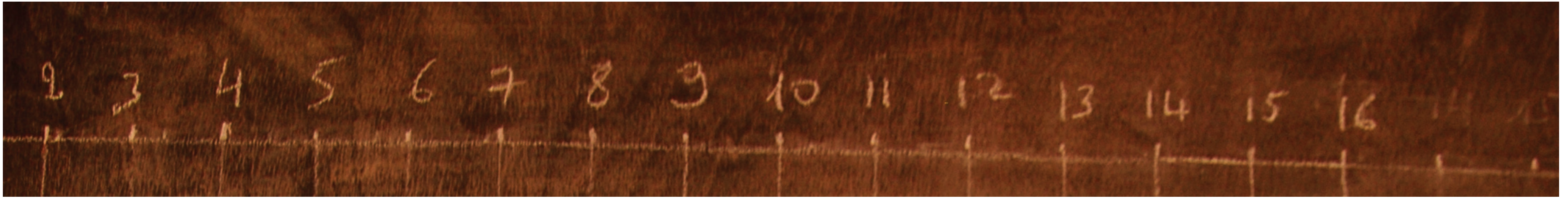

Market Efficiency: Laying the groundwork

Why market efficiency matters ..

- The question of whether markets are efficient, and if not, where the inefficiencies lie, is central to investment valuation.
  - If markets are, in fact, efficient, the market price is the best estimate of value, and the process of valuation becomes one of justifying the market price.
  - If markets are not efficient, the market price may deviate from the true value, and the process of valuation is directed towards obtaining a reasonable estimate of this value.
- Market 'inefficiencies' can provide the basis for screening the universe of stocks to come up with a sub-sample that is more likely to have under valued stocks
  - Saves time for the analyst
  - Increases the odds significantly of finding under and over valued stocks.

What is an efficient market?

- An efficient market is one where the market price is an unbiased estimate of the true value of the investment.
- Implicit in this derivation are several key concepts -
  - Market efficiency does not require that the market price be equal to true value at every point in time. All it requires is that errors in the market price be unbiased, i.e., that prices can be greater than or less than true value, as long as these deviations are random.
  - Randomness implies that there is an equal chance that stocks are under or over valued at any point in time. If the deviations of market price from true value are random, it follows that no group of investors should be able to consistently find under or over valued stocks using any investment strategy.

Definitions of Market Efficiency

- Definitions of market efficiency have to be specific not only about the market that is being considered but also the investor group that is covered.
  - It is extremely unlikely that all markets are efficient to all investors, but it is entirely possible that a particular market (for instance, the New York Stock Exchange) is efficient with respect to the average investor.
  - It is possible that some markets are efficient while others are not, and that a market is efficient with respect to some investors and not to others. This is a direct consequence of differential tax rates and transactions costs, which confer advantages on some investors relative to others.
- Definitions of market efficiency are also linked up with assumptions about what information is available to investors and reflected in the price.

Information and Market Efficiency

- Under weak form efficiency, the current price reflects the information contained in all past prices, suggesting that charts and technical analyses that use past prices alone would not be useful in finding under valued stocks.
- Under semi-strong form efficiency, the current price reflects the information contained not only in past prices but all public information (including financial statements and news reports) and no approach that was predicated on using and massaging this information would be useful in finding under valued stocks.
- Under strong form efficiency, the current price reflects all information, public as well as private, and no investors will be able to consistently find under valued stocks.

Implications of Market Efficiency

- No group of investors should be able to consistently beat the market using a common investment strategy.
- An efficient market would also carry negative implications for many investment strategies and actions that are taken for granted –
  a. In an efficient market, equity research and valuation would be a costly task that provided no benefits. The odds of finding an undervalued stock should be random (50/50). At best, the benefits from information collection and equity research would cover the costs of doing the research.
  b. In an efficient market, a strategy of randomly diversifying across stocks or indexing to the market, carrying little or no information cost and minimal execution costs, would be superior to any other strategy, that created larger information and execution costs. There would be no value added by portfolio managers and investment strategists.
  c. In an efficient market, a strategy of minimizing trading, i.e., creating a portfolio and not trading unless cash was needed, would be superior to a strategy that required frequent trading.

What market efficiency does not imply..

- An efficient market does not imply that -

  (a) stock prices cannot deviate from true value; in fact, there can be large deviations from true value. The deviations do have to be random.

  (b) no investor will 'beat' the market in any time period. To the contrary, approximately half of all investors, prior to transactions costs, should beat the market in any period.

  (c) no group of investors will beat the market in the long term. Given the number of investors in financial markets, the laws of probability would suggest that a fairly large number are going to beat the market consistently over long periods, not because of their investment strategies but because they are lucky.
- In an efficient market, the expected returns from any investment will be consistent with the risk of that investment over the long term, though there may be deviations from these expected returns in the short term.

Necessary Conditions for Market Efficiency

- Markets do not become efficient automatically. It is the actions of investors, sensing bargains and putting into effect schemes to beat the market, that make markets efficient.
- The necessary conditions for a market inefficiency to be eliminated are as follows -

  (1) The market inefficiency should provide the basis for a scheme to beat the market and earn excess returns. For this to hold true -

    (a) The asset (or assets) which is the source of the inefficiency has to be traded.

    (b) The transactions costs of executing the scheme have to be smaller than the expected profits from the scheme.

  (2) There should be profit maximizing investors who

    (a) recognize the 'potential for excess return'

    (b) can replicate the beat the market beating scheme

    (c) have the resources to trade until the inefficiency disappears

General Propositions about market efficiency

Proposition 1: The probability of finding inefficiencies in an asset market decreases as the ease of trading on the asset increases. You are more likely to find mispriced assets in markets/assets where there is less trading.

Proposition 2: The probability of finding an inefficiency in an asset market increases as the transactions and information cost of exploiting the inefficiency increases.

Proposition 3: The speed with which an inefficiency is resolved will be directly related to how easily the scheme to exploit the inefficiency can be replicated by other investors.

Efficient Markets and Profit-seeking Investors: The Internal Contradiction

- There is an internal contradiction in claiming that there is no possibility of beating the market in an efficient market and then requiring profit-maximizing investors to constantly seek out ways of beating the market and thus making it efficient.
- If markets were, in fact, efficient, investors would stop looking for inefficiencies, which would lead to markets becoming inefficient again.
- It makes sense to think about an efficient market as a self-correcting mechanism, where inefficiencies appear at regular intervals

Behavioral Finance's challenge to efficient markets

- Underlying the notion of efficient markets is the belief that investors are for the most part rational and even when not so, that irrationalities cancel out in the aggregate.
- A subset of economists, with backing from psychologists, point to the patterns that are observable in stock prices (that we will talk about in more depth in the next section), the recurrence of price bubbles in different asset markets and the reaction to news announcements in markets as backing for their argument.
- Almost all investment philosophies try to exploit one investor irrationality or another and that ironically investor failures in applying these philosophies can be traced back to other irrationalities.

Psychological studies backing behavioral finance..

1. Anchors: When confronted with decisions, it is human nature to begin with the familiar and use it to make judgments
2. Power of the story: People look for simple reasons for their decisions, and will often base their decision on whether these reasons exist.
3. Overconfidence and Intuitive Thinking: Human beings tend to be opinionated about things they are not well informed on and to make decisions based upon these opinions. They also have a propensity to hindsight bias, i.e., they observe what happens and act as it they knew it was coming all the time.
4. Herd Behavior: The tendency of human beings to be swayed by crowds has been long documented (and not just in markets).
5. Unwillingness to admit mistakes: It may be human to err, but it is also human to claim not to err. In other words, we are much more willing to claim our successes than we are willing to face up to our failures.

Empirical Evidence

- Loss Aversion: Loss aversion refers to the tendency of individuals to prefer avoiding losses to making gains. As a consequence, they will often take an uncertain loss over a certain loss (of equivalent amount).
- House Money Effect: Investors tend be not only less risk averse but also less careful about assessing it, when playing with other people's money.
- Break Even Effect: Investors who have lost money, become more reckless about risk taking (often taking bad risks and abandoning good sense) to get back what they have already lost.