EFFICIENT CAPITAL MARKET *

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Abstract: A market in which prices always "fully reflect" available information is called efficient. The most important issue regarding efficient market theory is that it is not possible to outperform the market over the long-term. An efficient capital market is characterized by the fact that any information is available to all investors or market participants, so stock prices always incorporate and reflect all relevant information. Due to this issue, the price of a stock should reflect the knowledge and expectations of all investors or market participants. Strictly speaking, the efficient market theory seems a utopian and unrealistic theoretical composition, but beyond Its critics, efficient market theory reaches profound meanings and revolutionized the field of investing.

JEL Classifications*:* G1, G11, G14

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1. INTRODUCTION

One of the most controversial issues in the recent past is probably whether the capital market can be predicted in a satisfactory manner or not. Capital markets are very complex and unpredictable. Capital markets' chaotic behavior and non-linearity, complication and uncertainty, unexpected booms and crashes are some of the most challenging problems. Some researchers are suggesting that such complexity is an intrinsic characteristic of such system. Despite all these considerations, an efficient capital market it is assumed that is a market where the stock prices reflect new information accurately and in real time.

Efficient market theory was a revolutionary concept which had became very important and widely accepted since the early 1970s. However, the concept of efficient capital market is sometimes perceived as a utopia. This is a consequence of the fact that the current reality reflects a different and globalized world, which is constantly changing and progressing.

2. A THEORETICAL APPROACH

Efficient market theory was formulated by Eugene Fama in his article "Efficient Capital Markets: a review of theory and empirical work" published in 1970, in which he made a synthesis of previous research regarding the predictability of capital

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markets. He also presented very clear the notions of fair game and random walk. According to this theory, the efficient market is the market that has the ability to adapt quickly under the impact of the latest information available. In other words, financial securities price shall be adjusted rapidly as new information becomes available on the market.

Eugene Fama said : "The ideal is a market in which firms can make production-investment decisions and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time "fully reflect" all available information. A market in which prices always "fully reflect" available information is called efficient" (Fama, E., 1970).

Fama argued that, since everyone has access to the same information, it is impossible to regularly beat the market, because that stock prices are, in fact, efficient, reflecting everything we know as investors.

The concept of efficient market was anticipated long time before through the work of researchers such as G. Cardano (1564), R. Brown (1828), J. Regnault (1863), Rayleigh (1880), John Venn (1888), L. Bachelier (1900), Einstein (1905), F.W.Taussing (1921), J.M. Keynes (1923), A. Cowles (1933), M. Friedman (1953), M.G. Kendall (1953) and P.A. Samuelson (1965). Interestingly, in most cases, the subject of the research not targeted financial market or stock exchanges.

For example, the italian mathematician Girolamo Cardano claimed, in his paper "Liber de Ludo Aleae" published in 1564 that : "The most fundamental principle of all in gambling is simply equal conditions, e.g. of opponents, of bystanders, of money, of situation, of the dice box, and of the die itself".

The Scottish botanist Robert Brown, observed during a laboratory experiment that grains of pollen suspended in water registered a rapid, oscillatory and disordered motion which changes very fast its trajectory. This kind of behavior is specific to the capital markets and is known in the literature as Brownian motion. Based on this concept, in the year 1863 the french broker, Jules Regnault identifies a fundamental property, namely that the price deviation is directly proportional to the square root of time.

A significant contribution in the development process of modeling and prediction of phenomena on the financial market had the french mathematician Louis Bachelier by publishing his PhD thesis "Théorie de la speculation" in the 1900. In the introductory paragraph of his PhD thesis, he wrote that: "past, present and even discounted future events are reflected in market price, but often show no apparent relation to price changes". Using statistical methods, Bachelier deduced that the mathematical expectation of the speculator is zero. He also made a very important notice: "if the market, in effect, does not predict its fluctuations, it does assess them as being more or less likely, and this likelihood can be evaluated mathematically".

Similar considerations had another researcher Paul Samuelson, who wrote in his paper called "Proof That Properly Anticipated Prices Fluctuate Randomly" that: "in competitive markets there is a buyer for every seller. If one could be sure that a price would rise, it would have already risen. Arguments like this are used to deduce that competitive prices must display price changes over time, $X_t _X_{t+1,}$ that perform a random walk with no predictable bias."

I have compiled this brief foray into the area of research that preceded the formulation of efficient markets theory to capture the evolution of the main notions and concepts that will mark the effort of the capital market modeling. On the other hand,

capital market modeling is directly tied to the efficient market hypothesis, a concept also found in conjunction with the rationality of the market participants behavior.

The central idea of the efficient market theory is that any information is available to all investors or market participants, so stock prices always incorporate and reflect all relevant information. Due to this issue, the price of a stock should reflect the knowledge and expectations of all investors or market participants. Because of that, except for long-term investment trends, future stock prices are difficult, if not impossible, to predict. In other words, an investment strategy based on past stock prices cannot preview future prices, no matter how complex and deep would be.

Eugene Fama defined market efficiency in a very accessible manner: "In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value."

The essence of the efficient market concept was reflected in a very plastic manner by Malkiel in his book "A Random Walk Down Wall Street": "the market prices stocks so efficiently that a blindfolded chimpanzee throwing darts at the Wall Street Journal could select a portfolio that would do as well as those managed by experts".

A market is efficient with respect to information set Ωt if it is impossible to make economic profits by trading on the basis of information set Ωt (Jensen, M. 1978).

The idea mentioned above is sustained by the following definition. Malkiel said that a capital market is said to be efficient if it fully and correctly reflects all relevant information in determining security prices. Formally, the market is said to be efficient with respect to some information set, Ωt, if security prices would be unaffected by revealing that information to all participants. Moreover, efficiency with respect to an information set, Ωt, implies that it is impossible to make economic profits by trading on the basis of Ωt (Malkiel, B, 1992).

The concept of market efficiency is divided into three categories:

- allocational efficiency
- operational efficiency
- informational efficiency

Allocational efficiency implies the optimum allocation of resources according to the concept of Pareto optimality and it is established so that it is equivalent to the marginal rates of return, adjusted for risk, with respect to all market participants. In other words, a market is organizational efficient if it is not possible to change the allocation of resources in such a way as to make some participants better off without making others worse off.

Operational efficiency is reached when the transfer cost of financial funds is reasonable, being determined by a high number of participants on the market and by the mechanism which contributes to the assurance of equilibrium prices.

Informational efficiency is represented by the situation in which prices fully reflect all available information concerning financial assets and characteristics of the market in question. The degree to which market prices reflect information in a quick and adequate manner and thus the true value of an underlying asset. In a less

sophisticated vision, the informational efficiency is defined as the speed and accuracy with which prices reflect new information.

Houthakker and Williamson specify the importance to distinguish between "an informationally efficient market" and "an operationally efficient market". In accordance with the efficient market theory, an informationally efficient market is characterized by the fact that all information available at any time is fully reflected in current prices. On the other hand, an operationally efficient market is a market is a market where trades are executed at the lowest possible cost and transaction costs are minimal.

In an informationally efficient market, price changes must be unforecastable if they fully incorporate the expectations and information of all market participants. In other words, if stocks were predictable and not uncertain, it would therefore be possible to take action in order to generate systematic gains. But exactly these issues made the stocks uncertain and unpredictable. The prices depend on a summation of so many small and relatively independent sources of variation that the result is like a random walk (Samuelson, P., 1965).

Eugene Fama classified information efficiency in three categories:

- Weak Form Efficiency
- Semi-strong Form Efficiency
- Strong Form Efficiency

The weak form efficiency is characterized by the fact that the current price of a financial asset reflects the historical financial information available on the market, which includes the following categories: quotations from the past, financial assets return or the typology of the market. In this case, all past prices of a financial asset are reflected in present stock price. The weak form efficiency implies that no profits can be made based on the values obtained in the past. In weak-form efficiency, future prices cannot be predicted by analyzing prices from the past and is defined as the case where the information set includes only the history of prices or returns themselves. However, in this case technical analysis is useless and it cannot be used to predict stock prices.

The semi-strong form efficiency includes the weak form efficiency because both public information and historical information are already reflected in current market prices. So, this form suggests that prices reflect all relevant information that is publicly available. The semi-strong form efficiency emphasizes that an investor cannot achieve excess returns by trading on any available information due to the fact that all public information is very quick reflected in prices after it has become available. Compared to the weak form efficiency, this form has the particularity that neither fundamental nor technical analysis can be used to achieve superior profits.

The strong form efficiency includes both semi-strong form efficiency and weak form efficiency. This form suggests that prices already reflect public information, historical information and private information. Because of that not even insider information could give an investor an advantage to achieve superior gains. These are the main features, without mentioning the fact that both technical analysis and fundamental analysis are useless in the case of strong-form efficiency.

3. CONCLUSIONS

The most important issue regarding efficient market theory is that it is not possible to outperform the market over the long-term. An efficient capital market is characterized by the fact that any information is available to all investors or market participants, so stock prices always incorporate and reflect all relevant information. Due

to this issue, the price of a stock should reflect the knowledge and expectations of all investors or market participants.

The question is if the efficient markets theory can be complied in the current financial and economic conditions? Or for each capital market typology, and here I am referring to the Financial Times Stock Exchange (F.T.S.E) evaluation criteria which proposes four categories of national capital markets: developed markets, advanced emerging markets, secondary emerging markets and frontier emerging markets?

Strictly speaking, the efficient market theory, and especially strong form efficiency, seems a utopian and unrealistic theoretical composition, just like Marxism principles or Black Hole Theory. Common sense has in fact somewhat understood that utopia does not quite agree with knowledge.

Beyond Its critics, efficient market theory reaches profound meanings and revolutionized the field of investing.

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