Financial Market Efficiency

What is Financial Market Efficiency?

- The ultimate focus of the efficiency in financial markets is on the non-wastefulness of factor use and the allocation of factors to the most socially productive purposes
- The market in which the price for any security effectively represents the expected net present value of all future profits
- Buying or selling the stock should, on average, return you only a fair measure of return for the associated risk.
- Conditions for Efficient Market
  - A large number of competing profit-maximizing participants analyze and value securities, each independently of the others
  - Active participation in the market
  - Individuals can not affect the market prices
  - Information must be free
  - Free entry and exit by market players must be uninhibited

Types of Efficiency

- **Information Arbitrage Efficiency**
  - This is the degree of gain possible by the use of commonly available information. If one can make large gains by using commonly available information, financial markets are said to be inefficient.
- **Fundamental Valuation Efficiency**
  - When the market price of a security is equal to its intrinsic value or investment value, the market is said to be efficient. The intrinsic value of an asset is the present value of the future stream of cash flows associated with the investment in that asset, when the cash flows are discounted at an appropriate rate of discount.
- **Full Insurance Efficiency**
  - This indicates the extent of hedging against possible future contingencies. The greater the possibilities of hedging and reducing risk, the higher is the market efficiency.
- **Functional or Operational Efficiency**
  - The market which minimises administrative and transactions costs, and which provides maximum convenience (minimum inconvenience) to borrowers and lenders
- **Allocational Efficiency**
  - When financial markets channelise resources into those investment projects and other uses where marginal efficiency of capital adjusted for risk differences is the highest

Issues in Efficient Market

- How well do markets respond to new information?
- Should it be possible to decide between a profitable and unprofitable investment given current information?

Efficient Market Hypothesis (EMH)

- The current prices of securities reflect all information about the security (Random Walk Hypothesis)
- New information regarding securities comes to the market in a random fashion
- Profit-maximizing investors adjust security prices rapidly to reflect the effect of new information. The expected returns implicit in the current price of a security should reflect its risk

Market Efficiency Forms

- Efficient market hypothesis
  - To what extent do securities markets quickly and fully reflect different available information?
- Three levels of Market Efficiency
  - Weak form - prices reflect all **security-market** information
  - Semi strong form - prices reflect all **public** information
  - Strong form - prices reflect all **public and private** information

Weak-Form EMH

- Current prices reflect all security-market information, including the historical sequence of prices, rates of return, trading volume data, and other market-generated information
- This implies that past rates of return and other market data should have no relationship with future rates of return

Semi Strong Form EMH

- Current security prices reflect all public information such as earnings, stock and cash dividends, splits, mergers and takeovers, interest rate changes etc. It also says that prices adjust to such information quickly and accurately so abnormal profits on a consistent basis can not be earned.
- This implies that decisions made on new information after it is public should not lead to above-average risk-adjusted profits from those transactions

Strong Form EMH

- Stock prices fully reflect all information from public and private sources
- This implies that no group of investors should be able to consistently derive above-average risk-adjusted rates of return
- This assumes perfect markets in which all information is cost-free and available to everyone at the same time

Implications of Efficient Market Hypothesis

- What should investors do if markets efficient?
- Technical analysis
  - Not valuable if weak form holds
- Fundamental analysis of intrinsic value
  - Not valuable if semi strong form holds
  - Experience average results

Implications of Efficient Market Hypothesis

- For professional money managers
  - Less time spent on individual securities
    - Passive investing favoured
    - Otherwise must believe in superior insight
  - Tasks if markets informationally efficient
    - Maintain correct diversification
    - Achieve and maintain desired portfolio risk
    - Manage tax burden
    - Control transaction costs

Tests of Weak-Form EMH

- Statistical tests of independence between rates of return
  - Autocorrelation tests
  - Runs tests
  - Filter Rules Test

Autocorrelation Test

- Is the price change in one period is correlated with the price change in some other period?
- Those who believe that capital markets are efficient would expect insignificant correlations for all such combinations.
- All these studies are concerned only with short-term trends.
- Autocorrelation is stronger for portfolios of stocks of small market size stocks.

Run Test

- A run occurs when there is no difference between the sign of two changes.
- To test a series of price changes for independence, the number of runs in that series is compared to see whether it is statistically different from the number of runs in a purely random series of the same size.
- The results of these studies seem to be strongly support the random walk model.

Tests of the Semistrong Form of Market Efficiency

- Event studies: That examine how fast stock prices adjust to specific significant economic events
- Identify the event to be studied and pin point the date on which the event was announced
- Collect returns data around the announcement date
- Calculate the excess returns by period around the announcement date for each firm in the sample
- Compute the average excess returns across all firms
- Assess whether the excess returns around the announcement date are different from zero

Testing Groups of Investors

- Corporate insiders: Insiders include major corporate officers, directors, and owners of 10% or more of any equity class of securities.
- Stock exchange specialists: Specialists have monopolistic access to information about unfilled limit orders
- Security analysts: There is evidence in favor of existence of superior analysts who apparently possess private information
- Professional money managers: Trained professionals, working full time at investment management