Investment Theory and Strategies

A. **Passive vs. Active Strategy**

i. **Passive**

One of the most profound ideas affecting the investment decision process, and indeed all of finance, is the idea that the securities markets, particularly the equity markets, are efficient. In an efficient market, the prices of securities do not depart for any length of time from the justified economic values that investors calculate for them. Economic values for securities are determined by investor expectations about earnings, risks, and so on, as investors grapple with the uncertain future. If the market price of a security does depart from its estimated economic value, investors act to bring the two values together. Thus, as new information arrives in an efficient marketplace, causing a revision in the estimated economic value of a security, its price adjusts to this information quickly and, on balance, correctly. In other words, securities are efficiently priced on a continuous basis.

An efficient market does not have to be perfectly efficient to have a profound impact on investors. All that is required is that the market be economically efficient. That is, after acting on information to trade securities and subtracting all costs (transaction costs and taxes, to name two), the investor would have been as well off with a simply buy-and-hold strategy. If the market is economically efficient, securities could depart somewhat from their economic (justified) values, but it would not pay investors to take advantage of these small discrepancies.

A natural outcome of a belief in efficient markets is to employ some type of passive strategy in owning and managing common stocks. If the market is totally efficient, no active strategy should be able to beat the market on a risk-adjusted basis. The Efficient Market Hypothesis has implications for fundamental analysis and technical analysis, both of which are active strategies for selecting common stocks.

Passive strategies do not seek to outperform the market but simply to do as well as the market. The emphasis is on minimizing transaction costs and time spent in managing the portfolio because any expected benefits from active trading or analysis are likely to be less than the costs. Passive investors act as if the market is efficient and accept the consensus estimates of return and risk, accepting current market price as the best estimate of a security value.

Paralleling our discussion of passive approaches to bond management, an investor can simply follow a buy-and-hold strategy for whatever portfolio of stocks is owned. Alternatively, a very effective w ay to employ a passive strategy with common stocks is to invest in an indexed portfolio. We will consider each of these strategies in turn.

A buy-and-hold strategy means exactly that - an investor buys stocks and basically holds them until some future time in order to meet some objective. The emphasis is on avoiding transaction costs, additional search costs, and so forth., The investor believes that such a strategy will, over some period of time, produce results as good as alternatives that require active management whereby some securities are deemed not satisfactory, sold, and replaced with other securities. These alternatives incur transaction costs and involve inevitable mistakes.

Notice that a buy-and-hold strategy is applicable to the investor portfolio, whatever its composition. It may be large or small, and it may emphasize various types of stocks. Also note that an important initial selection must be made to implement the strategy. The investor must decide to buy stocks A, B and C and not X, Y and Z.

Note that the investor will, in fact, have to perform certain functions while the buy-and-hold strategy is in existence. For example, any income generated by the portfolio may be reinvested in other securities. Alternatively, a few stocks may do so well that they dominate the total market value of the portfolio and reduce its diversification. If

the portfolio changes in such a way that it is no longer compatible with the investor risk tolerance, adjustments may be required. The point is simply that even under such a strategy investors must still take certain actions.

An interesting variant of this strategy is to buy-and-hold the 10 highest dividend-yielding stocks among the DJIA at the beginning of the year, hold for a year, and replace any stocks if necessary at the beginning of the next year with the newest highest-yielding stocks in the DJIA. This strategy does not require stock selection since it is based only on using the easily calculated dividend yield for 30 identified stocks, and making substitutions when necessary.

An increasing amount of mutual fund and pension fund assets can be described as passive equity investments. Using **index funds**, these asset pools are designed to duplicate as precisely as possible the performance of some market index.

A stock-index fund may consist of all the stocks in a well-known market average such as the Standard & Poor 500 Composite Stock Index. No attempt is made to forecast market movements and act accordingly, or to select under-or overvalued securities. Expenses are kept to a minimum, including research costs (security analysis), portfolio managers?fees, and brokerage commissions. Index funds can be run efficiently by a small staff.

ii. Active

Investors who do not accept the EMH, or have serious doubts, pursue active investment strategies, believing that they can identify undervalued securities and that lags exist in the market adjustment of these securities' prices to new (better) information. These investors generate more search costs (both in time and money) and more transaction costs, but they believe that the marginal benefit outweighs the marginal costs incurred.

Most investment techniques involve an active approach to investing. In the area of common stocks the use of valuation models to value and select stocks indicates that investors are analyzing and valuing stocks in an attempt to improve their performance relative to some benchmark such as a market index. They assume or expect the benefits to be greater than the costs.

Pursuit of an active strategy assumes that investors possess some advantage relative to other market participants. Such advantages could include superior analytical or judgment skills, superior information, or the ability or willingness to do what other investors, particularly institutions, are unable to do. For example, many large institutional investors cannot take positions in very small companies, leaving this field for individual investors. Furthermore, individuals are not required to own diversified portfolios and are typically not prohibited from short sales or margin trading as are some institutions.

Most investors still favor an active approach to common stock selection and management, despite the accumulating evidence from efficient market studies and the published performance results of institutional investors. The reason for this is obvious - the potential rewards are very large, and many investors feel confident that they can achieve such awards even if other investors cannot.

The most traditional and popular form of active stock strategies is the selection of individual stocks identified as offering superior return-risk characteristics. Such

stocks typically are selected using fundamental security analysis, but technical analysis is also used, and sometimes a combination of the two. Many investors have always believed, and continue to believe despite evidence to the contrary from the EMH, that they possess the requisite skill, patience, and ability to identify undervalued stocks.

We know that a key feature of the investments environment is the uncertainty that always surrounds investing decisions. Most stock pickers recognize the pervasiveness of this uncertainty and protect themselves accordingly by diversifying., Therefore, the standard assumption of rational, intelligent investors who select stocks to buy and sell is that such selections will be part of a diversified portfolio.

How important is stock selection in the overall investment process? Most active investors, individuals or institutions, are, to various degrees, stock selectors. The majority of investment advice and investment advisory services is geared to the selection of stocks thought to be attractive candidates at the time.

Stocks are, of course, selected by both individual investors and institutional investors. Rather than do their own security analysis, individual investors may choose to rely on the recommendations of the professionals. An important part of the institutional side of stock selection and recommendation is the role of the security analyst (also called investment analyst, or, simply, analyst) in the investment process. There are perhaps 2500 analysts on Wall Street.

The security analyst typically works for an institution concerned with stocks and other financial assets, but the analysts' product is often available to the individual investor in the form of brokerage reports and newsletters, reports from Standard & Poor's and other recommendation services, and so forth. Therefore, when considering stock selection it is important to analyze the role of the analyst.

The central focus of the analysts' job is to attempt to forecast stock returns. This task typically involves a direct forecast of a specific company's return. Alternatively, it can involve the inputs to a valuation model. Investors interested in stock selection use valuation models, and for inputs they can utilize their own estimates or, in some cases, use those provided by analysts.

What sources of information do analysts use in evaluating common stocks for possible selection or selling?' The major sources of information are presentations from the top management of the companies being considered, annual reports, and Form 10-K reports that must be filed by the companies with the SEC. According to surveys of analysts, they consistently emphasize the long term over the short term. Variables of major importance in their analysis include expected changes in earnings per share, expected return on equity (ROE), and industry outlook.

One of the most important responsibilities of an analyst is to forecast earnings per share for particular companies because of the widely perceived linkage between expected earnings and stock returns. Earnings are critical in determining stock prices, and what matters is expected earnings (what is referred to on Wall Street as earnings estimates). Therefore, the primary emphasis in fundamental security analysis is on expected earnings, and analysts spend much of their time forecasting earnings.

Empirical studies indicate that current expectations of earnings, as represented by the average of the analysts' forecasts, are incorporated into current stock prices. Perhaps more importantly, revisions in the average forecast for year-ahead earnings have predictive ability concerning future stock returns.

In doing their job of estimating expected returns, analysts supposedly present their recommendations in the form of "Buy," "Hold," and "Sell." However, investors who receive brokerage reports typically will see recommendations for specific companies as either "buy," or "hold," or "speculative hold." Analysts are under some pressure to

avoid the word "sell" from the companies they follow.

An active strategy that is similar to stock selection is group or sector rotation. This strategy involves shifting sector weights in the portfolio in order to take advantage of those sectors that are expected to do relatively better, and avoid or de-emphasize those sectors that are expected to do relatively worse. Investors employing this strategy are betting that particular sectors will repeat their price performance relative to the current phase of the business and credit cycle.

An investor could think of larger groups as the relevant sectors, shifting between cyclicals, growth stocks, and value stocks. It is quite standard in sector analysis to divide common stocks into four broad sectors: interest-sensitive stocks, consumer durable stocks, capital goods stocks, and defensive stocks. Each of these sectors is expected to perform differently during the various phases of the business and credit cycles. For example, interest-sensitive stocks would be expected to be adversely impacted during periods of high interest rates, and such periods tend to occur at the latter stages of the business cycle. As interest rates decline, the earnings of the companies in this sector-banks, finance companies, savings and loans, utilities, and residential construction firms-should improve.

Defensive stocks deserve some explanation. Included here are companies in such businesses as food production, soft drinks, beer, pharmaceuticals, and so forth that often are not hurt as badly during the down side of the business cycle as are other companies because people will still purchase bread, milk, soft drinks, and the like. As the economy worsens and more problems are foreseen, investors may move into these stocks for investment protection. These stocks often do well during the late phases of a business cycle.

Investors may view industries as the sectors and act accordingly. For example, if interest rates are expected to drop significantly, increased emphasis could be placed on the interest-sensitive industries such as housing, banking, and the savings and loans. The defense industry is a good example of an industry in recent years that has experienced wide swings in performance over multiyear periods. The defense buildup that occurred under the Reagan administration was followed by a de-emphasize of defense following the dramatic end of the cold war and the dissolution of the Soviet Union in the early 1990s.

It is clear that effective strategies involving sector rotation depend heavily on an accurate assessment of current economic conditions. A knowledge and understanding of the phases of the business cycle are important, as is an understanding of political environments, international linkages among economies, and credit conditions both domestic and international.

Market timers attempt to earn excess returns by varying the percentage of portfolio assets in equity securities. One has only to observe a chart of stock prices over time to appreciate the profit potential of being in the stock market at the right times and being out of the stock market at the bad times.

When equities are expected to do well, timers shift from cash equivalents such as money market funds to common stocks. When equities are expected to do poorly, the opposite occurs. Alternatively, timers could increase the Betas of their portfolios when the market is expected to rise and carry most stocks up, or decrease the Betas of their portfolio when the market is expected to go down. One important factor affecting the success of a market timing strategy is the amount of brokerage commissions and taxes paid with such a strategy as opposed to those paid with a buy-and-hold strategy.

Like many issues in the investing arena, the subject of market timing is controversial. Evidence indicates it is difficult for investors to regularly time the market efficiently enough to provide excess returns on a risk-adjusted basis.

On a pure timing basis, only a small percent of the stock timing strategies tracked over the most recent five-and eight-year periods outperformed a buy-and-hold approach.

Much of the empirical evidence on market timing comes from studies of mutual funds. A basic issue is whether fund managers increase the beta of their portfolios when they anticipate a rising market and reduce the beta when they anticipate a declining market. Several studies found no evidence that funds were able to time market changes and change their risk level in response.

Considerable research now suggests that the biggest risk of market timing is the investors will not be in the market at critical times, thereby significantly reducing their overall returns. Investors who miss only a few key months may suffer significantly. For example, over a recent 40-year period, investors who missed the 34 best months for stocks would have seen an initial $1,000 investment grow to only $4,492 instead of $86,650. Even Treasury bills would have been a better alternative in this situation. If you are still considering market timing as a strategy suitable for the average individual investor, think again, particularly after considering the following information. For the period 1986-1995, inclusive, returns on the S&P 500 Composite Index were:

Fully invested - annualized rate of return = 14.8 percent
Take out the 10 best days = 10.2 percent
Take out the 20 best days = 7.3 percent
Take out the 30 best days = 4.8 percent
Take out the 40 best days = 2.5 percent

B. **Building an Investment Portfolio**

i. **Asset Allocation**

We now consider how investors go about selecting stocks to be held in portfolios. Individual investors often consider the investment decision as consisting of two steps:

- Asset allocation
- Security selection

The asset allocation decision refers to the allocation of portfolio assets to broad asset markets; in other words, how much of the portfolio funds is to be invested in stocks, how much in bonds, money market assets, and so forth. Each weight can range from zero percent to 100 percent. Examining the asset allocation decision globally leads us to ask the following questions:

- What percentage of portfolio funds is to be invested in each of the countries for which financial markets are available to investors?
- Within each country, what percentage of portfolio funds is to be invested in stocks, bonds, bills, and other assets?
- Within each of the major asset classes, what percentage of portfolio funds is to go to various types of bonds, exchange-listed stocks versus over-the-counter stocks, and so forth?

Many knowledgeable market observers agree that the asset allocation decision may be the most important decision made by an investor. According to some studies, for example, the asset allocation decision accounts for more than 90 percent of the variance in quarterly returns for a typical large pension fund.
The rationale behind this approach is that different asset classes offer various potential returns and various levels of risk, and the correlation coefficients may be quite low.
Correlation determines the extent to which a variable moves in the same direction as

other variable, such as inflation. It is statistically determined and labeled as the correlation coefficient. Correlation can help in making decisions concerning diversification among mutual fund categories.
The asset allocation decision involves deciding the percentage of investable funds to be placed in stocks, bonds, and cash equivalents. It is the most important investment decision made by investors because it is the basic determinant of the return and risk taken. This is a result of holding a well-diversified portfolio, which we know is the primary lesson of portfolio management.
The returns of a well-diversified portfolio within a given asset class are highly correlated with the returns of the asset class itself. Within an asset class diversified portfolios will tend to produce similar returns over time. However, different asset classes are likely to produce results that are quite dissimilar. Therefore, differences in asset allocation will be the key factor over time causing differences in portfolio performance.
Factors to consider in making the asset allocation decision include the investor return requirements (current income versus future income), the investor risk tolerance, and the time horizon. This is done in conjunction with the investment manager expectations about the capital markets and about individual assets.
According to some analyses, asset allocation is closely related to the age of an investor. This involves the so-called *life-cycle theory of asset allocation.* This makes intuitive sense because the needs and financial positions of workers in their 50s should differ, on average, from those who are starting out in their 20s. According to the life-cycle theory, for example, as individuals approach retirement they become more risk averse.
Stated at its simplest, portfolio construction involves the selection of securities to be included in the portfolio and the determination of portfolio funds (the weights) to be placed in each security. The Markowitz model provides the basis for a scientific portfolio construction that results in efficient portfolios. An efficient portfolio is one with the highest level of expected return for a given level of risk, or the lowest risk for a given level of expected return.

ii. Asset Classes

Portfolio construction begins with the basic building blocks of asset classes, which are the following major categories of investments:

- Cash (or cash equivalents such as money market funds)
- Stocks
- Bonds
- Real Estate (including Real Estate Investment Trusts)
- Foreign Securities

Each investor must determine which of these major categories of investments is suitable for him/her. The next step, as discussed in the preceding section on asset allocation, is to determine which percentage of total investable assets should be allocated to each category deemed appropriate. Only then, should individual securities be considered within each asset class.

iii. Diversification

The insurance principle illustrates the concept of attempting to diversify the risk involved in a portfolio of assets (or liabilities). In fact, diversification is the key to the management of portfolio risk because it allows investors to minimize risk without adversely affecting return.

Random or na鏥e diversification refers to the act of randomly diversifying without regard to relevant investment characteristics such as expected return and industry classification. An investor simply selects a relatively large n umber of securities randomly ?the proverbial "throwing a dart at *The Wall Street Journal* page showing

stock quotes."

For randomly selected portfolios average portfolio risk can be reduced to approximately 19 percent. As we add securities to the portfolio, the total risk associated with the portfolio of stocks declines rapidly. The first few stocks cause a large decrease in portfolio risk. Based on these actual data, 51 percent of portfolio standard deviation is eliminated as we go from 1 to 10 securities.

Unfortunately, the benefits of random diversification do not continue as we add more securities. As subsequent stocks are added, the marginal risk reduction is small. Nevertheless, adding one more stock to the portfolio will continue to reduce the risk, although the amount of the reduction becomes smaller and smaller.

Throughout the entire range of portfolio sizes, the risk is reduced when international investing is compared to U.S. stocks, and the difference is dramatic - about one-third less.

- **Risk Reduction in the Stock Portion of a Portfolio**

i. **Law of Large Numbers**

Assume that all risk sources in a portfolio of securities are independent. As we add securities to this portfolio, the exposure to any particular source of risk becomes small. According to the *Law of Large Numbers*, the larger the sample size, the more likely it is that the sample mean will be close to the population expected value. Risk reduction in the case of independent risk sources can be thought of as the *insurance principle*, named for the idea that an insurance company reduces its risk by writing many policies against many independent sources of risk.

We are assuming here that rates of return on individual securities are statistically independent such that any one security rate of return is unaffected by another rate of return.

Unfortunately, the assumption of statistically independent returns on stocks is unrealistic in the real world. We find that most stocks are positively correlated with each other; that is, the movement sin their returns are related. Most stocks have a significant level of co-movement with the overall market of stocks, as measured by such indexes as the S&P 500 Composite Index. Risk cannot be eliminated because common sources of risk affect all firms.

ii. **Modern Portfolio Theory**

In the 1950 , Harry Markowitz, considered the father of modern portfolio theory, originated the basic portfolio model that underlies modern portfolio theory. Before Markowitz, investors dealt loosely with the concepts of return and risk. Investors have known intuitively for many years that it is smart to diversify, that is, not to "put all of your eggs in one basket." Markowitz, however, was the first to develop the concept of portfolio diversification in a formal way. He showed quantitatively why, and how, portfolio diversification works to reduce the risk of a portfolio to an investor.

Markowitz sought to organize the existing thoughts and practices into a more formal framework and to answer a basic question: Is the risk of a portfolio equal to the sum of the risks of the individual securities comprising it? Markowitz was the first to develop a specific measure of portfolio risk and to derive the expected return and risk for a portfolio based on covariance relationships.

Markowitz developed an equation that calculates the risk of a portfolio as measured by the variance or standard deviation. His equation accounts for two factors:

- Weighted individual security risks (i.e., the variance of each individual security, weighted by the percentage of investable funds placed in each

individual security).

- Weighted co-movements between securities?returns (i.e., the covariance between the securities?returns, again weighted by the percentage of investable funds placed in each security).

Covariance is a measure of the co-movements between security returns used in the calculation of portfolio risk. Markowitz found we can analyze how security returns move together by considering the correlation coefficient, a measure of association learned in statistics.
As used in portfolio theory, the **correlation coefficient** is a statistical measure of the *relative* co-movements between security returns. It measures the extent to which the returns on any two securities are related; however, it denotes only association, not causation. It is a relative measure of association that is bounded by +1.0 and -1.0, with

$\mathbf{P}_{i,j} = +1.0$
= perfect positive correlation
$\mathbf{P}_{i,j} = -1.0$
= perfect negative (inverse) correlation
$\mathbf{P}_{i,j} = 0.0$
= zero correlation

With perfect positive correlation, the returns have a perfect direct linear relationship. Knowing what the return on one security will do allows an investor to forecast perfectly what the other will do.
With perfect negative correlation, the securities?returns have a perfect inverse linear relationship to each other. Therefore, knowing the return on one security provides full knowledge about the return on the second security. When one security return is high, the other is low.
With zero correlation, there is no relationship between the returns on the two securities. Knowledge of the return on one security is of no value in predicting the return of the second security.
When does diversification pay?

- Combining securities with perfect positive correlation with each other provides no reduction in portfolio risk. The risk of the resulting portfolio is simply a weighted average of the individual risks of the securities. As more securities are added under the condition of perfect positive correlation, portfolio risk remains a weighted average. There is no risk reduction.

- Combining two securities with zero correlation (statistical independence) with each other reduces the risk or the portfolio. If more securities with uncorrelated returns are added to the portfolio, significant risk reduction can be achieved. However, portfolio risk cannot be eliminated in this case.

- Combining two securities with perfect negative correlation with each other could eliminate risk altogether. This is the principle behind hedging strategies.

- Finally, we must understand that in the real world, these extreme correlations are rare. Rather, securities typically have some positive correlation with each other. Thus, although risk can be reduced, it usually cannot be eliminated. Other things being equal, investors wish to find securities with the least positive correlation possible. Ideally, they would like securities with negative correlation or low positive correlation, but they generally will be faced with positively correlated security returns.

Markowitz?theory shows us that the risk for a portfolio encompasses not only the individual security risk but also the co-variance between the securities and that three factors determine portfolio risk:

- The variance of each security.

- The co-variances between securities.

- The portfolio weights for each security.

The standard deviation of the portfolio will be directly affected by the correlation between the two stocks. Portfolio risk will be reduced as the correlation coefficient moves from +1.0 downward.
One of Markowitz real contributions to portfolio theory is his insight about the relative importance of the variances and co-variances. As the number of securities held in a portfolio increases, the importance of each individual security risk (variance) decreases, while the importance of the covariance relationships increases. In a portfolio of 500 securities, for example, the contribution of each security own risk to the total portfolio risk will be extremely small; portfolio risk will consist almost entirely of the covariance risk between securities.
Markowitz approach to portfolio selection is that an investor should evaluate portfolios on the basis of their expected returns and risk as measured by the standard deviation. He was the first to derive the concept of an **efficient portfolio**, defined as one that has the smallest portfolio risk for a given level of expected return or the largest expected return for a given level of risk. Investors can identify efficient portfolios by specifying an expected portfolio return and minimizing the portfolio risk at this level of return. Alternatively, they can specify a portfolio risk level they are willing to assume and maximize the expected return on the portfolio for this level of risk. Rational investors will seek efficient portfolios because these portfolios are optimized on the two dimensions of most importance to investors, expected return and risk.

iii. **Dollar Cost Averaging**

The systematic addition of dividends (usually with mutual funds), along with consistent periodic new purchases of shares, creates risk reduction by creating a lower cost per share owned over time. This is known as dollar cost averaging. This strategy allows one to take away the guesswork of trying to time the market. You invest a fixed amount of money at a regular interval, regardless of whether the market is high or low. By doing so, you buy fewer shares when the prices are high and more shares when the prices are low. Because dollar cost averaging involves regular investments during periods of fluctuating prices, you should consider your financial ability to continue investing when price levels are low. However, this approach reduces the effects of market fluctuation on the average price you pay for your shares. Additionally, it helps you maintain a regular investing plan.

iv. **Dividend Reinvestment**

A dividend is a payment to stockholders, usually in the form of cash, but perhaps in the form of stock or other property, to owners of the company. Dividends may be regular dividends, which are steady dividend payments distributed at regular intervals. Also, dividends may be irregular, meaning that they do not occur at regular intervals or that they vary substantially in amount. An extra dividend is a dividend that is in addition to the company regular dividend.

A dividend reinvestment plan allows an investor in mutual fund or other shares to acquire additional shares automatically, often without sales charge. Instead of a cash payment, the investor is issued shares as dividends. This creates a form of dollar cost averaging.

- **Advanced Strategies**

i. **Use of Leverage**

- History of Margin

Leverage is finding a means of utilizing one existing assets to acquire additional assets. The most common form of leveraging is borrowing from others, using assets owned as collateral to secure the loan. Leverage is a huge part of the real estate industry as real estate is rarely purchased

outright for cash; rather, a down payment is usually made on a loan with the majority of the purchase price financed. The same arrangement to some extent can be achieved with securities, particularly with common stocks. This process is know as margin, or "buying on margin." While margin accounts provide leverage by adding to one buying power, it must be remembered that leverage is a two-edged sword. In addition to providing increased buying power, it provides increased risk.

Margin trading has existed in the United States since at least 1791, when loans were secured by government bonds. Prior to the twentieth century, most brokerage firms allowed customers to trade on ten percent margin. This meant that customers could purchase stock by paying a mere ten percent of the stock's value.

The only real margin restrictions in earlier years were those imposed by banks or brokers for their own protection. Exchange rules that imposed margin requirements were eventually adopted before this century, but these were viewed to be mere "gentlemen's agreements." Moreover, those early exchange rules, like restrictions imposed by banks and brokers, were not intended to curb speculation or protect customers. Instead, they were designed to protect the brokerage firms that were extending the credit.

After the Panic of 1907, regulators began focusing on margins as a basis for abuses in speculative transactions. A New York State commission and a U.S. Congressional committee recommended that securities margins be set at twenty percent. Those recommendations were not adopted. The New York Stock Exchange, however, did adopt a rule that required "proper and adequate margin."

The speculative mania that developed in the 1920s was fueled by speculative margin transactions. The Federal Reserve Board sought to persuade broker-dealers to limit their extensions of margin credit as the market skyrocketed. The New York Stock Exchange also imposed minim= margin requirements of twenty-five percent in order to prevent defaults. Some brokers were imposing margins as high as fifty percent as the market reached its peak. Those efforts did not, however, prevent the Stock Market Crash of 1929.

Much blame was placed on margin trading as a cause of the Crash. The Presidential election campaign of Franklin D. Roosevelt also targeted margin trading in the need for regulation. After his election, President Roosevelt's administration sought legislation that would restrict margin trading in order to curb excessive speculation.

Congress agreed with President Roosevelt, finding that individuals had been allowed to engage in speculative margin transactions that were certain to fail. Congress also concluded that credit resources needed elsewhere in the economy had been diverted to speculative stock trading.

Margin trading was further blamed for accentuating the price drops that occurred during the Stock Market Crash of 1929. As prices declined, margin calls resulted in many forced liquidations by small investors who did not have sufficient capital to meet their margin calls. Those forced liquidations resulted in further price decreases that caused more margin calls and more liquidations. This downward spiral threatened the entire financial system during the Crash.

Congress responded to these concerns by including a provision in the Securities Exchange Act of 1934 that authorized the Federal Reserve Board to regulate the extension of credit in securities transactions. The SEC was given the authority to enforce those requirements.

The Federal Reserve Board initially allowed the extension of credit only on securities listed on a national securities exchange. They later allowed extensions of credit on over-the-counter securities that met certain minimum requirements. Foreign issues were also marginable, provided that they met specified requirements.

The Federal Reserve Board has changed the maximum margin levels for securities twenty-five times since the enactment of the Securities Exchange Act of 1934. At one point, margin levels were raised to one hundred percent of the value of the stock being margined.

- How Margin Works

Accounts at brokerage houses can be either cash accounts or margin accounts. Opening a margin account requires some deposit of cash or marginable securities. The NYSE requires that member firms establish a minimum deposit of $2,000 or its equivalent in securities for customers opening a margin account, but individual firms may require more. With a margin account, the customer can pay part of the total amount due and borrow the remainder from the broker, who in turn typically borrows from a bank to finance customers. The bank charges the broker the "broker call rate," and the broker in turn charges the customer a "margin interest rate," which is the broker call rate plus a percentage added on by the brokerage firm."

A margin account can be used to

1. Purchase additional securities by leveraging the value of the eligible shares to buy more.

2. Borrow money from a brokerage account for personal purposes. The margin interest rate is comparable to a bank's prime rate.

3. Provide overdraft protection in amounts up to the loan value of the marginable securities for checks written (or debit card purchases).

The traditional appeal of margin trading to investors is that it magnifies any gains on a transaction by the reciprocal of the margin requirement (i.e., 1 /margin percentage; for example, with a margin of 40 percent, the magnification is 1/0.4 = 2.50). Unfortunately, the use of margin also magnifies any losses. Regardless of what happens, the margin trader must pay the interest costs on the margin account. An investor considering a margined stock purchase should remember that the stock price can go up, remain the same, or go down. In two of these three cases, the investor loses. Even if the stock rises, the breakeven point is higher by the amount of the interest charges.
Margin is that part of a transaction's value that a customer must pay to initiate the transaction; that is, it is that part of the total value of the transaction that cannot be borrowed from the broker. Cash has 100 percent loan value, and stock securities have 50 percent loan value.
The Board of Governors of the Federal Reserve System has the authority to specify the initial margin, which is used as a policy device to influence the economy. Historically, the initial margin for stocks has ranged between 40 and 100 percent, with a current level of 50 percent since 1974. Furthermore, all exchanges and brokers require a maintenance margin below which the actual margin cannot go. The NYSE requires an investor to maintain an equity of 25 percent of the market value of any securities held (and in practice brokers usually require 30 percent or more) on long positions.
If the initial margin requirement is 50 percent on a $10,000 transaction (100 shares at $100 per share), the customer must put up $5,000, borrowing $5,000 from the broker.' The customer could put up $5,000 in cash or by

depositing $10,000 in marginable securities.
As the stock price changes, the investor's equity changes. This is calculated as the market value of the collateral stock minus the amount borrowed. The market value of the stock is equal to the current market price multiplied by the number of shares.
If the investor's equity exceeds the initial margin, the excess margin can be withdrawn from the account, or more stock can be purchased without additional cash. Conversely, if the investor's equity declines below the initial margin, problems can arise, depending on the amount of the decline. It is at this point that the maintenance margin must be considered.
Assume that the maintenance margin is 30 percent, with a 50 percent initial margin, and that the price of the stock declines from $100 to $90 per share.

$$\text{Actual Margin} = \frac{\text{Market Value of Securities} - \text{Amount Borrowed}}{\text{Market Value of Securities}}$$

$$= (\$9{,}000 - \$5{,}000)/\$9{,}000 = 44.44\%$$

The actual margin is now between the initial margin of 50 percent and the maintenance margin of 30 percent. This could result in a restricted account, meaning that additional margin purchases are prohibited, although the customer does not have to put additional equity (cash) into the account.
Brokerage houses calculate the actual margin in their customers?accounts daily to determine whether a margin call is required. This is known as having the brokerage accounts marked to the market. A margin call occurs when the market value of the margined securities less the debit balance (amount owed) of the margin account declines below the maintenance requirement set by the brokerage house (typically 30 percent on stocks). This type of call is payable on demand, and the brokerage house may reserve the right to take action without notice if market conditions are deteriorating badly enough.
Assume in our previous example that the maintenance margin is 30 percent. If the price of the stock drops to $80, the actual margin will be 37.5 percent ($8,000 - $5,000) / $8,000). Because this is above the maintenance margin, there is no margin call. However, if the price of the stock declines to $66.66, the actual margin will be 25 percent ($6,666 - $5,000 / $6,666). This results in a maintenance call to restore the investor equity to the minimum maintenance margin.
Although the initial margin requirement for common stocks and convertible bonds is 50 percent, it is only 30 percent (or less) of market value for "acceptable" municipal and corporate bonds. U.S. Government securities and GNMAs require an initial margin of only 8 to 15 percent, whereas Treasury bills may require only 1 percent of market value.
While the initial margin requirement for common stocks is 50 percent, and that is how virtually all investors think of it, the margin option does not have to be fully employed. That is, investors could limit their borrowing to one-third of their account, in which case the value of the account could decline 50 percent before a margin call is issued. With borrowing limited to 20 percent of the account, the value of the account could decline 70 percent before a margin call occurred. Particularly in the latter situation, an investor would have an extremely low probability of ever encountering a margin call.

ii. **Option Strategies**

- Definitions

Options are derivative securities, so named because their value is derived from their connected underlying security. Options and futures are important to investors because they provide a way for investors to manage portfolio risk. For example, investors may incur the risk of adverse currency fluctuations if they invest in foreign securities, or they may incur the risk that interest rates will adversely affect their fixed-income securities. Options can

be used to limit some, or all, of these risks, thereby providing risk-control possibilities. Options also provide the opportunity to speculate with leverage. Chicago Board Options Exchange

The following definitions are essential to an understanding of options:

Call: An option contract under which the holder has the right to purchase the number of shares of the underlying security that is covered by the contract at a fixed price for a fixed period of time. It also obligates the seller, if the buyer exercises, to sell the underlying security that is covered by the contract at a fixed price for a fixed period of time.

Put: An option contract under which the holder has the right to sell the number of shares of the underlying security that is covered by the contract at a fixed price for a fixed period of time. It also obligates the seller, if the buyer exercises, to purchase the underlying security that is covered by the contract at a fixed price for a fixed period of time.

Listed Option Contract: A put or call issued by the Options Clearing Corporation (OCC). Listed options include equity options, debt options, index options and foreign currency options.

Exchange Option Transaction: A transaction done on the floor of an exchange between exchange members for the purchase or sale of an option contract. This includes opening purchases and sales, and closing purchases and sales.

Class of Options: All option contracts of the same type covering the same underlying security. For example, all XYZ call options, regardless of the exercise price or expiration date, would belong to the same class.

Series of Options: All option contracts of the same class having the same expiration date and exercise price. For example, XYZ July 160 call is a series, XYZ July 180 call is another series, and XYZ October 180 call is a third series.

Underlying Security: The security represented by the contract which the seller is required to deliver in the case of a call or to accept in the case of a put.

Exercise: The right of the buyer (holder) to buy the security in the case of a call, or sell the security in the case of a put.

Exercise Price (Strike Price): The price stated in the contract, which is the price that the buyer will pay if the call is exercised, or which the buyer will receive if the put is exercised. For example, the XYZ July 50 call has an exercise price of $50. This means that the buyer of the call has the right to call away (purchase) the security at any time until expiration at a fixed price of $50. The buyer of an XYZ July 50 put would have the right to put (sell) the security at any time until expiration at a fixed price of $50.

Assignment: The obligation of a seller of an option to deliver securities if a buyer exercises a call, or accept securities if a buyer exercises a put.

Premium: The amount paid by the buyer of an option to the seller for the right to call (buy) or put (sell) the underlying security during the

life of the contract.

In-the-money: For a call option, the market price of the underlying security is higher than the exercise price. A put option is in-the-money when the market price is lower than the exercise price. Another term synonymous to "in-the-money" is "intrinsic value."

Out-of-the-money: For a call option, the market price of the underlying security is lower than the exercise price. A put option is out-of-the-money when the market price is higher than the exercise price.

Parity: When the premium equals the intrinsic value of the contract. The XYZ July 50 call would be at parity if the market price of XYZ stock is $55 and the premium is 5. The premium would be equal to the in-the-money amount of the contract. *Aggregate Exercise Price:* The exercise price multiplied by the number of shares in the contract, which is usually 100. If the exercise price is $50 and the number of shares is 100, the aggregate exercise price would be $5,000.

Covered Call: A short position where the writer (seller) is long one of the following:

- The underlying security or securities convertible into the underlying security.
- A call option with the same or a lower exercise price that expires no sooner than the short call.
- An escrow receipt or guarantee letter from a bank

Uncovered Call: A short position where the writer (seller) does not hold any of the long positions enumerated above. The term "naked" and uncovered are synonymous.
Covered Put: A short position where the writer (seller) has one of the following positions:

Long a put with the same of a higher exercise price that expires no sooner than the short put.
A bank guarantee letter stating that the aggregate exercise price is on deposit

Uncovered Put: A short position where the writer does not hold any of the long positions enumerated above.
Expiration Month: The month in which the contract expires. An IBM July 120 contract would expire in July.
Expiration Date: The day when the option expires. This is usually the Saturday immediately following the third Friday of the expiration month.
Long Position: The number of option contracts of a particular series that is held by a purchaser.
Short Position: The number of option contracts of a particular series that are written (sold) and have not as yet been closed out.
Opening Purchase Transaction: A transaction in which an individual creates a long position.
Opening Writing (Sale) Transaction: A transaction in which an individual creates a short position.
< Sale>A transaction whereby an individual eliminates a long position by selling an equivalent contract.
Closing Purchase Transaction: A transaction whereby an individual eliminates a short position by buying an equivalent contract.

- Option Basics

In today's investing world, the word options refers to puts and calls. Options are created not by corporations but by investors seeking to trade in claims on a particular common stock. A call (put) option gives the buyer the right to purchase (sell) 100 shares of a particular stock at a specified price (called the exercise price) within a specified time. The maturities on most new puts and calls are available up to several months away, although one form of puts and calls called LEAPS has maturity dates up to a couple of years. Several exercise prices are created for each underlying common stock, giving investors a choice in both the maturity and the price they will pay or receive.

Buyers of calls are betting that the price of the underlying common stock will rise, making the call option more valuable. Put buyers are betting that the price of the underlying common stock will decline, making the put option more valuable. Both put and call options are written (created) by other investors who are betting the opposite of their respective purchasers. The sellers (writers) receive an option premium for selling each new contract while the buyer pays this option premium.

Once the option is created and the writer receives the premium from the buyer, it can be traded repeatedly in the secondary market. The premium is simply the market price of the contract as determined by investors. The price will fluctuate constantly, just as the price of the underlying common stock chances. This makes sense, because the option is affected directly by the price of the stock that gives it value. In addition, the option's value is affected by the time remaining to maturity, current interest rates, the volatility of the stock, and the price at which the option can be exercised.

Puts and calls allow both buyers and sellers (writers) to speculate on the short- term movements of certain common stocks. Buyers obtain an option on the common stock for a small, known premium, which is the maximum that the buyer can lose. If the buyer is correct about the price movements on the common, gains are magnified in relation to having bought (or sold short) the common because a smaller investment is required. However, the buyer has only a short time in which to be correct. Writers (sellers) earn the premium as income, based on their beliefs about a stock. They win or lose, depending on whether their beliefs are correct or incorrect.

Options can be used in a variety of strategies, giving investors opportunities to manage their portfolios in ways that would be unavailable in the absence of such instruments. For example, since the most a buyer of a put or call can lose is the cost of the option, the buyer is able to truncate the distribution of potential returns. That is, after a certain point, no matter how much the underlying stock price changes, the buyer's position does not change.

Options listed on exchanges are designated by reference to the issuer, the expiration date, the exercise price and the type. For example, options in IBM are designated as "IBM April 60 call" or "IBM July 70 put."

When an option contract is sold, the seller is liable for performance on the terms of the contract. However, the Options Clearing Corporation is the actual issuer and obligor of the contract and is the clearing agency for listed options. The Options Clearing Corporation is obligated to the buyer to insure that the seller performs in accordance with the terms of the contract. The Options Clearing Corporation will in turn hold the seller's broker liable for performance on the contract. Option contracts are considered to be new issues of securities and are subject to the prospectus requirements of the Securities Act of 1933. As the Options Clearing Corporation is the issuer of the contract, purchasers must be given a copy of the Options Clearing Corporation prospectus if they request one. In addition, all customers who open options accounts must receive from the member firm a current OCC

Options Risk Disclosure Document.

If the price of the underlying stock changes significantly, the exchange will introduce new contracts at different intervals. This will usually occur when the price moves above or below the midpoint of the interval. For example, let's assume that a contract was introduced at an exercise price of 60 when the underlying stock's mark-et price was 58. The market price now moves up to 67. The exchange will introduce a new contract with an exercise price of 70.

Trading in contracts already listed will continue and will not be affected in any way. The exchange will introduce new contracts at the new exercise prices for all expiration months except those that will expire within 60 days. Option trading is done without the issuance of certificates. The holder of the option does not receive any certificate indicating ownership. The only evidence of ownership is the confirmations and statements sent by brokers.

- Strategy Examples

The purchase and sale of option contracts is considered to be risky and not suitable for all investors. There are various types of risks associated with option transactions that we will examine. The nature and degree of risk varies with the type of position that an investor takes on. Before we examine the risks associated with options, we will examine some of the factors considered by investors when they decide to establish a position in options. Among these factors are the following:

1. Intrinsic Value
   The current price of the underlying stock in relation to the exercise price of the option refers to the intrinsic value of the option, and is the most important consideration for the buyer or seller of options. The term "intrinsic value" means the actual dollar value of the option contract based on the relationship of the market price of the underlying stock and the exercise price of the contract.

Example

The exercise price of the XYZ July call is 50 and the market price of XYZ stock is $53. The intrinsic value is $3 per share. The holder of the call could call the stock away at the exercise price of 50 and sell the stock in the market at the current price of $53. The holder would have an exercise profit of $3 per share. In this case, the contract would be "in-the-money" by three points.

2. A call option is *in-the-money* (has intrinsic value) when the market price is higher than the exercise price. A contract could also have no intrinsic value.

Example

If the market price of XYZ stock were $45, there would be no intrinsic value. In this case, the contract would be "out-of-the-money." A call option is out-of-the-money (has no intrinsic value) if the market price is lower than the exercise price.

3. A put option can likewise have intrinsic value. A put option would have intrinsic value (would be in-the-money) if the market price of the stock is lower than the exercise price.

Example

If the exercise price of the ABC October put is 40 and the market price of the stock is $36, the put would be in-the-money. A holder of the put could acquire stock in the open market at $36 and put (sell) the stock to the writer at S40. The buyer would have an exercise profit of $4 per share. Conversely, if the market price of the stock were $50, the contract would have no intrinsic value as

the buyer would not buy stock at $50 and put it at the exercise price of $40.

4. A put option is **in-the-money** if the market price of the stock is **lower** than the exercise price and **out-of-the-money** if the market price is **higher** than the exercise price. For both puts and calls, if the market price and the exercise price are the same, the contract is "at-the-money."

5. Time Value
   Another factor considered by the buyer and seller in determining the amount of the premium is the time value of the contract.

Example

On January 20th, the XYZ April, July and October contracts are open for trading on the exchange. All three contracts have exercise prices of $50. The current market price of the stock is $48. All of the XYZ call options have no intrinsic value (are out-of-the-money.) However, the options are trading at premiums. These premiums reflect the "time value" of the contract. The fact that there is still time left to expiration for the price to move in a favorable direction means that buyers are willing to pay a premium for the contract.

6. We would expect that the premium for the July contract would be higher than the premium for the April contract and the premium for the October contract would be higher than the premium for the July contract. Obviously, the fact that the July contract expires three months after the April contract, and that the October contract expires six months after the April contract, means that a purchaser would be willing to pay correspondingly higher prices for the later expirations as there is more time available for the buyer to exercise the contract. The premium for the April contract might be 3, the premium for the July contract might be 4 1/2, and the premium for the October contract might be 5 3/4.

Example

On July 15th, ABC stock is trading at $60. The ABC July 50 call is trading at $10. The premium in this case consists solely of intrinsic (in-the- money) value. This contract is said to be trading at parity. If the premium were 11, 10 points would be intrinsic value and 1 point would be time value. If the market price were $45 and the premium 3/4 point, the entire premium would be time value.

7. Volatility of the Underlying Stock: Generally speaking, the greater the volatility of the underlying stock, the higher the premium.

Example

Let's assume that ABC Corporation and XYZ Piubic Utility both have options listed on the exchange. The market price of ABC and XYZ are both $50.

ABC is in a highly cyclical industry such as motion picture production and its price is highly volatile, ranging from $30 to $70 over the past five years.

XYZ is a public utility, which is considered a stable industry, and its price has ranged from $45 to $55 over the past five years.

Q: In which case would the poremium be higher?
A: The premium for the ABC options would probably be higher than the premium for the XYZ options because ABC is a more volitile stock.

8. Current Market Factors: The general condition of the market will influence option premiums. Generally, a strong bull market, characterized by advancing prices and heavy volume of trading, will

usually coincide with a strong options market with high volume and substantial premiums. The opposite will generally apply to a weak market.

9. Alternate Investments: The options market will be affected by returns available on alternate investments. For example, if interest rates are very high, investors may turn to fixed-income investments such as certificates of deposit and treasury bills rather than alternate investments such as stocks and options.

10. Right to Call Away
When individuals buy calls, they acquire the right to call away (buy) the stock from the writers. For this right to call stock away, buyers of calls will pay premiums. If the stock is called away, the cost will be the exercise price plus the premium.

Example

If an investor buys the XYZ July 40 call for a premium of $500, and subsequently calls the stock, the cost to acquire the stock will be $4,500 (exercise price of 40 plus premium of $500).

11. When individuals buy puts, they acquire the right to put (sell) the underlying stock to the writers. For this right to put stock, buyers of puts will pay a premium. If they subsequently put the stock, the selling price will be the exercise price **minus** the premium.

Example

If an investor buys the XYZ July 40 call for a premium of $500, and subsequently puts the stock, the selling price will be $3,500 (exercise price of 40 minus premium of $500).

12. If individuals write (sell) calls, they deliver 100 shares of stock if the calls are exercised. The writer's selling price will be the exercise price plus the premium. For example, if investors sell XYZ July 40 calls for a premium of $500 and the stock is called away, the selling price will be S4,500 (exercise price of 40 plus premium of $500). If individuals sell puts, they are obligated to accept delivery of 100 shares of stock if the put is exercised. The writer's acquisition cost will be the exercise price minus the premium. For example, if an investor sells the XYZ July 40 put for a premium of $500 and the stock is put to the investor, the acquisition cost will be $3,500 (exercise price of 40 minus premium of $500). The following table summarizes the above:

    13. **Buyer of call:** Acquisition cost is exercise price **plus** premium.
    Buyer of put: Selling price is exercise price **minus** premium.
    Writer of call: Selling price is exercise price **plus** premium.
    Writer of put: Acquisition cost is exercise price **minus** premium.

14. Note that for both the buyer and the seller of a call, the premium is **added** to the exercise price, and for the buyer and the seller of a put, the premium is **subtracted** from the exercise price.

15. **Risk for Option Purchasers**

16. **Limited Duration Risk:** The purchaser of a put or call runs the risk of loss of the entire investment in a relatively short period of time. Option contracts, unlike stock, have a limited duration. The

maximum life of a listed option is generally nine months. If an individual were to purchase an option contract and the price of the underlying stock did not move in a favorable direction, the purchaser could lose his entire investment.

Example

If an individual were to buy the XYZ July 50 call for a premium of $500 and the price of XYZ never goes above $50, the option would become worthless on the expiration date. If the individual did not sell the option on the exchange prior to expiration to recover at least part of the cost, the entire investment would be lost. If an investor were to purchase the ABC October 60 put for a premium of $400 and the price of ABC never dropped below $60, the entire $400 investment would be lost on the expiration date.

17. For the buyer of a call or a put, the premium represents a cost that must be recovered before a profit can be realized. In order for the buyer to make a profit, it is not only necessary for the price of the underlying stock to move in a favorable direction, but also that it move in a favorable direction by more than the amount of the premium paid. For the buyer of a call, a **profit** would be realized only if the price of the stock advanced above the exercise price by more than the premium.

Example

An investor who purchases the XYZ July 50 call for $500 will not realize a profit unless the price of XYZ goes above $55. If the price of XYZ stock rose to $60, the investor would call the stock away at the exercise price of 50. The total cost for the stock would be $55 ($50 exercise price plus $5 premium to purchase the call). The investor could sell the stock in the market at $60 and would therefore have a profit of $500. If the price of XYZ stock rose to $53, the investor would still call the stock away at $50. If the stock was sold at $53, a profit of $300 would be realized on the exercise of the contract. However, as the premium cost was $500, the net result would be a loss of $200 ($5,500 cost for stock minus $5,300 sales proceeds).

18. For the buyer of a put, a profit would be realized only if the price of the stock declined below the exercise price by more than the premium. An individual who buys the ABC October 40 put for a premium of $400 would realize a profit only if ABC stock declined below $36.

Example

If the stock declined in price to $30, the buyer of the put could purchase the stock in the open market for $30 and put it at the exercise price of 40. The cost to acquire the stock would be $30. As the net selling price on putting the stock is $36 (exercise price of 40 minus $4 premium), a profit of $600 would be realized. If the price of the stock dropped to $37 and the stock is purchased at this price, the net result on the transaction would be a loss of $ 100. The stock cost $3,700 and his net selling price is only $3,600 ($4,000 exercise price minus premium cost of $400).

19. **Risk for Uncovered Option Writers**

20. **Uncovered Call Writing:** If an individual writes a call option and does not own the underlying stock, the position is considered to be uncovered. Uncovered call writing is considered to be highly risky and is suitable only for sophisticated investors who are able to sustain substantial losses. There is theoretically no limit to the amount of loss that an uncovered call writer can realize. The writer of an uncovered call who receives an exercise notice will be required to buy the stock in the market at whatever the price happens to be.

Example

Let's assume that an investor writes an XYZ July 40 call for a premium of S400, and does not own XYZ stock. The market price of XYZ stock rises to $80 and the call is exercised. The writer will be required to buy the stock at $80 to make delivery at the exercise price of 40. The writer's net loss will be $3,600 having realized $4,000 on the exercise plus $400 in premiums. The cost for the stock was $8,000. Therefore, the net loss is $3,600 (cost of $8,000 minus sales proceeds of $4,400). If the market price of the stock rose to $120, the loss would be $7,600 (cost of $12,000 minus sales proceeds of $4,400).

21. **Strategies for Call Option Purchasers**

22. Individuals who are speculating by buying call options are doing so because they anticipate that the price of the stock will increase. If the price of the stock increases, the price of the call will usually increase also. They could then either sell the call at a profit or exercise the call, depending upon the relative profit.

Example

An individual buys one XYZ September 50 call at $1 when the market price of XYZ stock is $45. Three months later, the market price of the stock has advanced to $55 and the call is selling at $7. The investor could call the stock away at S50 and sell the stock in the market for $55. The cost for the stock would be $5,100 (exercise price of $5,000 plus premium of $100) and the net profit would be $400 selling price of $5,500 minus cost of $5,100). The other course of action available to the investor would be to sell the call for $700, in which case a profit of $600 would be realized (selling price of $700 minus original cost of $100). In this case, the investor would choose to sell the option.

23. **Leverage and Limited Risk**

24. Two of the advantages of buying calls as opposed to buying the underlying stock are leverage and limited risk.

Example

On July 15th, the price of ABC stock is $80. An individual buys one ABC October 80 call for a premium of $800. On September 15th, the price of ABC stock rises to $90 and the call is trading at $1,200. The investor sells the call for $1,200. The return on his investment would be as follows:

Call purchased July 15th $800
Call sold September 15th $1,200
Profit $ 400

Percentage return on original $800 investment is 50% ($800 / $400)

Contrast the return above with a purchase of 100 shares of ABC stock in the investor's cash account. The return on investment would be as follows:

Stock purchased July 15th $8,000
Stock sold September 15th $9,000
Profit $1,000
Percentage return on original $8000 investment is 12.5% ($8,000 / $1,000)

Example Continued

If the market price of ABC stock declined to $40, the purchaser of the call would lose the entire premium investment of $800 unless able to recoup part of the cost through a sale on the exchange. The purchaser of the underlying stock would lose the full amount of the $4,000 decline in the price of the stock. Therefore, the purchaser of a call option is limiting the risk to the premium, whereas the purchaser of a stock runs the full risk of the decline in the market price of the stock.

26. It should be noted that for the purchaser of a call, if the price of the underlying stock fails to rise above the exercise price, the entire premium would be lost at expiration. For the purchaser of the stock, if the price of the stock declines to $40, the investor could still hold

the stock with the possibility of a later advance in price. This possibility is not available to the purchaser of a call, which has a specific duration.

27. Leverage can also work adversely. In the preceding example, an individual with $8,000 to invest could buy either 100 shares in a cash account or 10 call contracts at a premium of $8. If 10 call contracts are bought, the investor would control 1,000 shares. Let's assume that an investor buys 10 contracts and the price of the underlying stock does not rise above the exercise price. On the expiration date, the price of the stock is $70. In this case, the purchaser of call options would lose the entire investment of $8,000. Had the investor purchased 100 shares of stock, the loss would be only $1,000. For most investors, it would probably not be prudent to risk the entire $8,000 by buying I 0 call option contracts.

28. A more reasonable investment strategy would be to buy one contract for $800 and invest the balance of the funds in fixed-income securities such as treasury bills or certificates of deposit. In this case, the investor would have the advantage of leverage but would not risk the loss of the entire investment.

29. Diversification: Another advantage available to the purchaser of call options is diversification. An individual with $5,000 to invest might be able to purchase only 100 shares of one or two stocks. However, by purchasing call options, he might be able to buy 10 contracts representing 100 shares of 10 different stocks, thereby diversifying the portfolio.

- Covered Call Writing

  One of the more popular option strategies which should be looked at in some detail is covered call writing. This strategy has the ability to meet the needs of a wide range of investors. It can be used in a Keogh, margin, cash account or IRA against stock one already owns or are planning on buying. Currently, there are options listed on over 1,700 stocks. Many consider this strategy to be actually more conservative than just buying stock, due to the fact that you have taken in premium and lowered your breakeven price on the stock position. The covered write allows you to be paid for assuming the obligation of selling a particular stock at a specified price.

  Covered call writing is either the simultaneous purchase of stock and the sale of a call option or the sale of a call option against a stock currently held by an investor. Generally, one call option is sold for every 100 shares of stock. The writer receives cash for selling the call but will be obligated to sell the stock at the strike price of the call if the call is assigned to his account. In other words, an investor is "paid" to agree to sell his holdings at a certain level (the strike price). In exchange for being paid, the investor gives up any increase in the stock above the strike price. More on covered calls

  How to Use Covered Calls

  If an investor is neutral to moderately bullish on a stock currently owned, the covered call might be a strategy he would consider. Let's say that 100 shares are currently held in his account. If the investor was to sell one slightly out-of-the-money call, he would be paid a premium to be obligated to sell the stock at a predetermined price, the strike price. In addition to receiving the premium, the investor would also continue to receive the dividends (if any) as long as he still owns the stock.

  The covered call can also be used if the investor is considering buying a

stock on which he is moderately bullish for the near term. A call could be sold at the same time the stock is purchased. The premium collected reduces the effective cost of the stock and he will continue to collect dividends (if any) for as long as the stock is held.

In either case the investor is at risk of losing the stock if it rises above the strike price. Remember, in exchange for receiving the premium for having sold the calls, the investor is obligated to sell the stock- However, as you will see in the following example, even though he has given up some upside potential there can still be a good return on the investment.

Stock ZYX currently is priced at 41-7/8, and the investor thinks this might be a good purchase. The three month 45 calls can be sold for 1-1/4. Historically, ZYX has paid a quarterly dividend of 25 cents. By selling the three-month 45 call the investor is agreeing to sell ZYX at 45 should the owner of the call decide to exercise his right to buy the stock. Keep in mind that the call owner may exercise the option if the stock is above 45, because he will be able to buy the stock for less than it is currently trading for in the open market. But, as you will see, his return will be greater than if he had held the stock until it reached 45 and then sold it at that price.

Example

Let's take a look at what happens to a covered call position as the underlying stock moves up or down. Commissions have not been taken into consideration in these examples; however, they can have a significant effect on your returns.

Situation: Buying 100 ZYX at 41-7/8 and Selling 1 Three-Month 45 Call at 1- 1/ 4

1. **ZYX remains below 45 between now and expiration-call not assigned.**
   The call option will expire worthless. The premium of 1-1/4 and the stock position will be retained. In effect you have paid 40-5/8 (which is also the breakeven price) for ZYX (41-7/8 purchase cost - 1-1/4 premium received for sale of call). This would be offset by any dividends that were received, which in this example would be 25 cents.

   When the ZYX call expires worthless, the covered call writer can sell another call going further out in time taking in additional premium. Once again, this produces an even lower purchase cost or breakeven.

   If ZYX remains below 45 for an entire year, the investor can sell these calls four times. For this example we will make the hypothetical assumption that the price of the stock and option premiums remain constant throughout the year.

   1-1/4 (Call Premium Received) x 4 = $5 in Premium + Any Dividends Paid = Total Income.

2. **ZYX rises above 45 between now and expiration--call assigned.**
   The call buyer can exercise his right to buy the stock and the call seller will have to sell ZYX at 45, even though ZYX has risen above 45. But remember, the call seller has taken in the premium of the call and has been earning dividends (if any) on the stock.

   If ZYX stock is called away at expiration:

   Receive: 45 for Stock $4,500.00
   Less: Net Investment (Stock Cost - Premium Received)
   [$4,187.50 - $125] = ($4,062.5Q)

   Return = 10.77% $ 437.50* *in three months plus dividends (if any) received.

3. **ZYX is right at 45 at expiration.**
   The seller of a call may be in situation 1 or 2. The stock may be called away and the call writer will be obligated to sell ZYX at 45. Alternatively, the stock may not be called away. A call could then be sold going further out in time, bringing in additional premium and further

reducing the breakeven point.

- **Short Sales**

  The purchase of a security technically results in the investor being "long" in the security. The security is bought, and owned, because the investor believes the price is likely to rise. But what if the investor thinks that the price of a security will decline? If he or she owns it, it might be wise to sell. If the security is not owned, the investor wishing to profit from the expected decline in price can sell the security short. Short sales are a normal part of market transactions.

  How can an investor sell short, which is to say sell something he or she does not own? Not owning the security to begin with, the investor will have to borrow from a third party. The broker, on being instructed to sell short, will make these arrangements for this investor by borrowing the security from those held in street name margin accounts and, in effect, lending it to the short seller.

  The short seller broker sells the borrowed security in the open market, exactly like any other sale, to some investor who wishes to own it. The short seller expects the price of the security to decline. Assume that it does. The short seller instructs the broker to repurchase the security at the currently lower price and cancel the short position (by replacing the borrowed security). The investor profits by the difference between the price at which the borrowed stock was sold and the price at which it was repurchased.

Example

Assume an investor named Susan believes that the price of xyz will decline over the next few months and wants to profit if her assessment is correct. She calls her broker with instructions to sell 100 share of xyz short (she does not own xyz) at its current market price of $50 per share. The broker borrows 100 shares of xyz from Kare, who has a brokerage account with the firm and currently owns xyz (she is long the stock). The broker sells the 100 shares at $50 per share, crediting the $5,000 proceeds to Helen account. Six months later the price of xyz has declined, as Susan predicted, and is now $38 per share. Satisfied with this drop in the price, she instructs the broker to purchase 100 shares of xyz and close out the short position. Her profit is $5,000 - $3,800, or $1,200. The broker replaces Karen missing stock with the just-purchased 100 shares, and the transaction is complete.

Several technicalities are involved in a short sale; these are outlined below:

- Dividends declared on any stock sold short must be covered by the short seller. After all, the person from whom the shares were borrowed still owns the stock and expects all dividends paid on it.
- Short sellers must have a margin account to sell short and must put up margin as if they had gone long. The margin can consist of cash or any unrestricted securities held long.
- The net proceeds from a short sale, plus the required margin, are held by the broker; thus, no funds are immediately received by the short seller. The lender must be fully protected. To do this, the account is marked-to-the-market. If the price of the stock declines as expected by the short seller, he or she can draw out the difference between the sale price and the current market price. If the price of the stock rises, however, the short seller will have to put up more funds.
- There is no time limit on a short sale. Short sellers can remain short indefinitely. The only problem arises when the lender of the securities wants them back. In most cases the broker can borrow elsewhere, but in some situations, such as a thinly capitalized stock, this may not be possible.

- Short sales are permitted only on rising prices, or an uptick. A short seller can sell short at the last trade price only if that price exceeded the last different price before it. Otherwise, they must wait for an uptick. Although the order to the broker can be placed at any time, it will not be executed until an uptick occurs.