Chapter 10

EFFICIENT MARKET HYPOTHESIS

The Collective Wisdom

OUTLINE

- Random Walk
- What is an Efficient Market
- Empirical Evidence on Weak-form Efficient Market Hypothesis
- Empirical Evidence on Semi-strong Form Efficient Market Hypothesis
- Empirical Evidence on Strong-form Efficient Market Hypothesis
- What is the Verdict
- Implications for Investment Analysis

RANDOM WALK

- Maurice Kendall found that stock prices followed a random walk, implying that successive price changes are independent of one another.
- A number of researchers have employed ingenious methods to test the randomness of stock price behavior.
- Academic researchers concluded that the randomness of stock prices was the result of an efficient market.
- The theory that stock price changes have the same distribution and are independent of each other, so the past movement or trend of a stock price or market cannot be used to predict its future movement.

WHAT IS AN EFFICIENT MARKET

- AN EFFICIENT MARKET IS ONE IN WHICH THE MARKET PRICE OF A SECURITY IS AN UNBIASED ESTIMATE OF ITS INTRINSIC VALUE

- MARKET EFFICIENCY IS DEFINED IN RELATION TO INFORMATION THAT IS REFLECTED IN SECURITY PRICES. FAMA DISTINGUISHES THREE LEVELS OF MARKET EFFICIENCY.

  - **Weak-form efficiency**
  - **Semi-strong form efficiency**
  - **Strong-form efficiency**

INTRINISIC VALUE

The actual value of a company or an asset based on an underlying perception of its true value including all aspects of the business, in terms of both tangible and intangible factors. This value may or may not be the same as the current market value. Value investors use a variety of analytical techniques in order to estimate the intrinsic value of securities in hopes of finding investments where the true value of the investment exceeds its current market value.

STOCK MARKET EFFICIENCY

MISCONCEPTIONS

1. EMH.. IMPLIES… MARKET HAS PERFECT FORECASTING.
2. AS PRICES TEND TO FLUCTUATE THEY CANNOT REFLECT FAIR VALUE.
3. INABILITY OF INSTITUTIONAL PORTFOLIO MANAGERS TO ACHIEVE SUPERIOR INVESTMENT PERFORMANCE IMPLIES THAT THEY LACK COMPETENCE.
4. THE RANDOM MOVEMENT OF STOCK PRICES SUGGESTS THAT THE STOCK MARKET IS IRRATIONAL.

EMI

- In finance, the efficient-market hypothesis (EMH) asserts that financial markets are "informationally efficient". That is, one cannot consistently achieve returns in excess of average market returns on a risk-adjusted basis, given the information available at the time the investment is made.
- There are three major versions of the hypothesis: "weak", "semi-strong", and "strong".
- Weak EMH claims that prices on traded assets (*e.g.*, stocks, bonds, or property) already reflect all past publicly available information.
- Semi-strong EMH claims both that prices reflect all publicly available information and that prices instantly change to reflect new public information.
- Strong EMH additionally claims that prices instantly reflect even hidden or "insider" information. There is evidence for and against the weak and semi-strong EMHs, while there is powerful evidence against strong EMH.

weak-form efficiency

•In **weak-form efficiency**, future prices cannot be predicted by analyzing prices from the past. Excess returns cannot be earned in the long run by using investment strategies based on historical share prices or other historical data.

•Technical analysis techniques will not be able to consistently produce excess returns, though some forms of fundamental analysis may still provide excess returns.

• Share prices exhibit no serial dependencies, meaning that there are no "patterns" to asset prices.

• This implies that future price movements are determined entirely by information not contained in the price series. Hence, prices must follow a random walk.

- This 'soft' EMH does not require that prices remain at or near equilibrium, but only that market participants not be able to systematically profit from market 'inefficiencies'..

- However, while EMH predicts that all price movement (in the absence of change in fundamental information) is random (i.e., non-trending), many studies have shown a marked tendency for the stock markets to trend over time periods of weeks or longer and that, moreover,

- there is a positive correlation between degree of trending and length of time period studied (but note that over long time periods).

Semi-strong-form efficiency

•In **semi-strong-form efficiency**, it is implied that share prices adjust to publicly available new information very rapidly and in an unbiased fashion, such that no excess returns can be earned by trading on that information.

•Semi-strong-form efficiency implies that neither fundamental analysis nor technical analysis techniques will be able to reliably produce excess returns.

•To test for semi-strong-form efficiency, the adjustments to previously unknown news must be of a reasonable size and must be instantaneous.

• To test for this, consistent upward or downward adjustments after the initial change must be looked for. If there are any such adjustments it would suggest that investors had interpreted the information in a biased fashion and hence in an inefficient manner.

Strong-form efficiency

•In **strong-form efficiency**, share prices reflect all information, public and private, and no one can earn excess returns.

• If there are legal barriers to private information becoming public, as with insider trading laws, strong-form efficiency is impossible, except in the case where the laws are universally ignored.

•To test for strong-form efficiency, a market needs to exist where investors cannot consistently earn excess returns over a long period of time. .

CRITICS

- Various studies have pointed out signs of inefficiency in financial markets. Critics have blamed the belief in rational markets for much of the late-2000s financial crisis.
- In response, proponents of the hypothesis have stated that market efficiency does not mean having no uncertainty about the future, that market efficiency is a simplification of the world which may not always hold true, and that the market is practically efficient for investment purposes for most individuals.

IMPLICATIONS FOR INVESTMENTS

- **Substantial evidence in favour of randomness suggests that technical analysis is of dubious value.**
- **Routine and conventional fundamental analysis is not of much help in identifying profitable courses of action**
- **The key levers for earning superior rates of returns are:**
    - **Early action on any new development.**
    - **Sensitivity to market imperfections and anomalies.**
    - **Use of original, unconventional, and innovative modes of analysis.**
    - **Access to inside information and its sensible interpretation**
    - **An independent judgment that is not affected by market psychology.**

SUMMING UP

- Stock prices appear to follow a random walk. The randomness of stock prices is the result of an efficient market
- It is useful to distinguish three levels of market efficiency : weak form efficiency, semi-strong form efficiency, and strong form efficiency.
- The weak form efficient market hypothesis says that the current price of a stock reflects all information found in the record of past prices and volumes.
- The semi-strong form efficient market hypothesis holds that stock prices adjust rapidly to all available public information.
- The strong form efficient market hypothesis holds that all available information, public and private is reflected in stock prices.

- Empirical evidence seems to provide strong support for weak-form efficiency, mixed support for semi-strong form efficiency, and weak support for strong-form efficiency.
- The efficient market hypothesis is an imperfect and limited description of the stock market. however, at least for the present, there does not seem to be a better alternative.
- The key implications of the efficient market hypothesis are that technical analysis is of dubious value and routine fundamental analysis is not of much help.