INGREDIENTS OF COMMON STOCK VALUATION

by

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INTRODUCTION

The dramatic upward adjustment in the price of oil triggered the flow of a vast amount of wealth into the treasuries of the Arab oil-producing countries. Such a transfer of wealth will not only introduce fundamental changes in the global power structure but will also create problems and challenges of insurmountable magnitude. To the oil-consuming countries (U.S., Europe, Japan and the Third World), the most urgent question is how to raise the money to finance their enormous oil imports. It is a **transfer problem** and must be tackled at once. "Recycling" of "petrodollars" is only a stop-gap solution.

To the oil-producing countries, the most urgent problem is how to utilize their oil revenues effectively and wisely. It is an **investment problem.** The amounts involved (about $70 billion in 1974) are so huge as to exceed the anticipated developmental needs of these countries, probably with the exception of Algeria and Iraq. In the immediate-run, the bulk of surplus petrodollars will have to be reinvested in the industrialized nations whether directly or indirectly. And the Arabs will, consciously or unconsciously, participate in shoring-up the Western economies. Within the short-run, the Arab oil-producing economies cannot possibly absorb these amounts of funds without creating undesirable economic distortions. The limited availability of other factors of production will act as a constraint.

One possible solution to this problem is to channel some of these surplus funds to neighboring Arab countries either in the form of outright grants or in the form of long-term loans. At the outset, such

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transfer of funds must take place at the governmental levels, or through such institutions as the Arab Fund for Economic and Social Development and Kuwait Fund for Arab Economic Development.

A fundamental solution to the investment problem requires a careful long-range regional planning. A long-run developmental plan encompassing the entire Arab World should first be drawn-up. Its ultimate objective should be the creation of an integrated Arab economy that can survive the challenges of the future with or without oil. The initial and primary focus of the first development plan should be the construction of an economic and social infra-structure that is necessary to provide the right climate for the private sector to move vigorously and for the various factors of production to move regionally.

Once a strong foundation for a viable private sector is created, it will be able to finance its own growth. The ultimate recipient of Arab wealth will be the Arab citizen who will, directly or indirectly, decide how to invest his wealth. The role of the government should remain accommodative, i.e., providing the atmosphere that will build the investor's confidence in the ability of his government to (1) maintain political and economic stability, (2) pass protective legislation to safeguard his rights and (3) create a sound and stable currency system.

Only within such a setting will the private entrepreneur be encouraged to assume his inventive and innovative role and will the private investor be forthcoming. But even then things may not go smoothly. As long as the Arab financial market is fragmented and as long as the Arab investor is not equipped with the analytical tools necessary to select and administer his securities, Arab capital will not move freely and investment decisions will not be optimal. Therefore, our aim in this article is to provide the Arab investor with a capsule presentation of the basic ingredients of an integrated system of security analysis and valuation. First, we will identify the objective of the financial investor. Second, we will introduce what we consider an appropriate concept of the true rate of return. Third, we will introduce the risk factor as an important consideration in security valuation.

I. THE OBJECTIVE OF THE FINANCIAL INVESTOR

Let us at the outset set forth as clearly and concisely as possible what we consider the objective of a rational financial investor should be.

An explicit statement of this objective is of major importance. First, it provides the investor with a standard or a benchmark against which he can measure the results of his investment activities. Second, it guides the security analyst and the portfolio manager in their efforts to carry out their functions.

The ultimate objective of a rational investor is presumed to be the maximization of his satisfaction, happiness, joy or pleasure. Economists lump all these psychic gains under one of their favorite terms: "utility". Using this term, we can say that the ultimate goal of the rational investor is the maximization of utility. This seems to be a plausible goal for both individual and institutional investors under either certain or uncertain conditions. More specifically, the rational investor, like any "economic man," engages in investing, directly or indirectly, for the ultimate purpose of deriving new heights of satisfaction or new levels of utility.

It is reasonable to postulate that the investor's utility (U) is positively related to his economic power, i.e., his ability to command economic resources. The source of this economic power is assumed to be his wealth (W). This is predicated on the premise that the greater the investor's wealth, the greater is his ability to command consumption goods (C) and, thus, the higher is his level of utility. In other words, wealth **per se** is not a source of utility. Rather, it is what wealth can command in terms of goods and services that provides for investor's utility.

In mathematical notations, these concepts may be expressed as follows :

Utility = f (Consumption) or U = f (C)

Consumption = f (Wealth) or C = f (W)

And combining them together, we get :

U = f (C) = f (W)

That is to say, maximization of investor's wealth would maximize his consumption function, present or potential, which, in turn, would be equivalent to maximizing his utility.

With a given level of wealth (W) at time zero, growth in investor's wealth over a given holding period depends on the rate of return earned by him. If, for instance, his wealth grows from W_t to W_t by the end

of his holding period, his rate of return for the period may be expressed as:

$$R = \frac{W_t - W_o}{W_o}$$

Solving for the value of terminal wealth (W_t), we get :

$$W_t = W_o + W_o R$$

Since W_o is constant, the value of terminal wealth (W_t) is said to be linearly and positively related to the rate of return (R). It is obvious then that growth in wealth depends on the magnitude of (R). Or, one can think of (R) as the rate of growth of wealth. Implicit in the above is the fact that the investor who maximizes his rate of return on his investment will also maximize his wealth. Symbolically,

$$W_t = f(R)$$

Putting all the foregoing together, we get :

$$U = f(C) = f(W) = f(R)$$

More succintly, this functional relationship may be rewritten as :

$$U = f(R) \text{ or } U = R$$

However, the last relationship between utility and rate of return holds only under conditions of certainty, i.e., where all outcomes are known in advance. In a certain world, the investor, by definition, is quite certain as to what "state of nature" will prevail and, what rate of return to expect on a given security. And faced with a multitude of securities, with varying rates of return, the rational investor selects the one security with the highest expected rate of return.

In an uncertain world, the investor faces more than one state of nature and more than one possible investment outcome (R). The rate of return he will actually realize during the coming year depends, of course, on which state of nature prevails. That is, his rate of return could be low, medium, or high depending on whether next year will be (1) a bad year, or (2) a normal year, or (3) a good year. Faced with such uncertainty about the future state of the economy or the stock market, this investor, unlike his counterpart who lives comfortably in a world of certainty, does not know his rate of return or outcome in advance. He, therefore, must estimate it. And in order to do that, he goes through four basic steps.

1) specifies all possible states of nature, (n)

2) determines the outcome associated with each, (R)

3) assigns subjective probability for each possible outcome, (P)

4) computes the **expected** value of returns, E(R)

Sympolically, the expected rate of return formula may be written as follows :

$$E(R) = \sum_{i=t}^{n} P_i R_i$$

In summary, under conditions of uncertainty, the investor attempts to estimate his **expected** rate of return. But this is a measure of central tendency and may never be actually realized. That is, the actual rate of return in the coming year may be lower, equal or higher than its estimated **expected value.** However, knowing the probability distribution of the rate of return for a given security helps the investor in assessing the reliability of his **expected** value estimate. In general, the dispersion of the probability distribution of returns (R) on a given security reflects its variability which, in turn, provides the investor with an appreciation of the degree of **risk** associated with it. An elaborate review of the various concepts of risk will be undertaken later in this article. However, for the purpose of our discussion here, it is necessary to identify risk with variability of returns and to accept, on faith, the standard deviation of the probability distribution of return (σ) as a **proxy** for risk.

The typical investor is a **risk-averter.** He dislikes risk and tries to avoid it or minimize it. He prefers :

1) higher than lower returns

2) certain than uncertain returns

3) returns sooner than later.

This type of behavior explains the upward sloping concave utility function with a diminishing marginal utility. That is to say, as wealth or returns increases, utility will also increase but at a declining or **diminishing** rate. The risk-averter's utility function has been depicted by the following quadratic equation :

$$U = a + bR + cR^2$$

where, a, b, and c are constants. In order to describe the attitude of a risk-averter, two basic requirements must be met :

$$(1)\frac{dU}{dR} \geqslant 0 \; ; (2) \frac{d2U}{dR^2} \leqslant 0$$

The first requirement gives the utility function its upward or positively sloping property; the second gives it its downward concavity.

Since under conditions of uncertainty, the investor attempts to maximize his expected utility, we can find the expected value for both sides of the above quadratic equation:

$$E(U) = E(a + bR + cR2) = a + bE(R) + cE(R^2)$$

Since $E(R2) = \sigma^2 + E(R)^2$, we can substitute for E(R) in the preceding equation and get:

$$E(U) = a + bE(R) + co^2 + cE(R)^2$$

Simplifying, we obtain

$$E(U) = a + bE(R) + cE(R)^2 + Co2$$

which indicates that under conditions of uncertainty, expected utility is determined by two basic variables :

1) the expected rate of return, E(R)

2) the level of risk, (σ)

Symbolically,

$$E(U) = f(E(R), \sigma)$$

It may be appropriate to reiterate that utility — or wealth — maximization is the ultimate objective of rational investors. Nevertheless, we should distinguish between two important utility models:

1) U = f(R), under conditions of certainty

2) E(U) = f(E(R), σ), under conditions of uncertainty.

In either model, it should be noted that the rate of return is a major argument, if not the major one. Both models imply that investor's utility varies directly with the rate of return. That is, in his quest for maximum utility, a rational investor attempts to select a security or a portfolio which promises him the highest expected rate of return. However, this is not totally true in a world of uncertainty where investors are typically risk-averse. In such a world, the risk factor enters the picture and acts as a constraint . That is, the rational investor attempts to select a security or a portfolio which promises him the highest expected rate of return in his preferred risk class.

The thrust of this section is simply this : the two major arguments

underlying the rational investor's behavior are expected rate of return and risk. And a rational investor attempts to balance these return-risk factors in such a way as to maximize his utility or wealth. A main concern of this article, therefore, is to define these two factors and identify their major determinants.

II. THE RATE OF RETURN

The importance of the rate of return to the investor was established in the previous section through the model, $E(U) = f(E(R), o)$. The purpose of this section is to introduce what we consider an appropriate concept of the true rate of return.

An acceptable rate of return measure should reflect the totality of returns actually received or likely to be received by the investor from all sources, be it dividends, interest, or capital gains or losses. It should also be universally applicable, i.e., can be useful to investors in stocks, bonds, land, real estate, stamps, rare paintings, gold, etc.

Since our focus here is on financial assets, bonds and stocks, we will discuss the concept of returns as applied first to bonds and then to stocks.

The true rate of return on a bond (R_b), sometimes called the **market rate of return** or the **holding period yield** relates the total income realizable by the investor during a given investment period to his initial investment or purchase price. If, for example, an investor buys a bond at (P_t), holds it for a year and then sells it for (P_{t+1}), his true rate of return on this bond (R_b) can be computed by simply using the following formula:

$$R_b = \frac{C_t + P_{t+1} - P_t}{P_t}$$ where C = the amount of interest in period t.

Simplifying we get :

$$R_b = \frac{C_t}{P_t} + \frac{\Delta P}{P_t}$$

But since the term $\left(\frac{\Delta P}{P_t}\right)$ is actually the rate of growth in the bond price, we can replace it by (g) denoting growth. The resulting formula

will look like this :

$$Rb = \frac{C_t}{P_t} + g$$

Notice that the true rate of return (R) can be broken down into two main components : (1) the current yield and (2) the capital gain yield.

The rate of return formula for common stocks can be written as follows :

$$R_s = \frac{D_t + P_{t+1} - P_t}{P_t} = \frac{D_t + \Delta P}{P_t} = \frac{D_t}{P_t} + \frac{\Delta P}{P_t} = \frac{D_t}{P_t} + g$$

where, D is the amount of dividends received during period t.

Again, as for bonds, the rate of return on stocks takes total income realizable by an investor during a given year and relates it to the actual amount invested at the beginning of the year (P_t). The above rate of return model is applicable to both dividend and non-dividend paying stocks . It takes into account both dividends and capital gains or losses.

III. THE CONCEPT OF RISK

The concept of risk occupies a star role in modern investment and portfolio theory. Financial investment is a discipline of comparative selection. The financial analyst is faced with an almost infinite number of securities from which to choose. These securities usually differ in the levels of their return and risk. Comparability requires that the financial analyst takes both into account. Rationally, he should choose the security or portfolio which either gives him the maximum expected rate of return for a given level of risk or the minimum level of risk for a given level of return. Hence, the importance of the risk factor. But what do we mean by the term "risk ?

The terms "risk" and "uncertainty" are used here interchangeably. For a given security, the primary source of risk is the analyst's uncertainty about its future rate of return. Such uncertainty is caused largely by fluctuations in its future price and, to a lesser degree, by changes in its income or dividend stream. Prices of high quality bonds and stocks are relatively stable or fluctuate within a rather narrow range. As a result, their rates of return are also relatively stable and easily predict-

able. In contrast, prices of low grade bonds and speculative stocks fluctuate over a wider range. The net result is highly unstable and unpredictable rates of return.

The second component that figures out in our calculation of the rate of return is the interest or dividend stream. That is, fluctuations in the rates of return on bonds and stocks may be induced by fluctuations in their interest or dividend streams respectively. However, the relative stability of this component, particularly the interest component on bonds, minimizes its importance as a source of rate of return volatility. Consequently, one can define risk in terms of his uncertainty about security prices rather than future rates of return. In this article, we define risk in terms of **rate of return variability** as the latter is more encompassing than price variability. More directly, the size of rate of return variability on a given security or a portfolio shall be used as an index or a proxy for risk. Consequently, securities are termed risky if they exhibit high variability of returns. And the higher the variability of returns, the greater is our uncertainty about these returns and hence the higher the level of risk. Defining risk in terms of variability of returns is not only conceptually sound, but it also makes the concept of risk operational. Variability of returns is statistically measurable. And as risk is associated with variability of returns, risk becomes easily quantifiable.

So far we equated uncertainty with risk and then identified the latter with the variability of returns. Identification of risk with variability of the rates of return on securities has long been recognized in the finance literature. Actually, there is much evidence that "shows a direct correlation between variability in rate of return and degree of risk" and that variability is "the most satisfactory way to estimate the degree of risk." (2)

Broadly speaking, total risk may be broken down into two major components : systematic risk and non-systematic risk. Systematic sources of risk include such concepts as interest rate risk, purchasing power risk and market risk. (3) They are termed systematic because they affect the rates of return on all marketable securities. Non-systematic risk is normally referred to as "financial risk" but other terms such as "independent risk", "specific risk" and "residual risk" have also been used. First, we focus on the nonsystematic sources of risk leaving the subject of systematic risk until later.

Nonsystematic Risk

Nonsystematic risk refers to that portion of total risk that is caused by factors **unique** to the company in question. Fluctuations in rates of return due to this risk are independent from the overall market fluctuations. Even in the absence of overall market swings which tend to influence the prices and returns of all marketable securities, the rates of return on individual securities may still fluctuate due to factors that are **specific** and **unique** to the issuing companies.

Nonsystematic, independent, specific or residual risk may all be lumped under the widely-used concept of "financial risk." Financial risk is defined as that portion of total variability in rates of return which is due to factors **unique** to the company. On the surface, variability of returns on the security of a given firm are caused by (1) changes in its earning power, and (2) changes in the investors' estimate of that earning power. Actual or projected, a change in the company's profitability will, if prevailed over a long period, be reflected in the prices, interest or dividend payments of its securities. For instance, a decline in a firm's profitability will have a downward influence on the prices and rates of return realized on its outstanding securities. Investors' confidence in its ability to meet fixed charges on its debt or to maintain expected dividends on its stock will undoubtedly be shaken. Such lack of confidence will ultimately result in investors falling out of love with the company and hence unloading its securities at prices below the purchase price or lower than expected. As a result, the rate of return realized by those investors will be lower, if not much lower, than expected. Investors who are not forced to sell their securities may not realize their losses. If the company's earning power trend is reversed and if investors' interest in its stock is revived, such loyal investors may not realize these losses and may actually realize a relatively high rate of return. However, "turnaround situations," even if easily recognized, may not be readily acted upon by investors. Thus it may be a long time before the market shows a renewed interest in the company's securities.

The second factor that may influence the variability of the rate of return on a given company's securities is a shift in the investors' estimate of its profitability. It is irrelevant whether investors' projections of the

company's earning power is erroneous. If the investment community believes such projections and acts upon them, realized rates of return on the company's securities will surely change.

The foregoing are just examples of how optimism and pessimism about the future profitability of a company introduces an element of variability in the rates of return realized on its securities. But what are the underlying factors that cause reversals in a firm's earning power or in the investors' estimates of this earning power ? A complete answer to this question is beyond the scope of this article. This, however, should not preclude us from providing a capsule presentation of the major factors that contribute to the financial risk of individual enterprises.

Financial risk is a function of both external and internal factors. External factors lie usually beyond the control of the company and affect both the quantity and quality of its sales. Changes in the intensity of competition, in labor attitudes, in the availability and cost of raw materials, in consumer tastes, in the economic, political, or social environment in the mother or host country, etc., are all factors that affect the sales and profits of individual companies.

Financial risk is also a function of factors that are internal and, to some extent, controllable by management. Two companies which are identical in the type of product they produce and the type of demand function they face can still exhibit different levels of financial risk. This is so because of what is commonly referred to as "operating leverage" and "financial leverage." Capital-intensive companies have, because of the nature of their business, a high degree of operating leverage which tends to have a magnifying effect on the company's profitability and rate of return. Such a magnification, however, can be mitigated or reinforced by the superimposition of a low or high degree of financial leverage respectively. For instance, a company which faces a cyclical demand function and which is highly-capital-intensive cannot afford to go heavily into debt. Such a policy of a high financial leverage will presumably increase its financial risk.

An obvious inference of the above is that financial assets vary in terms of their level of financial risk. Securities of companies exhibiting little or no variability in their sales, showing an upward trend in profit-

ability, and following a conservative financing policy are said to be relatively less risky than securities of business firms with widely fluctuating sales, highly variable profit picture re-inforced by an aggressive financing policy. In other words, financial risk may be used as a standard for ranking financial assets.

Systematic Risk

Systematic risk is that portion of total risk (or total variability in returns) caused by factors affecting all marketable financial assets. Factors such as changes in money rate levels, stock market levels and general price levels tend to systematically affect the expected rates of return on all marketable securities. Changes in these factors, however, are rooted in economic, political and sociological events. For instance, changes in fiscal and monetary policies, swings in the country's international balance of payments, a break-out of hostilities in a vital part of the world, etc., affect the relative attractiveness of all marketable securities and, in turn, influence the size of their returns. Admittedly, there are numerous sources of systematic risk, but our discussion will be confined to three primary sources : (1) Interest Rate Risk, (2) Market Risk, and (3) Purchasing Power Risk.

Interest rate risk (IRR) is that portion of total variability in returns caused by changes in the level of interest rates. That is, changes in market rates of interest are credited for influencing the expected rates of return (yields) on all marketable securities and thus for introducing a systematic element of risk. Understanding the concept of interest rate risk and its influence on yields of different securities, however, entails that the investor keep in mind four important relationships. First, security prices vary inversely with yields. Second, bond prices vary directly with maturity. Third, prices of long-term bonds tend to fluctuate more widely than prices of short-term bonds. Fourth, short-term yields are more volatile than long-term yields.

Unlike financial risk, interest rate risk has a systematic influence on the prices and yields of all marketable securities. That is, no security is completely immune from it. This is so because shifts in the level of the yield curve tend to alter the relative attractiveness of available financial assets. Investors, as profit-maximizers, tend to shift from low to high yielding assets. Shifting of funds from the stock market to the bond

market tends to depress the former and boost the latter. As a result, the prices and rates of return on all marketable securities are affected.

Despite the systematic and general nature of interest rate risk, it has a differential impact on different securities. Broadly speaking, the level of interest rate risk varies inversely with the level of financial risk for a given security. Securities such as government bonds, which are considered highgrade in terms of financial risk are ranked low in terms of interest rate risk. Their prices and yields are primarily influenced by changes in interest rates and only minimally by the issuer's ability to pay interest and principal. In contrast, securities which are low-grade in terms of financial risk are rated high in terms of interest rate risk. Such is the case of common stocks since their rates of return are mainly influenced by the financial ability of the issuing company and only minimally by changes in the level of interest rates.

Market risk (MR) may be defined as that portion of total variability of returns caused by fluctuations in the general level of security prices. It is considered as a systematic source of risk because it systematically influences the prices and the rates of return of all marketable securities, particularly common stocks. When the general stock market level goes up or down, a great majority of stocks move with it. Actually, it is a rarity to find a stock which defies the general thrust of the market. However, not all stocks are equally responsive or sensitive to stock market movements. Some stocks are oversensitive, others are undersensitive and still others are just sensitive, i.e., they tend to move in step with the over-all market. About 30-50% of stock price variations could be attributed to the general market movements. As a result, the market influence is rather significant and may be helpful in partly explaining the variability of returns on individual stocks or portfolios. Stated differently, market risk is the uncertainty about future rates of return caused by fluctuations in the overall stock market level. Such fluctuations are not caused by changes in any of the fundamental factors which govern the long-term values of securities. Rather they are attributed to short-term shifts in investors' moods and expectations triggered by some actual or anticipated political or economic events. Factors such as the outbreak of a war, the settlement of another, the rumor of a shift in fiscal or monetary policies, the announcement of some encouraging or discouraging news on the national or international scene, etc. may send the stock market tumbling or soaring in the short-run.

Stock market fluctuations, however, may be much more enduring than indicated above and hence continue for several weeks or even months. The cumulative effect of investors' optimism or pessimism may sustain a protracted upward or downward trend. Virtually all stocks participate in such movements, albeit to varying degrees. The last fifteen years of U.S. stock market history are rich with examples of such market swings. From December 13, 1961 to June 26, 1962, the Dow Jones Industrial Average (DJIA) declined from 735 to 536 or by 200 points. During the first nine months of 1966, the "Dow" collapsed by 228 points and within the next twelve months, or by September, 1967, it managed to recover nearly 80% of its loss. The 1968-70 bear market is still vivid in the memory of most investors. From November 1968 to June 1970, the DJIA plummeted by over 300 points. By April 1971, it had bounced back to 951 only to decline to 798 by November of the same year. By January 29, 1973, the DJIA had penetrated the magic line of 1000 and recorded an all time high of 1051. By December 1974, however, it had sunk to 578. The foregoing is just a sample of stock market fluctuations which tend to impair the investor's forecasting ability and contribute to his price uncertainty. It is this probability of gain or loss due to stock market fluctuations that we refer to as market risk.

While market risk has a systematic influence on all types of marketable securities, it generally affects stocks much more than bonds. Fluctuations in bond yields are primarily the result of interest rate risk and only secondarily caused by market risk. The reverse is true in the case of common stocks. Here it is market risk rather than interest rate risk that is of primary importance. But vulnerability to market risk differs within the classes of common stocks and bonds. Low-grade common stocks and bonds are more exposed to market risk than highgrade stocks and bonds. Put differently, the lower the grade of a given bond or stock in terms of financial risk, the lower is its grade in terms of market risk and vice versa.

Thus far, the concept of risk has been identified with the variability of **nominal** rates of return on financial assets. In a setting where the price level is constant, real and nominal rates of return will be identical and the investor needs only to focus his attention on financial risk, interest rate risk and market risk. In an environment where the general price level is rising rapidly and where the purchasing power of investors' wealth is progressively eroded, investors find themselves exposed to still

another source of risk, i.e., purchasing power risk.

Purchasing power risk (PPR) may be defined as the variability of real rates of return due to changes in the general price level. Faced with persistent inflationary trends, investors should formulate their investment strategies and fashion their investment policies in terms of their real, rather than nominal, rates of return expectations. Variability in real rates of return is influenced by two major factors :

1) the variability of expected nominal rates of return which reflect the composite influence of financial, interest rate and market risks; and

2) the variability of the general price level.

As the first factor was covered already, we can now turn our attention to the examination of the second factor, i.e., variability in the rate of inflation. Understanding this factor, however, requires that we first define the term "inflation".

Inflation may be defined as the increase in the price level, or alternately, the decline in the value of money in terms of real goods and services. Individuals seek wealth or money because it increases their command over real goods and services and, in turn, elevates their levels of satisfaction. Suppose, for instance, you derive a given level of satisfaction (utility) by consuming a basket of real goods and services costing K.D. 100. If a year later, the general price level has risen so that you can purchase the same basket of goods at K.D. 106, then it is obvious that the exchange value of the dinar has declined by 5.7%. With the same amount of money (K.D. 100) you can no longer purchase the entire basket of goods and services you purchased a year ago. Actually, with K.D. 100 you can only purchase 94.3% of the items in that basket. Unless you can come up with an extra K.D. 6 you will have to forego some of the items in the basket and hence compromise your living standards.

A useful way to discuss the effect of purchasing power risk on financial assets is to combine the various risk factors together, first under the assumption of a constant price level and later, within a setting where price level changes are allowed to take place. In a world free of inflation and deflation, investors will expect a rate of return consistent with

the level of risk involved. In a formula style, such a rate of return may be expressed as follows :

$$K = i_R + i_{PR} + i_{IRR} + i_{MR}$$

where,

K = the normal rate of return required or expected by investors in an inflation-free world

i_R = the basic rate of return which reflects the time value of money

i_{PR} = premium for financial risk

i_{IRR} = premium for interest rate risk

i_{MR} = premium for market risk

As a result, the level of the normal rate of return is directly related to the levels of its major determinants above. That is, changes in one or more factors will, once recognized by investors, induce changes in the level of the normal rate of return.

Now let us relax our assumption with regard to price level changes and, instead, assume that ours is a world of inflation. This, of course, will complicate our analysis as it introduces a new risk factor, namely, the purchasing power risk. Investors will no longer accept the normal rate of return (K) as an adequate compensation Instead they will require an additional premium for purchasing power risk (i_{PPR}) . As a result, our previous rate of return model must be modified to reflect purchasing power risk. In such an environment, the required rate of reurn may be expressed as follows :

$$R = K + i_{PPR} \quad \text{Where}$$

$$K = i_R + i_{FR} + i_{IRR} + i_{MR}$$

i_{PPR} = premium for purchasing power risk which is equal to the rate of inflation

It is easy to see how changes in investors' expectations about the future rate of inflation can systematically influence the prices of all marketable securities — bonds and stocks. It is also easy to see how

investors in fixed-income securities (whose coupon and principal payments are fixed in terms of current dinars) are prone to suffer during periods of inflation unless they anticipate future rates of inflation and receive sufficient compensation that covers their purchasing power risk. Anticipated inflation prompts investors to demand and debtors to pay higher yields than would otherwise be the case. The debtors are willing to pay higher interest rates on their borrowing because they expect to service their debt with cheaper dinars as inflationary trends continue into the future. The purchasing power of these dinars in terms of real goods and services will have dramatically declined by the time interest and principal repayments are due. However, to the extent that investors (lenders) fail to anticipate future increases in the price levels and hence fail to demand and receive an inflation premium in the form of higher yields, the debtor will naturally benefit at their expense. Such a situation, however, could not last indefinitely. As investors become increasingly aware of the problem of inflation and its chronic and persistent character, they will increasingly adjust their required rates of return upward thus depressing the general level of the bond market as the prices of outstanding securities must adjust downward to remain competitive. The depressive effect of such an upward adjustment in market rates does not end here. It tends to spell over to the equity market as the relative attractiveness of bonds and stocks is altered.

CONCLUSIONS

The last quarter of the 20th century may very well witness the rise of the Arab World to a significant global economic and political power. Arab per capita income will rise faster than consumption, and the Arab citizen must decide how to invest his excess funds.

All of us know that oil is an exhaustible natural resource. What we, therefore, must do is to plan to systematically convert our excess liquidity into permanent production capacity that will diversify our economy and reduce our dependence on oil. In this article, we stressed the need for a long-range developmental plan whose ultimate objective should be the creation of an integrated Arab economy. The first step toward the achievement of this goal should be the construction of an integrated economic and social infrastructure. The second step will be the erection of a solid industrial structure based on our available factors of production mixed with the most modern technology that money can buy.

The Arab investor must be encouraged to assume a significant and growing role in the establishment and financing of an Arab industrial base. To encourage him to do so, all local and regional, legal and political impediments to the movement of capital must be gradually and systematically obliterated. An organized Arab financial market with continuity, depth and liquidity must be created in order to facilitate the efficient allocation of Arab capital among alternative Arab investment opportunities.

In anticipation of this evolution, it is necessary that we introduce the Arab investor to the basic ingredients of security valuation. His ability to choose between good and bad investment projects on the basis of their return-risk mix will undoubtedly lead to a more efficient allocation of capital which will, in turn, be reflected in higher productivity and more rapid economic growth.

The aim of this article is to introduce the Arab investor to the two main arguments underlying a rational investor's behavior, i.e., the expected rate of return and risk. We first introduce a universally applicable concept of the **true** rate of return. Then, we consider the various sources of risk that an investor might be exposed to. Space limitations precluded an elaborate treatment of the risk factor. The questions of how to cope with risk and how to quantitatively assess the risk factor must, therefore, be treated in future articles. Furthermore, we elected to sidestep "foreign exchange risk" for the creation of a unified Arab currency system, a prerequisite for a fully integrated economic and financial market, will necessarily do away with this type of risk.

FOOTNOTES

(1) This article is based on a Intucoming book by the author to be published by Charles Merill Publishing Co. in January, 1976.

(2) Bank Administration Institute, **Measuring the Investment Performance of Pension Funds** (1968), p. 15.

(3) Foreign exchange risk could also be viewed as a systematic source of risk as a change in the exchange rate of a given currency will affect the returns of all securities held by foreigners.

عناصر تقييم الأوراق المالية

د. احمد داود عيسى

ان الحصيلة المباشرة لازدياد اسعار النفط فى العالم هو تدفق الثروة الهائل من مجموعة الدول المستوردة الى مجموعة الدول المصدرة للنفط ، وما فرضه هذا التدفق من تحديات لكلا المجموعتين ، وطبيعة هذا التحدى تختلف بين المجموعتين ، فالتحدى الذى يواجه الدول المستوردة يتركز فى كيفية تمويل احتياجاتها البترولية فى المدى القصير وكيفية تكييف اقتصادها لمواجهة واستيعاب هذه التدفقات على المدى الطويل .. اما التحدى الذى يواجه الدول المصدرة فيتركز فى كيفية استثمار عائداتها النفطية الهائلة اولا على المدى القصير وثانيا على المدى الطويل .. ولا شك ان هذه التحديات وطرق مواجهتها ستترك آثارها العميقة على اقتصاديات الفريقين من الدول وستؤدى حتى الى اعادة النظر فى موازين القوى العالمية السائدة .

ومن الطبيعى أن يجنى المواطن العربى ثمار هذه العائدات النفطية المتدفقة ، فان التنمية الاقتصادية الناتجة عن الاستغلال الفعال لهذه العائدات سيؤدى — لا ريب — الى الرفع من مستوى دخل المواطن العربى وبالتالى الى زيادة مقدرته على الادخار . وفى هذه الحالة فمن الطبيعى ان يلجا هذا المواطن الى محاولة الحفاظ على مدخراته وتنميتها عن طريق استثمارها استثمارا رشيدا ، وبناء على ذلك فالهدف الرئيسي لهذا المقال هو تزويد المستثمر بالعناصر الاساسية لاطار استثمارى متكامل .

ان الخطوة الاولى في اعداد هذا الاطار هي تحديد هدف المستثمر فردا كان ام مؤسسة مالية .. وبعد الاتفاق على الهدف ، يمكننا دراسة العوامل الرئيسية المؤثرة عليه . ولذا فاننا نتناول فى الجزء الاول من المقال موضوع فكرة (تعظيم المنفعة) او (تعظيم الثروة) كهدف للمستثمر فى الاوراق المالية . وتحدد العناصر الاساسية التى تؤثر على هذا الهدف ، واهم هذه العناصر :

١ — معدل العائد المتوقع .

٢ — عنصر المخاطرة .. كما هو واضح من النموذج التالى :

المنفعة المتوقعة = د (العائد ، المخاطرة) .

يحاول المستثمر المزج بين هذين العنصرين مزجا يمكنه من تعظيم منفعته او ثروته .. فاما ان يختار المستوى المفضل للمخاطرة ومن ثم يحاول تعظيم عائده فى حدود هذه المخاطرة ، واما ان يختار مستوى العائد المطلوب وبالتالى يحاول تحقيق الحد الادنى من عنصر المخاطرة .

يتناول الجزء الثانى من المقال عنصر العائد ، فنقدم تعريفا دقيقا لما نسميه (معدل العائد الحقيقى) والذى يمكن استعماله لقياس العائد على اى نوع من الاستثمارات سواء كانت اوراقا مالية ، قطعا ذهبية ، او طوابع بريدية ، أو عقارات أو رسومات فنية .

ننتقل فى الجزء الثالث الى عنصر المخاطرة الذي يتبوأ مركزا هاما في نظرية الاستثمار الحديثة .. وهنا نقدم تعريفا لمفهوم المخاطرة ونعمل على تجزئتها الى عنصرين هامين : (عنصر منتظم) و (عنصر غير منتظم) .

اما العنصر المنتظم فهو ذاك الجزء من المخاطرة الكلية الذي يؤثر على معدل العائد لجميع انواع الاوراق المالية . وهذا العنصر من الخطورة ناتج عن التغيرات فى اسعار الفائدة ، التغيرات فى قوة العملة الشرائية نتيجة لارتفاع الاسعار ، ثم عن التقلبات فى الاسواق المالية ، اما العنصر غير المنتظم فيمثل ذلك الجزء من المخاطرة الناتج عن عوامل خاصة بالشركة موضوع الدراسة ، وباختصار فالمقال يعطى القارىء خلفية مبسطة وواضحة عن كيفية قياس معدل العائد وعن انواع المخاطر المختلفة التى يواجهها المستثمر .