The stock prices

Economics, Financial Markets

The efficient market hypothesis (EMH) was developed by Fama in 1960-70s. Fama (1970) claims that in an efficient capital market, the security prices rationally reflect the available information which is obtained quickly and enables a company's stock prices to adjust rapidly. Therefore the investors are unable to outperform the market on a consistent basis. However lots of the empirical studies also proof that there are anomalies exist in the capital market. This paper aims at discuss the reliability of EMH through analyzing the empirical studies.

Definition:

Fama (1970) claims that in the efficient capital markets, all the technical and fundamental analysis cannot provide a higher-than-normal rate of return, in other word, these analysis can't help the investors to beat the market. EMH also based on several assumptions which include 1) a large number of competing participants who are analyzing securities; 2) new information arriving in the market in a random way; 3) investors adjusting to new information rapidly--not necessarily correctly, just in an unbiased way; 4) expected returns implicitly include risk. (Rattiner 2002)

In order to provide the more practical definition of EMH, Fama (1970) define the information structure and produced three forms of EMH: 1) Weak form efficiency 2) Semi strong form efficiency 3) Strong form efficiency. In Fama's (1991) paper, he revised the definitions for these three forms as 1) Predictability 2) Event Studies 3) Inside information. Now this paper will analyse the EMH critically through its three forms.

Weak Form Efficiency:

In the weak form efficiency, Fama (1970) claims that the share prices fully reflect all information contained in the past price movement. Also the security returns are independent of each other and there is no correlation between share prices over time. This view is directly contrast to technical analysis, which attempts to predict the future share prices based on studying the past pricing and volume patterns.

That is quite similar with the random walk theory, which developed, by Kendall in 1950s. Kendall (1953) found that stock and commodity prices follow a random walk. It means that zero correlation existed between price changes at different time periods and there are no patterns or trends at all. In this way, as Rattiner (2002) said that historical price analysis cannot produce superior returns and have no any predictive value.

Fama (1970) concluded that weak form of market efficiency is strongly in support. The change of share price will only caused by the release of new information, but because of the new information is released randomly, the investors are never sure that the next information is good or bad, so the price changes must be random. Arnold (2002 p609) also claims that there are lots of investors in the market and assuming that there is a pattern of a share price existed, then if one investor predict the price will rise in the future according to the analysis of pattern, then rest of the investors in the market also will notice that trend at the same time.

So everyone wants to buy this share as soon as possible. Then as a result of the extraordinary purchasing pressure, the price will be immediately pushed to a level, which gives only the normal rate of return. As Arnold (2002) said

that once a pattern becomes discernible in the market, it will disappear under the pressure of buy or sell. Therefore no one can actually outperform the market by analyzing trend which generated from the past prices. On another hand, someone argue that the market anomalies and through analyzing the behavior of past share price, it is possible to make the predictability. Now the paper will list some empirical evidences against the weak form efficiency:

Seasonal effect. Malkiel (2003) claims that January is a quite unusual month for the capital market return because in general, the share return will be higher during the first couple weeks for a year. That is called January Effect. To take advantage of January effect, investors should buy shares in December and sell in January. There is also a weekend effect, as French (1980) mentioned that there is an abnormal returns on Friday and falls on Monday which generate a lower return. From this viewpoint, due to the share return will fall on Monday, if the investors want the superior return, they should buy the shares on Monday or other weekday at a lower price, hold it during the weekdays and sell it in Friday at a higher price.

However someone argues that these seasonal patterns are not very reliable. Malkiel (2003) claims that these anomalies are not dependable from period to period. Arnold (2002, p617) also claims that these effects are not useful because the January effect only works when the share price in the end of year is low and will increase in the January. Then this lead to the investors rush to buy the shares in the end of the year because of the lower price. But if all the investors in the capital market try to purchase in end of year, this

will push the share price go up. And then if all of investors sell the shares in January, that will reduce the price. As the result, no one can benefit from January effect.

Underreaction

Recently the behaviouralfinancebecomes more obviously inconsistence with the random walk theory and weak-form EMH. The behaviouralists claim that there is a tendency for the investors to underreact to new information. As the Malkiel (2003 p61) described that " if the full impact of an important news announcement is only grasped over a period of time, the share price will show the positive serial correlation in the short period of time." Because the investors are slow react to the news, then once the news is released, market doesn't have the rapid response to it, then the market price may change gradually in a time of period. In this way, it is possible to predict the future share price and get superior return in post announcement period.

However Malkiel (2003) argues that many predictable patterns will disappear after they are published in the finance literature. The reason is simple because if all people predict that a share price will rise tomorrow, then everyone will buy it today, as result, the price will rise to the normal immediately today! At same time pattern is disappeared! Due to the existence of these patterns only last really short time, that is useless for most investor to get the excess returns. In this way, these patterns never guarantee the stable excess return for the investors.

Overreaction In contrary to the underreaction, there are many evidences show a negative serial correlation i. e. return reversals, exists in the long run period. The investors tend to overreact to the new information. Fluck, Malkiel and Quandt (1997) found that if the selected share has got bad return in the first period (3-5 years), then they will have a good return in the next period time. On contrary, the shares with the good returns in the first period will have a lower return in the next period. That is due to the investor's overreaction. Such as the first condition, due to the investor excessive pessimism to the bad news, the shares will be undervalued in the first period, however after long time undervalue, this share price tend to rise to a more fair level. In this way, they proof the very statistical evidence of the return reversals and the market inefficiency. Therefore it is possible to predict the future performance of portfolios. (Arnold 2003 pp614)

Semi strong form efficiency Fama (1970) described semi-strong form as that share prices fully reflect all public information, including a company's history and information from financial statements, the industry and macroeconomicenvironment, e. g. annual report, new policy or the earning announcement etc. Therefore, under this form, the investor cannot get any superior returns by using fundamental analysis, such as analyze the company's annual report or news announcement.

In order to test whether this form works in the real world, it needs to test the speed of the change of share prices in response to the new information release. The first test has been done by Fama, Fisher, Jensen and Roll (1969). In their study, they used the capital asset pricing model as the tool to

do the comparison. They found the positive evidence on share price's reaction to the new information releases. And most of the share price's adjustment have been finished before the events are released to the public. And furthermore, once the news is received by the market, the prices will change to a fair level rapidly and accurately. They also claims that " the price reflect not only the direct estimates of prospective performance, but also information that requires more subtle interpretation."

However there are some evidences against the semi-strong efficiency. Price-earning formation The company published account is the important source of the information about its performance. According to the semi-strong form, these information should be already reflected in the market price. However Basu (1977) study 1400 companies in period of 1956-1971, and found the low P/E ratio shares outperforming the high P/E shares by more than 7% per year. In this way, P/E ratio will be a indicator for share return. However Schwert (2001) point out that the investment strategies of purchasing value stock (low P/E ratio stock) doesn't work properly in 1990s. His test shows that if the sample data was collected form 1990s, then low P/E ratio stock cannot generate the excess return.