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## **A Critical Review of the Market Efficiency Concept**

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### **Abstract**

The market efficiency hypothesis has attracted a notable number of economists to conduct investigations in this field. It could be considered as an effective method of driving investors towards the right direction while trading in the security market. A large number of researches believe that the market is efficient in some of its forms, while others take a different view. Drawing on previous theoretical and empirical studies investigating market efficiency and its three forms, this paper critically examines the concept of market efficiency through a critical review from different points of views. Moreover, it highlights a number of empirical tests and their results with regard to the three forms of market efficiency. It also focuses on the influence of market efficiency on the security prices. This paper concludes that the market seems to be more efficient in regards to its weak form instead of the strong and semi- strong forms, as a result, it is difficult to predict future security prices and obtain abnormal profits by only analyzing historical records.

**Keywords:** Critical Review; Market Efficiency; Security Prices

## **Introduction**

Over the last few decades, market efficiency has become one of the most controversial issues in stock markets worldwide. This could be due to the significant effect that it has on security prices. According to Jarrow and Larsson (2012, p. 27), “market efficiency has been a topic discussed and tested in the financial economics literature for over four decades”. In the 1970s, several economists considered the market to be entirely efficient. Malkiel and Fama (1970) stated that market was permanently efficient in that the exact prices reflected the available information. However, due to several anomalies which occurred in the stock market, many arguments and contradictory opinions have been put forward by researchers who suggested that the concept of market efficiency conflicted with various studies (Ito et al., 2016; Rahman et al., 2016; Rösch et al., 2017). As Shiller (2003) states, several anomalies have appeared in the last few decades in the stock markets of various countries, showing the inefficiency of the market.

In addition, as a result of the enormous rise in the number of the traders in the security market, the debates regarding the market efficiency hypothesis (EMH) have become wider. According to Malkiel and Fama (1970), three forms of the market efficiency concept exist, namely the weak form, the semi-strong form, and the strong form. Each form reflects the stock prices depending on certain information such as historical statements and general and private information (Syed & Bajwa, 2018). Furthermore, it can be said that a variety of experiments and empirical tests have been carried out by researchers in order to test the efficiency that exists in the developed and emerging stock markets. Consequently, a number of results have been obtained. This paper will attempt to critically display and argue the concept of market efficiency by reviewing this concept from different points of views, and focusing

on a number of empirical tests that have been done by different economists with regard to the three forms. This will be conducted by providing several data from the various studies such as the name and place of the markets involved, the period of the test, the type of tests that have been applied, and the results of this work.

### **The Concept of Market Efficiency**

Several researchers have defined the concept of market efficiency in terms of various factors. There is an essential definition that reflects the common belief that considers the market as being totally efficient before the occurrence of recent anomalies (Angelovska, 2018; Ghazani & Ebrahimi, 2019; Kharbanda & Singh, 2018). As defined by Malkiel and Fama (1970), market efficiency means that the market is entirely efficient and that the present security prices are fully reflected in terms of the available information that exists with regard to historical stock prices, and from public or confidential information. Therefore, it can be seen from Malkiel and Fama's definition that the stock market might be unbeatable. In addition, investors do not have the ability to obtain unusually high profits (Hirano et al., 2018; Zhang et al., 2020).

Furthermore, Malkiel (2003) and Singer (2018) emphasize that traders are unable to obtain high profits by stating that the investors cannot gain abnormal profits without facing a high degree of risk. Thus, it is clear that in order for investors to obtain above-rate profits, they have to accept a high degree of challenge. Another point of view with regard to the concept of market efficiency can be seen in Arnold (2012) as he implies that it is not sufficient to consider previous information when it comes to predicting future prices of stocks. In addition, the statements delivered by investors might influence share values on a particular day (Verheyden et al., 2016). However, even with a majority believing in the high efficiency of the market, a number of anomalies have occurred in the stock

market. In addition, there are still some possibilities and events that might have an essential effect on the efficiency of the market.

## **The Forms of Market Efficiency and the Empirical Tests**

### *The Weak Form*

Referring to the forms of market efficiency, three forms have been suggested by Malkiel and Fama (1970), i.e. the weak form, semi-strong, and strong form. First, the weak form indicates that the prices of stocks in the market reflect the previous records and past and historical information. Similarly, Brealey et al. (2020) stress that the first form might be due to the possibility of determining the stock price from the data with regard to the historical prices. There are many arguments about market efficiency in the weak form. A large number of empirical tests have been conducted by various economists in different periods and in several countries, in order to test this form and to discover whether the market is efficient or inefficient. Different kinds of tests have been used such as the runs test, auto-correlation function tests and serial correlation coefficients tests, and various results have been obtained for each test. Recently, one of these empirical tests aimed at verifying market efficiency in the weak form was a test that was carried out by Nwachukwu and Shitta (2015) and Rabbani et al. (2013) in Pakistan.

These researchers examined the EMH weak form on the market for emerging stock in the Karachi Stock Exchange. They took data for twelve years between January, 1999 and December, 2010 from the KSE 100 benchmark, divided into four three-year periods. They used four different tests in order to analyze the information. These tests were the auto-correlation function, the augmented Dickey-Fuller test, the runs test and the Phillip Perron test. The findings were that each of these tests rejected the efficiency of the market in the weak form with the exception of the runs test, which

indicated the efficiency of the stock market in the weak form for two periods of time, from 1999 to 2001 and from 2005 to 2007.

Thus, according to the results, the stock market in Pakistan is overall inefficient with regard to the weak form, and compensation is provided for traders in terms of facing increased risk. Furthermore, Gupta and Basu (2007) and Poshakwale (1996) emphasized that the market in the weak form is not efficient and, despite of the fact that barriers have been removed and reforms have been introduced with regard to investments, the market is still inefficient. This view was resulted from his experimental test on the Bombay Stock Exchange that was done using data from 1987 to 1994, and applying the runs test and the serial correlation coefficients test, both of which rejected the concept of weak market efficiency. In addition, he found obvious evidence of differences in the average profits on every single day of the week.

In contrast, it could be noticed from other several beliefs on the part of a number of economists, that markets in this form are likely to be efficient. As Brealey and Richard (2016) state, the market in the weak form tends to be efficient which might be as a result of the impossibility for investors estimating the future price of a security by basing it on historical statements. Therefore, none of the traders will be able to have the opportunity to earn abnormal profits. Thus, one of the essential reasons behind considering the efficiency of the market is that past values do not affect future prices.

This view is also emphasized by Malafeyev et al. (2017) when they point out that “markets have no memory”. By this, they suggest that future stock prices might take various paths in terms of what they were previously. In addition, historical information does not have any impact on future values. Consequently, traders are unable to obtain any information with regard to future prices based on the sequence of historical prices. Also, current security prices that already reflect past records or information cannot affect or be

reflected again in future prices. An important support for this form is the “random walk” literature as explained by Malkiel and Fama (1970). This implies that present or past news, no matter whether it is positive or negative, is not associated with future news. Barnes (2016) states that investors will have the opportunity to obtain a very high rate of profit without any effort if they could predict tomorrow’s prices through concentrating on and looking at the movement of past prices. However, this kind of effortless earning cannot be permanent.

According to Malkiel and Fama (1970), a large number of weak form empirical tests have been undertaken in order to determine the efficiency of the market, and the results of the majority of these tests were extremely positive in their support. The following is an empirical weak form test that was utilized by Rosenthal (1983) according to information he took from markets in developed countries. He tested the efficiency in terms of foreign shares that were traded in the USA in the form of American Depository Receipts (ADR). This test was done by taking information from the period between 1974 and 1978. In addition, a run test and a serial correlation test were used. He tested the efficiency of the weak form of the listed and NASDAQ traded ADR sample. The point is that both tests were harmonious in terms of the efficiency of the weak form.

### *The Semi-strong Form*

The second form is known as the semi-strong form. This form reflects the prices of securities by utilizing in addition to past information, the available public information with regard to the firms involved which is accessible to public investors. Such as new security issues in the market, public announcements related to stocks, the decisions that might affect the security values and annual



financial statements (Malkiel and Fama, 1970). It can be said that the market in the semi-strong form could be efficient.

According to Arnold (2012), using and analyzing the overt information on the part of traders for forecasting future prices would not be useful. As a result, the reflection with regard to public information has already happened in terms of the current stock prices, and this public information has already been realized by the majority of investors. Similarly, Pilbeam (2010) implies that it is not possible for traders to analyze the available information in a firm's report in order to obtain abnormal returns in the future because, as soon as this positive or negative information is published, the market prices will be modified based on such information.

Therefore, investors will not be able to forecast future prices by analyzing the current available data. The efficiency of the market has also been emphasized by Chun and Kim (2004) by supporting the random walk model and implying that, despite the fact that certain anomalies have occurred, for example "Calendar Effects", nevertheless, the means that have been used to predict future prices have been totally worthless in terms of beating the theory of random walk. Also, the EMH prevents the possibility of predictions in the market. To be more precise, in order to determine the efficiency of the market as it is, the exact current value could be considered as the best forecast for the level of value in market for the coming time period.

Groenewold and Kang (1993) tested the semi-strong form of the EMH by analyzing data from the Australian stock market for 1980. They based their empirical test on the benchmark of aggregate stock price by collecting monthly data from the Australian security market and utilizing macroeconomic data for the test. The result generally supports the efficiency of the market in the semi-strong form for the Australian share market. However, it should be taken

into account that the period of this empirical test was before the several bubbles that subsequently occurred.

Furthermore, it can be argued that from several other points of view, the level of the market in its semi-strong form might not be efficient. In addition, it does not make sense while considering the financial circumstances at the current time. According to Shiller (2003), although investors should not be able to acquire extreme profits in the semi-strong model, several traders were able to earn abnormal returns. This could be as a result of irrational behavior on the part of a number of security owners, which caused some bubbles in the market that enabled some traders to obtain high profits in the stock market.

The real estate bubbles that were mentioned by Sornette and Woodard (2009) for example are one of certain common bubbles that have happened recently and have had an influence on the present financial circumstance in the stock market worldwide. In addition, it had a significant role to play behind the mortgage crisis in 2008. This happened in the USA in particular, and in several other countries in general. The investor's conduct may have an important impact on these kinds of bubbles. As Shiller (2003) mentions, market efficiency could have a role in making investors misunderstand the phenomenon. Because of this, public announcements may not be analyzed immediately by investors in order to reflect the values at the same period and on the same day.

In addition, the market might not be affected promptly by the news. This might be as a result of the irrationality on the part of some investors. Such irrational behavior is a kind of "behavioral finance" which has a significant effect on market efficiency, and could cause several bubbles, due to the fact that several investors who own shares in the market might show irrational behavior such as a lack of confidence or overconfidence, while observing an announcement and analyzing the announcements slowly.

This happens due to of a lack of experience on the part of these traders in dealing with their own securities (Shiller, 2003). Thus, this could offer the rational investor the chance to earn abnormal returns. As emphasized in Shiller (2003), by stating that several exceptions might be seen in terms of the market efficiency concept, which could be caused by certain conduct on the part of some irrational traders that is known as behavioral finance such as an overreaction or an under reaction to a public announcement or company news.

### ***The Strong Form***

The third form of the market efficiency concept is the strong form. According to Pilbeam (2010), this form relies on the fact that security prices are considered by using the past or historical information and public announcements as indicated the semi-strong form. In addition, confidential or private information that has not been announced yet to the public, and could only be realized by company insiders such as senior managers or some other users. In other words, the complete information reflects on the current stock price in the market. As Bodie and Kane et al. (2011) suggest, certain company officers could obtain high profits by accessing related information and trading on it before the public investors have access to this information. There is a controversial debate with regard to the efficiency of this form.

Potocki and Swist (2012) state that the strong form could be more complex to verify than the other two EMH forms, as it needs non-public data to be used in this form. Moreover, Arnold (2012) claimed that even those people who might be able to obtain important data inside the company in the strong form, will not be able to predict future share prices and gain above-normal profits. Moreover, in order to verify the existence of strong market efficiency, an empirical test has been utilized by Potocki and Swist

(2012). They based their test on the supposition that recommendations are issued by organizations that have access to certain data that are unavailable to groups of traders.

The sample used in their study consisted of 3,270 recommendations which were produced by 63 financial entities for the period between 1-January, 2005 and 31 March, 2010 in the Warsaw Stock Exchange. From this there were indications with regard to the firms involved that consisted of a total of 20 benchmarks. The results obtained from their tests suggest that the total 20 index stocks that were listed in the Warsaw Stock Exchange are distinguished by efficiency in the strong form.

However, Brealey et al. (2020) states that many researchers believe that markets in the strong form are very likely to be inefficient. This is due to the fact that there are a certain number of people, such as the managers or insiders, who might be able to access the private information of the company, and this is not available to everyone. Consequently, only those certain people would be aware of this private information before the general public, and then they might be able to obtain high profits. As Pilbeam (2010) states, by considering a number of insiders who have access to specific information that is not available to the general public, it can be seen that a significant profit can be made by them when trading in the market.

Furthermore, Rahman et al. (2016) implies that when a company intends to issue new statements, for example, with regard to the merging of two firms or any other action that might affect security prices, the senior managers or some insiders will be the first to obtain this information before public investors do and even before this information has been announced. Moreover, they will predict the movement of future share prices by analyzing this information. Thus, this might create a kind of lack in confidence on the part of traders, because they will start to feel that the insider is

obtaining a profit more than they are. Eventually this will lead the normal investors losing their confidence in the stock market which could cause a suffering in community. However, it should be noticed that some efforts have been made in certain countries to prevent and prohibit insiders and managers from trading in the stock market. For instance, some procedures were put into place by the UK authorities in the past to avoid this lack of confidence. As noted by Arnold (2012), in 1980, insider dealing in the UK was considered to be a criminal offence.

Thus, this action in the UK contributed substantially to a revival in confidence on the part public investors in the market. As a result, the UK prevented any type of insider dealing, whether it involved investors utilizing confidential information for their own benefit, or for giving advice to another person in order to trade in the shares or securities. Similarly, as Bodie et al. (2011) state, the Securities and Exchange Commission tries to focus its activities on the prevention of insiders exploiting their ability to earn high profits. Thus, it could be said that all these efforts aimed at limiting insider dealing might be useful in order to make the market more efficient.

### **A Critical Review of Efficiency Market Hypothesis**

The existence of EMH today is being questioned in explaining the phenomena of capital market, specifically in explaining how the price of financial asset is determined. Based on the several assumptions and previous findings mentioned in this study, we support the view of market efficiency in its weak form, and believe that trading within this form is more likely to be efficient than the other forms. We strongly agree with Malafeyev et al. (2017) that “markets have no memory” and emphasizing on the point that future security prices would probably take different paths in terms of what they were previously. In addition, we have seen that it is

vital to support the literature of “random walk” by Malafeyev et al. (2017) which emphasize on that the present or past news is not related with future news. Moreover, the investors are not able to obtain abnormal high profits unless facing a high degree of risk.

However, in terms of the semi- strong form, and after the occurrence of recent anomalies, we believe that the market is most likely to be inefficient. The main reason of this is due to “behavioral finance” as the irrational behavior of some investors could significantly affect the stock price in the market and led the rational investors to earn abnormal returns. Similarly, as long as the insider trading has not been limited or prevented in several countries, and some investors are still able to access private information, we believe that the market is far from being efficient in its strong form.

## **Conclusion**

In conclusion, this paper has reviewed the concept of market efficiency in terms of different aspects, by critically addressing various beliefs on the part of economists. It has also discussed critically the three forms of Efficient Market Hypotheses and indicated that each one of these three forms reflects the share price according to certain information, such as historical information and public and non-public information. In addition, it can be seen from the majority of beliefs of various researchers, that it is too difficult to make a judgment regarding to the efficiency of the market in each of its form, regarding the possibility of investors predicting future stock prices in order to obtain abnormal profits.

This could be as a result of the variations in the information available that reflects on and affects stock market prices. Furthermore, we have shown the results of a number of previous and recent empirical tests which have been undertaken by several researchers in different countries, in order to verify the efficiency of the security market in each form. Finally, it can be argued that,

according to some empirical tests that have been mentioned in this paper and, in general, the beliefs of a number of economists that the market in its weak form is more likely to be efficient than the semi-strong and strong forms, due to the impossibility of traders using and analyzing past records in order to predict future security prices and obtain above-normal profits. In addition, share values reflect a fair price.

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