Question: Why does most investor hold diversified portfolio?

Investors hold diversified portfolios in order to reduce risk, that is, to lower the variance of the portfolio, which is considered a measure of risk of the portfolio. A diversified portfolio should accomplish this because the returns for the alternative assets should not be correlated so the variance of the total portfolio will be reduced.

Question: Why an investments covariance with a market index is assumed to be a better measure of the investments than the investments variance.

Covariance is a measure of the degree to which two variables, such as rates of return for investment assets, move together over time relative to their individual mean return.

It indicates how two variables co-vary. However, covariance is a more inclusive measure of co-movement than correlation because it expresses, not only how well two variables track with each other, but also how likely each variable is to vary from the expected value.

The covariance is equal to $\Sigma \, E[(R_i - E(R_i))(R_j - E(R_j))]$ and shows the absolute amount of co-movement between two series. If they constantly move in the same direction, it will be a large positive value and vice versa. Covariance is important in portfolio theory because the variance of a portfolio is a combination of individual variances and the covariance's among all assets in the portfolio. It is also shown that in a portfolio with a large number of securities the variance of the portfolio becomes the average of all the covariance.

Question: "Risk and Return are the opposite sides of a same coin" – Explain.

Answer: Yes, I agree with this statement "Risk and Return are the opposite sides of a same coin". To explain this statement, firstly we have to understand the Risk and Return -

Risk is the chance of financial loss or more formally, the variability of returns associated with a given assets. Income received on an investment, and any change in market price, usually expresses as a percent of the beginning market price of the investment, is called return.

The relationship between risk & return are positive. We know that high risk high gain and low risk low gain by the investors.

It is the worth emphasizing that the portfolio standard deviation of rate of return is assumed to be an adequate measure of total risk for investors. If the investor prefers risk low than the investor must accept a lower expected rate of return. To obtain a larger amount expected return an investor must be exposed to a larger risk. This is what is meant by risk return trade off. So we can say that "Risk and return are the opposite sides of a same coin."

Question: "All risks are uncertainties but all uncertainties are not risk"- agree or disagree? Explain your reasoning?

Answer: Risk is the chance of financial loss or more formally the variability of returns associated with a given assets. On the other hands, uncertainty is the outcome that cannot be guessed before. That means nobody know what will be happen in today or tomorrow. All risks are uncertainty I also agree with this statement because of some reasons-

- ➢ Risk can measure but uncertainty may not be measure
- ➢ Risk is data base
- ➢ Risk is known to all
- ➢ There is a relation between the risk and return

For this reason risk can be uncertainty but uncertainty may not be risk.

Question: If corporate managers are risk averse, does this mean they will not take risk? Explain.

Portfolio theory assumes that investors are basically risk adverse, meaning that given a choice between two assets with equal rates of return, they will select the asset with the lower level of risk. Most investors committing large sum of money to developing an investment portfolio are risk averse.

Risk adverse investors want to maximize its return in term of lower risk. But they cannot avoid risk because all investment must have systematic risk. So they should take risk if though are risk averse investors.

So, we can say risk-averse investors require higher rates of return to invest in higher risk securities.

The Risk/Return Tradeoff

Higher risk is associated with greater probability of higher return and lower risk with a greater probability of smaller return. This trade off which an investor faces between risk and return while considering investment decisions is called the risk return trade off.

Figure: Risk and Return trade-off
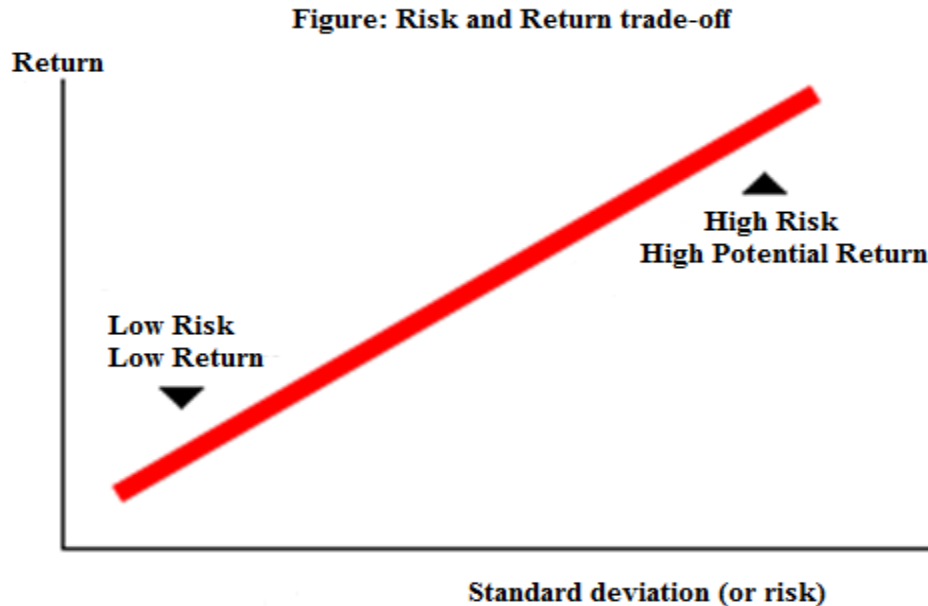
For example, Omayer faces a risk return trade off while making his decision to invest. If he deposits all his money in a saving bank account, he will earn a low return i.e. the interest rate paid by the bank, but all his money will be insured up to an amount of Tk. 1 lakh (currently the Deposit Insurance and Credit Guarantee by central bank in Bangladesh provides insurance up to Tk. 1 lakh). However, if he invests in equities, he faces the risk of losing a major part of his capital along with a chance to get a much higher return than compared to a saving deposit in a bank.

A common misconception is that higher risk equals greater return. The risk/return tradeoff tells us that the higher risk gives us the possibility of higher returns. There are no guarantees. Just as risk means higher potential returns, it also means higher potential losses.

Significance of Security Market Line (SML)

The implication of Security Market Line (SML) is discussed as follows:

1. SML is useful tools for determining whether security is undervalued or overvalued. If a security is priced above the SML, it is considered undervalued again if it is priced below the SML, it is overvalued.

2. The idea of a security market line is important for understanding the capital asset pricing model.

3. SML is useful for calculating the expected rate of returns for equity in cost of capital.

4. The SML can be used to determine whether an asset being considered for a portfolio offers a reasonable expected return for risk.

5. All correctly priced assets lie on the Security Market Line (SML).

6. The market risk premium is determined from the slope of the SML. Here slope is the ratio of the vertical and horizontal distances between two points on a line.

Why SML is a Straight line?

Security market line (SML) is the representation of the capital asset pricing model. It displays the expected rate of return of an individual security as a function of systematic, non-diversifiable risk. The risk of an individual risky security reflects the volatility of the return from security rather than the return of the market portfolio. The risk in these individual risky securities reflects the systematic risk.
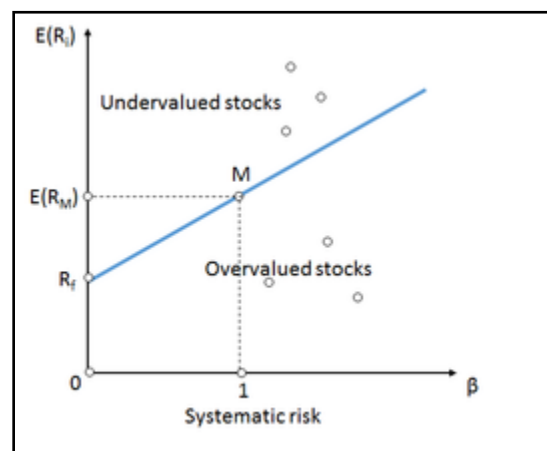
The Y-intercept of the SML is equal to the risk-free interest rate. The slope of the SML is equal to the market risk premium and reflects the risk return trade off at a given time:

$$E[R_i] = R_f + \beta_{im} [E(R_{m)} - R_f]$$

Where:

E(Ri) is an expected return on security
E(Rm) is an expected return on market portfolio M
β is a non-diversifiable or systematic risk
R_m is a market rate of return
R_f is a risk-free rate

When used in portfolio management, the SML represents the investment's opportunity cost (investing in a combination of the market portfolio and the risk-free asset). All the correctly priced securities are plotted on the SML. The assets above the line are undervalued because for a given amount of risk (beta), they yield a higher return. The assets below the line are overvalued because for a given amount of risk, they yield a lower return.

There is a question about what the SML looks like when beta is negative. A rational investor will accept these assets even though they yield sub-risk-free returns, because they will provide "recession insurance" as part of a well-diversified portfolio. Therefore, the SML continues in a

straight line whether beta is positive or negative. A different way of thinking about this is that the absolute value of beta represents the amount of risk associated with the asset, while the sign explains when the risk occurs.

How does the notion of risk and reward govern the behavior of financial managers?

Notion of risk and return governing financial managers Any financial manager can be categorized as one of the following based on his/her attitude towards risk and return: *a.) Risk-averse:* This kind of manager does not like to take risk. However, he will make an exception if you provide the manager with excess return corresponding to the extra or excess risk that he takes. *b.) Risk-Neutral:* This kind of manager is neutral towards any combination of risk and return. *c.) Risk-taker:* This kind of manager loves risk and he will take extra risk irrespective of the return he gets. Unlike a risk-averse financial manager, he will chose to take extra or excess risk even when he is not adequately compensated for the extra risk he takes. Ideally, financial managers are risk-averse as they work for companies and they have to make sure that they do not take un-necessary risk which might hamper the profits of the company. As such they try to take advantage of different financial instruments to mitigate the risk or reduce the exposure to risk .They use financial derivatives to reduce the exposure to risk. Depending on the goal of meeting nearby obligations, they would invest a large amount in government securities like zero-coupon bonds etc. which have high liquidity and can be easily converted into cash to meet short-term obligations. Likewise their behavior and financial decisions are based to make sure that they reduce their risk exposure.

Therefore, in the world of financial management, a common principle is that great reward cannot be achieved without great risk. The balance between these two extremes governs the behavior of financial managers. Their work is to secure the highest returns on investments while limiting the amount of risk placed in each investment.