Is the Stock Market Efficient?

⇒ Theory of Stock Market Efficiency: Accomplishments & Limitations

Major premise: Investors compete so fiercely in using public information that they bid away its value for earning additional returns ⇒ Stock market efficiency
Investor Implications:

1. There are no informational inefficiencies
2. All relevant information about the Company is impounded in the Stock
3. Stock Prices move randomly

⇒ The Stock market is competitive - no one participant can greatly impact prices
③ Past stock price is not a predictor of future stock price.

⇒ An investor can do no better than the market. Historical stock prices give no clue as to where prices may go in the future.
How Do Investors React to Company Announcements?


Investors had already anticipated approx. 80% of the "surprise" component of annual earnings statements by the 300 companies studied.
Adherents to Efficient Markets claim investors are able to assimilate new information quickly into the market. Arbitrage is the driver of efficiency. If the stock market were inefficient, market participants would trade off the imperfections and move prices to eliminate the inefficiencies.
Applications of Efficient Markets to Explain Investor Behavior

(1) Stock splits are received as good news by investors because it may signal that the firm is going to raise dividends in the next year.

2. Dividend Irrelevancy — Whether the firm takes its earnings and distributes them to shareholders or retains them in the company should make no difference in the value received by stockholders.

⇒Retained Earnings will be reflected in the revised stock price to exactly offset the loss in dividends.


3 Capital Asset Pricing (CAPM)
If share price behavior can be viewed as economically rational—then it may be possible to apportion risk on the basis of return.

\[ k_r = k_{RF} + \beta(k_m - k_{RF}) \]

Casual Observations: Limitations in
The Theory of Efficient Markets

1. Recent IPO Phenomena: Companies with negative earnings trading at substantial premiums shortly after being introduced to the market. e.g. Netscape, Amazon.com

2. Existence of some long-term investing strategies that have consistently performed better than the market. => Berkshire Hathaway
- Jailme & Cetan Aspects & CAPM to explain risk/reward structure
- Stocks
  evidence that high-β stocks do not earn higher returns than low-β stocks
- Question of whether β may not be stable over time but change dramatically in a short period (technological change, reinvention of companies)
- e.g. AOL / Time Warner
- Disney
- COMS → Network to Palm
(3) Failure of Efficient Market Hypothesis to explain certain share price behavior.

- Price Overreactions when individual stocks overreact to information and then undergo corrections.

== Contrarian Investment Strategies

Oct. 1987 Experience with the Dow

- Price Underreactions to earnings

- Extraneous Seasonal factors that apparently Impact Market Prices

"Weekend effect" tendency of Stock returns to turn negative from Friday to Monday

"year-end" effect - influenced by tax strategy, where Stocks sell off from November to Dec. followed by the

"January" effect - when investors return to the market and drive up prices.
A major tenet of the Efficient Market Hypothesis is that information is costless, comprehensive & instantaneous. (Available to all market participants)

Not all financial info is costless

\[ \Rightarrow \text{Valuing Subscription} - \$550/\text{year} \]

Financial Analysis from Banks & Brokers can cost up to 1.5% of Asset Value on a yearly basis.

With the advent of the internet, this issue may not be as significant as it once was.
The Flow of Information May be Uneven over time:

- Valueline reviews companies once every six months - they will include announcements.

- Large institutional shareholders may have access to more information through conference calls.

- Major shareholders, such as Warren Buffett, may sit on the Board of the Company and become aware of planned projects before they are announced - however, there are rules against insider trading. (SEC Act 1933, 1934).
Information that is released may meet SEC reporting requirements, but not be comprehensive.

- Which earnings estimate should investors focus on - Undiluted vs. Diluted Earnings
  - The role of asset sales in boosting earnings
- Whisper numbers - Do investors follow them on the company's published announcement on predicted earnings
Do Investors Act as if they possess Perfect Information?

≡ Friedman's Treatise on Positive Economics
A theory may have value if it explains economic behavior based on market participants acting as if they were aware of the theory or needed information.

≡ Market prices incorporate information that cannot fully be known by any one individual.
When analyzing market behavior, researchers make choices about the type, frequency, timing, and information which may bias results.

Do you use monthly, quarterly, semiannual, or annual data?

Do you use opening, closing, or average stock prices?

Do you incorporate dividend payments with price change to get return data?
When running an event study, what is the appropriate time horizon for the event window?

Can you use auction market pricing (e.g. Nasdaq) and assume it is reliable - or should you stick with only organized exchange information (e.g. NYSE or AMEX)?
Application Problems when using SML to apportion risk

\[ Kr = KRF + \beta (Km - KRF) \]

1. What is the appropriate interest rate to use for KRF
   (U.S. Treas., Prime, fed funds)
   time to maturity

2. How do you calculate an appropriate risk premium \((Km - KRF)\)?

   What are the natural surrogate for \(Km\)?

3. Current theory fails to explain that betas tend to change in response to fairly predictable move in stock prices.
   Betas do not remain invariant over time.
Conclusions:

Are Stock Markets Efficient —
Possibly Yes
Possibly No.

Efficient Markets is a helpful tool
for explaining equilibrium pricing for
Stocks (long term)

However, as Keynes once said —
In the long run we are all dead!
As research in the area has progressed particularly in the last 10 years - holes have been discovered in efficient markets - partly due to the sophistication of the statistical tests, change in technology.

⇒ There is a need for a new paradigm. However, at present there are few competing theories that tie together financial concepts & risk/return.