task.

Risk

With most investments, there is some degree of uncertainty concerning a possible loss of income or principal as well as some degree of uncertainty relating to whether or not expected returns will be available when needed. Investors expect rewards for assuming such risks. The complete process of estimating return and risk for different securities is referred to as securities analysis. The two main divisions of risk are systematic risk and unsystematic risk.

Systematic risk is caused by some factor that will have a similar effect on all securities in the same way. Beta is widely accepted in the securities industry as the way to measure systematic risk. Systematic risk is most often referred to as market risk. Market risk is the risk of a decline in the prices of securities because of falling markets. In most cases, the prices of stocks move in directions unrelated to the performance of the business due to outside factors.

Unsystematic risk is a risk that relates to the security of a specific issuer instead of the market as a whole. A classic example of unsystematic risk (called business risk) is the uncertainty that an issue may not have the business performance which was anticipated at the time of purchase. If your firm estimated that a particular security would grow at a 10% rate for the next three years and it in fact grew only at a 5% rate, it probably will not meet your expectations for growth. This was not due to the marketplace, but because the business didn't perform. More often, business risk is viewed in terms of credit risk. In order to protect an investment from credit risk, most representatives use Standard & Poor's and Moody's ratings.

Another risk involved in investing in securities is purchasing power or inflationary risk. This happens when an investor's income or growth does not keep pace with inflation. That is, the principal which is initially invested, plus the return on that principal will not buy what it was able to buy at the time the investment was made.

It is the registered representative's task to be able to identify what types of securities have purchasing power risk and how that risk can be minimized. The greatest purchasing power risk is with a fixed dollar investment because it suffers the most from inflation.

Number one on the list of investments that have purchasing power risk is debt securities. Others with purchasing power risk include fixed annuities, bank savings accounts or certificates, and other investments with fixed dollar returns. Common stock or securities convertible into common stock generally provide the best protection against purchasing power risk. Common stocks tend to provide higher returns than fixed income securities when dividend income and capital appreciation are included. Another suggestion to hedge against purchasing power risk is investing in "hard assets" such as real estate, precious metals, coins, art, etc.

Interest rate risk is also known as money rate risk. This risk is the uncertainty that the prices of securities may change strictly because of the changes in the cost of money. Remembering that when interest rates go up, bond prices go down, it is easy to see that buying a security with a fixed rate of return exposes an investor to interest rate risk. This is very true for debt securities, preferred stocks and (to a lesser extent) common stocks that trade based on dividend yields.

An increase in interest rates will cause all debt securities (with the possible exception of convertible bonds) to drop in price which is why some analysts consider interest rate risk a systematic risk. To protect himself against interest rate risk, an investor should hold his bond until maturity because in doing so, he has no interest rate risk. That is, if an investor has a \$5,000 bond and waits until the maturity date to liquidate, he will definitely receive \$5,000. A bond's market price gets closer to par as it approaches its maturity date. Also, the longer period of time until maturity, the greater the difference between par and market price.

When a client buys a security, he is not certain a regular market for his issue will exist at the time he wishes to liquidate. This is known as liquidity risk. Direct Participation Programs are especially vulnerable to liquidity risk. Liquidity risk also applies to trading in “thinly held issues” or issues without a wide ownership where the action of just a few investors can significantly affect the price of the security. If a security’s quality drops, it becomes harder to sell and its liquidity risk increases. This can happen if a bond’s rating changes and can cause the price to drop. As an issue’s market becomes less active, the spread between the bid and ask prices increases.

The possibility that federal, state, or local legislative changes will affect the financial returns of a particular security is known as risk of legislative changes. Tax laws notoriously change frequently and such changes are prime examples of the risk of legislative changes. The tax law changes passed in 1986 certainly impacted Direct Participation Program’s tax write-offs and municipal bond’s tax free income status.

Call risk is the uncertainty that debt issues may be called prior to maturity. Selection risk is the possibility that chosen securities will perform less favorably than the market as a whole. Timing risk is the term given the possibility that a purchase took place at a disadvantageous time.

One main point that applies to all risks: **The higher the risk, the higher the potential return.**

The first step in beginning a security analysis is to identify the market as a bull or a bear market. A bull market is one with an upward current trend and a bear market is one which a downward market trend. There are two main theories of equity market behavior. They are known as fundamental analysis which looks at the company and technical analysis which looks at the market.

Fundamental analysis uses a mathematical approach to market forecasting by looking at the analysis of corporate balance sheets and income statements. A company’s strengths and weaknesses are rated using numerical formulas and other measurements of economic and business trends. Those ratings are then used to predict future price changes in the corporation’s stocks and bonds.

The Income Statement

The company's income statement and a balance sheet are the two main financial statements used in this process. The income statement is also referred to as the Profit and Loss Statement (P & L). The P & L informs the analyst where the sales or revenues for the corporation came from, what it cost to generate those sales, and the way that income was used by the corporation. The first items on the P & L are the name of the business and the time period covered by the statement. The P & L statement always covers a specific time period, usually a full calendar or fiscal year.

Next on an income statement is the income from operations line which is net sales or the total amount of money the company actually received. That is, discounts, returns and allowances are **not** included here. Next is the cost to the company to generate its sales, known as the cost of goods sold and includes the cost of materials, wages, maintenance and repairs. The next expense is selling, administrative and general expenses and then depreciation. After income and expenses are listed, the difference or net profit from operations is included. From these figures, the analyst can determine what percentage of the sales results in profits. This is called the margin of profit or operating margin and can be compared to similar businesses to determine the efficiency of the corporate management.

Next, all other income is listed and interest is deducted to show net income before income tax, also called taxable income. Corporations have a top tax bracket of 35% of their taxable income. Next in order on the P & L are dividends to the preferred stockholders which are based on the specifications of the preferred stock itself. Dividends are paid to the common stockholders based on recommendations from the Board of Directors. When dividends are subtracted from the net income, the result is earned surplus (or retained earnings).

Debt service is a comparison of debt obligation to the debtor's ability to pay. If a corporation has ample income in comparison to the interest it owes, it has a favorable fixed charge coverage ratio or interest coverage ratio. In other words, the corporation is stable in terms of ability to pay its interest obligations. Cash flow is determined by adding net income and depreciation.

The Balance Sheet

A balance sheet is also known as a statement of financial condition and lists all assets, then subtracts all liabilities to determine net worth. Assets

include current and fixed assets. Current assets are those that may be readily converted into cash and those that will be turned into cash during the course of a normal business year. Cash, marketable securities and accounts receivable are quick current assets. Inventory which includes raw materials, work in progress, and finished products are also considered current assets. Totaling the inventory gives the securities analyst another test of the efficiency of the corporation's management. Inventory turnover is calculated by dividing the sales by the inventory and must be compared to other like businesses to determine whether or not it is favorable.

FIFO means first in, first out; LIFO means last in, first out. These two concepts are used by companies to benefit the firm in terms of pre-tax earnings. During a period of inflation, it would benefit a corporation to use LIFO so that the highest cost inventory is used first, thereby showing higher cost of raw materials and lowering pre-tax earnings. That is, during inflation, the company has less with FILO.

A fixed asset is an asset held for use rather than sale. Usually, this is the plant itself and all the equipment. All fixed assets are noted on balance sheets at their actual costs, not the figure needed to replace them and will be followed by the total depreciation in prior years and the current operating year. The difference between the two is net fixed assets. Depreciation is the only figure found on both the income statement and the balance sheet.

Next on the balance sheet is other assets. If a corporation owns any patents, trademarks, etc. it may receive royalties. These are intangible assets and must be included here to make the total assets figure accurate.

The other half of the balance sheet is comprised of liabilities---current and long-term. Current liabilities are monies owed that must be paid within the normal course of the business operation, usually not longer than one year. They are monies that are due and will be paid as a regular part of operating the corporation. Working capital is the difference between current liabilities and current assets. A respected analyst looks at more than working capital to determine the strength or weakness of a corporation's liquidity. He must also look at current ratio which is the relationship between current assets and current liabilities. Current ratio is calculated by dividing the current assets by the current liabilities. If Corporation ABC has current assets of \$10,000,000 and current liabilities of \$2,500,000, its current ratio is 4 to 1. Most fundamental analysts think a current ratio of 2 to 1 is acceptable. The acid test or quick ratio

uses only the quick assets rather than the current assets and divides by current liabilities. Here the acceptable minimum is usually 1 to 1.

Long-term liabilities list debts that will be coming due more than one year in the future and include bonds. After these long-term liabilities are finished, the balance sheet has everything the corporation owns and everything the corporation owes. The difference is net worth which is generally referred to as stockholder's equity.

The stockholder's equity of any company is always equal to its equity capital and surplus. The capital and surplus first lists preferred stock. Par value of preferred stock is usually the issuance price and the amount the dividend is based on, but the next listing of common stock uses the entry paid-in or capital surplus because par value of common stock is not its issuance price. Paid-in or capital surplus is money the issuing corporation receives in excess of par value. Paid-in surplus changes only if the corporation issues additional stock at a price above its par value.

The last listing is the earned surplus or retained earnings. Another way to calculate stockholder's equity (in addition to subtracting total liabilities from total assets) is to add stock (preferred and common) to the surplus (capital and earned).

Ratios

The percentage of a corporation's total finances that is debt is known as its leverage ratio. This is a comparison of the total debt capital to the total capital. Most analysts rate a leverage ratio speculative if it is greater than 50%. The exception would be public utilities, which are not considered speculative if they have a leverage ratio greater than 50%. The most conservative ratio is entirely equity capital and the corporation would owe nothing. Of course, this is very rarely the case. Leverage multiplies earning for common stockholders when earnings are good and has the reverse effect if earnings are bad.

Earnings per share is probably the most commonly used ratio to measure a corporation's performance. To compute this ratio, the only two figures needed are earnings and the number of common shares. Earnings per share refers only to common shares because preferred stockholders have a fixed claim against earnings. The earnings number used is always the net income, but the preferred dividends are subtracted to yield the earnings available for common. This figure is then divided by the number of outstanding shares of common stock to give the earnings per share. An appropriate analysis of earnings per share includes comparing past years to current earnings and expected future earnings.

Price and earnings are needed to compute the price/earnings ratio (P/E). P/E is the relationship between the current market price and the earnings per share of common stock and is frequently used to evaluate the market price of a certain security. This comparison should be to another corporation in the same industry. In general, two companies in the same industry with similar prospects for future growth should sell at comparable P/E ratios.

Dividend payout ratio is calculated by dividing the annual dividend paid on common shares by the earnings per common share. This tells the analyst the dividends paid out of earnings made. Most corporations planning rapid growth need to keep a high percentage of their earnings to invest back into their companies for operations, growth and development, etc. and do not pay out high ratios in dividends. However, public utilities usually payout from 80% to 100% of their earnings as dividends. Dividend payout ratio helps advise clients who desire income from their investments. Many old, well-established companies and public utilities have high dividend payout ratios while growth oriented companies have relatively low dividend payout ratios.

Economy Analysis

Fundamental analysis is used to evaluate the economy as a whole as well as specific issues. The analysis involves determining where the economy is in the business cycle. The four main phases used by analysts are peak, contraction, recession and expansion. During the peak phase, there is “full” employment, high corporate profits, a bullish stock market, and comparatively high interest and inflation rates. If the economy slows down, it may lead to a contraction phase in which high interest rates slow future growth, layoffs begin, and stock prices and interest rates begin to decline. If corporate earnings continue to decrease and unemployment rises, a recession may begin. A recession has at least two consecutive quarters of declining gross national product (GNP) and rarely lasts longer than 1½ years. GNP is an attempt to measure the total production of goods and services within the economy and is comprised of personal consumption expenditures, non-residential investment and residential investment, net exports, and governmental expenses. GNP is always relayed in constant dollars to show the impact of inflation and gives an indication of the rate the economy is expanding its physical output.

Gross Domestic Product (GDP) is almost the same as GNP, but only includes the goods and services produced physically in the U.S. whereas GNP includes goods and services produced by labor and property of Americans living inside the country and abroad.

Expansion is the phase of the economy following a recession when the economy begins to recover. Some stocks tend to follow the phases of the economy and are called cyclical industries. The easy way to make money is to buy low and sell high, so investors should buy stock when leaving a recession and sell when leaving a peak. Bonds should be bought during an economic peak because interest rates are generally high and sold during a recession when interest rates are lower.

The cost of borrowing money is affected by supply and demand just like other goods and services. The accelerating demand can lead to inflation which is the main factor behind purchasing power risk. To protect against this risk, money lenders raise interest rates. Economists say that lenders actually make interest rate minus the inflation rate or real interest rate.

There are basically three patterns in the analysis of yield curves. They are positive, negative, and flat. The negative or inverted yield curve is present

when interest rates have peaked. Yield spread is the difference in yield-to-maturity of Treasury securities and corporate bonds with the same maturities. Yields on the government bonds will be lower because they are safer. The extra safety is considered more valuable during bad economic phases, rather than during good phases. Yield spread narrows during times of prosperity and widens during times of recession.

Analysts use business statistics to predict turning points in the business cycle. This was pioneered by the non-profit organization, The National Bureau of Economic Research. The three types of indicators include leading, lagging and coincident.

Leading indicators predict activity before the cycle begins and include stock prices as measured by a broad index, money supply, new building permits, average work week hours, orders for durable goods, and initial claims for unemployment insurance.

Coincident indicators show levels of activity parallel with the economic cycle and include annual personal income, industrial production, and manufacturing sales.

Lagging indicators tend to lag behind economic cycles and include the prime rate, ratio of consumer installment credit to personal income, ratio of inventories to sales, and corporate profits.

Economic Theories

The federal government can influence the economy through tax and spending policies. Keynesian, Monetarist, and Laissez-faire are three economic theories which are considered important by economic analysts. The oldest is Laissez-faire and was introduced by Adam Smith in his book *The Wealth of Nations*. It basically means that the government should leave economics alone and not interfere in basic free enterprise. In *The General Theory of Employment, Interest, and Money*, John Maynard Keynes disagreed with the idea that the government works best when left alone. Keynes wrote that the economy would work best if the government adjusted levels of government expenditure and taxation. The Monetarist Theory, led by Milton Friedman, promotes the idea that the money supply has the greatest impact on the country's economic future. Money supply is the amount of money in circulation. M1 is currency in circulation plus checking accounts plus other checking type deposits such as NOW accounts. M2 is all of M1 plus savings accounts plus money market mutual fund shares. M3 is all of M2 plus negotiable certificates of deposit (\$100,000 and more). As the money supply increases, the economy usually grows faster. If the money supply decreases, the economy generally slows down. Fiscal policy and monetary policy are not the same thing. Fiscal policy is executed through government spending and taxation, not through adjustments to the money supply.

The Federal Reserve Board

The Federal Reserve Board has several tools to influence the economy. The one most often used is the purchase and sale of government securities in the open market through primary dealers in government securities. This affects the overnight cost of money to the banking system by increasing or decreasing the availability of bank reserves. A sale of Treasury securities eats up reserves and puts upward pressure on borrowing costs. A purchase of Treasury securities increases the availability of reserves and puts downward pressure on interest rates. This is an almost daily process to influence reserves and the cost of funds and is called open market operations. Open market operations are determined by the Federal Open Market Committee (FOMC).

Banks use their depositors' monies to make money for themselves and to perform their business functions. To protect depositors, the banks are required

to keep a certain percentage of their deposits in cash at a local Federal Reserve Bank. The two main categories of deposits are demand deposits (checking accounts) and time deposits (savings accounts). It is reasonable that the percentage of cash retained requirement is more for checking accounts than for savings accounts because money goes in and out of checking accounts more quickly. If the Federal Reserve Board wants to influence reserves on a long-term basis, it may change the reserve requirement ratio. This is usually done, on average, only once in four years.

Discount rate is the rate at which member banks may borrow reserves from the Federal Reserve Bank. Changes in the discount rate are made as often as necessary to keep the rate aligned with the banking system's overnight cost of funds. During the last ten years, the Fed has changed the discount rate about four times each year.

If the Fed does anything to increase the money supply, interest rates will go down and bond prices will go up. If the Fed does anything to decrease the money supply, interest rates will go up and bond prices will go down.

The Board of Governors of the Federal Reserve System oversees margin regulations. The last time the margin requirement was changed was January, 1974. In summary, the Fed may influence the economy by using the open market operations of the FOMC or by changing the reserve requirements, discount rates, and/or margin requirements.

International Economic Factors

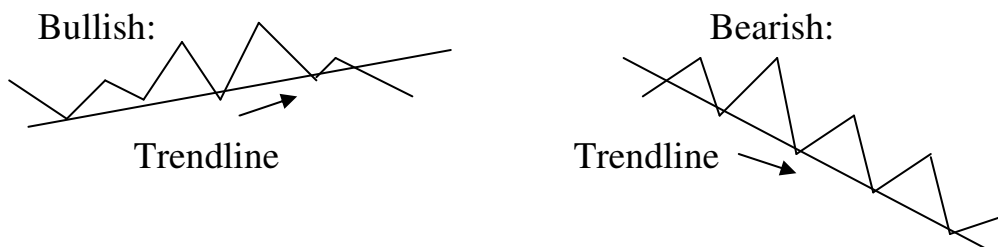
A country's trade is balanced if the value of its exports equals the value of its imports. A trade deficit exists if the country imports more than it exports. The latter is the case with the U.S. and the negative trade balance has generally caused the value of the U.S. dollar to fall against other currencies. A negative trade balance weakens a currency; a positive trade balance strengthens a currency. A good analyst will look at the import/export of Treasury securities and not just manufactured goods when determining a country's trade balance.

Technical Analysis

Fundamental analysts look at a company and try to determine the business or financial risk of buying a certain security, but technical analysts look at the market and try to determine the market risk an investor assumes when he invests in a certain security. Technical analysis is a way of trying to predict stock price trends in the short term, usually the next 4 to 6 weeks. The prediction uses current stock prices and the relationship of the present trend to prior trends as its basis. The trends are measured through chart of price movements and the analyst uses charts to try to predict future price movements. He also uses trading volume of the stock to try to validate the trends.

Overbought means that there has been an extended period of aggressive buying in the market. If no more buyers enter the market, future prices will most likely head downward or remain on a horizontal level. Oversold means that there has been so much selling the sellers have practically run out of anything to sell and the prices will stabilize or begin to increase. Consolidation means that the market needs to pause to consolidate its gains so it can prevent becoming overbought.

An analyst tries to predict where the price of a certain stock may be going by charting where its price has been. He tries to decide from his charts what the trend has been by drawing trendlines. When stocks rise or fall, they don't usually follow straight lines. In a bullish market, the trendline connects the bottoms, but in a bearish market, the trendline connects the tops. If a price penetrates the trendline, it is a warning that a reversal of the trend may begin.



A head and shoulders top pattern indicates that the market has likely topped and the future trend will be downward. A head and shoulders bottom pattern indicates that the future trend will likely be upward. A pattern of a smooth curve coming down and rising on the other side is called a saucer and

an inverted saucer pattern is often called an umbrella because it looks like an open umbrella.

The most important factor about the trendline is how many times the line has been touched. The more times it is touched, the greater its validity. The length is also important because it represents the time involved. The longer the time period, the more significant is any penetration of the line. Two very important conclusions from a chart are the support levels and the resistance levels. The resistance level is the point the price shows a resistance to further rise. The support level is the level below which the price does not seem to want to go. At the support level, the supply of sellers seems to disappear and buyers who want to get in on a good thing, jump in again. The price keeps moving between support and resistance until it penetrates one of the lines and a new trend is indicated.

If a price movement penetrates the support or the resistance level, it is called a breakout. To be considered valid by most analysts, a breakout must represent at least 3% penetration. If a stock had a support level of 33, a breakout would not be confirmed until the price had dropped almost one point to 32 ($33 \times .03 = .99$). Another factor that can confirm a breakout is if the volume of trading is higher than normal during the charted period. Most analysts think that once a breakout is confirmed, there will be a quick price movement in the direction of the break until a new support or resistance level is established. A technician thinks stock should be bought as the trendline is moving up from support to resistance and should be sold as the trendline moves down from resistance toward support. He also believes that if a breakout through resistance can be noted, it is a good time to buy if the investor is quick enough to take advantage of it. On the other hand, a breakout through the support level is a good time for short sellers who are able to move quickly.

Analysts often use the moving average to avoid the volatility of stock price trends. A moving average tries to modify the changes of stock prices into a smoothed trend so that the distortions are reduced to a minimum. If an analyst wanted to plot a 10 week moving average on a certain security, he would take the closing price of any given day for each of the previous 10 weeks, add the prices together and divide by 10. That number would be the average and be plotted. The next week, he would add the new closing price of the same day and delete the closing price for the first week used, 11 weeks ago. He would likely have a new total and, when divided by 10 would also have a new average which would be plotted. This process would be continued for the

coming weeks and the result would be a “moving average.” This could be plotted on the same chart as the actual current price for the issue. Changes are identified when the current price crosses over the moving average. If the price crossed above the moving average, it generally is a signal from a declining to a rising market; if the price crossed below the moving average, it usually denotes a market change from rising to declining.

Fundamental analysis is generally more concerned with what stocks to buy or sell and the technical approach is generally more helpful on when to buy or sell. Many analysts plot market indexes or averages instead of (or along with) individual stocks. Analysts who do so often feel that if the future price movement of an index which measures the market as a whole could be identified, an investor could make profits trading those securities whose performance tends to mimic the index. A stock with a beta of 1.00 tends to have a market risk similar to the market as a whole. Beta is usually measured against the Standard & Poor’s 500 composite index. If the stock has a beta of more than 1.0, it will tend to be more volatile than the market as a whole; if the beta of a stock is less than 1.0, it will be less volatile than the market as a whole. The more conservative the client, the lower the beta of the security which best fits. The more aggressive the client, the higher the beta of the security to match.

The alpha factor is a coefficient measuring investment return from non-market risk. An issue’s alpha value is the difference between its expected return and the return to be expected if the issue were priced correctly. Usually, a stock is underpriced if its alpha value is positive and overpriced if its alpha value is negative. If the alpha value is zero, it is viewed as correctly priced.

The Capital Asset Pricing Theory is used to compare the relationship between the expected risk of a security and the anticipated return from that security and is based on the concept that “the higher the risk, the higher the return.” The comparison starts with a risk-free return and adds a premium for the riskiness of the considered security. The computation is made by adding the risk-free return to the beta of the security times the difference between the expected return and the risk-free rate. If stock XYZ has a beta of 1.2, the risk-free rate is 6% and the difference between the expected return on the market and the risk-free rate is 7.2%, the computation is as follows: $6\% + (1.2 \times 7.2\%) = 6\% + 8.64\% = 14.84\%$.

The comparison of the Standard & Poor's 500 Composite Index has four main groups of issues: 400 industrials, 20 transportation companies, 40 public utilities, and 40 financial institutions. It is a base weighted index and uses a base period of 1941-43 equal to 10. Most of the stock in Standard & Poor's 500 are listed on the NYSE, but some are on the AMEX and some are OTC. The NYSE index is base weighted and similar to Standard & Poor's, but the base is December 31, 1965, and the index for the base is 50. AMEX has its index (called the AMEX Market Value Index) which includes all the common shares on the AMEX, warrants, and ADRs. It is not weighted; its base period is August 31, 1973 and its base index is 100.

The most well-known market index is the Dow Jones Industrial Average. Its first thirty industrial stocks are among the thirty best known corporations in the world and it publishes *The Wall Street Journal*. The Dow Jones is truly an average and includes the 30 industrials, 20 transportations, 15 utilities, and the composite of all 65.

The over-the-counter market uses the NASDAQ composite index which covers more than 3,000 OTC companies. The NASDAQ is calculated in much the same way as Standard & Poor's and the NYSE indexes. Its base period is February 5, 1971, and its index number is 100. These indexes are quoted daily in *The Wall Street Journal*.



Now that you have completed reading this course, you may proceed to the accompanying exam to earn a verifiable certificate of completion.