

MARKET EFFICIENCY AND INFORMATION

The theory of stock market efficiency, as defined by Fama (1970), according to which «a market is efficient if prices of the securities fully reflect not only all the information available but also all publicly available information», has been one of the most studied theories in the last 40 years. Fama determines several conditions: there are no transactions costs in trading securities, all available information is costlessly available to all market participants, and all agree on the implications of current information for the current price and distributions of future prices of each security. In such a market, the current price of a security fully reflects all available information. Consequently, the analysis of efficiency consists in testing this definition. The financial theory indicates that the challenging of efficiency requires that the non-predictability of returns is jointly verified, as well as the potential to beat the market. If both conditions are met, the market is considered to be inefficient.

In his definition Fama has used the important notion of "available information". He has taken into account the informational context as a whole which reveals itself to be too general and too wide for empirical verification. Consequently, the author has made a distinction between three types of efficiency, according to the type of information incorporated in prices or to the information contained in this informational whole. - The weak form: prices of the securities instantly and fully reflect all information of the past prices. Tests for the weak form efficiency are random-walk tests. They attempt to predict future returns on the basis of past returns. - The semi-strong form: asset prices fully reflect all of the publicly available information. Studies examine the speed of price adjustment to the announcement effect (stock splits, annual reports ...). - The strong form: asset prices fully reflect all of the public and inside information available. This form will not be examined in this paper. Faced with so many studies, Fama (1991) had changed the categories. The semistrong form (and strong form) changed its name to Event studies tests. The weak form was become tests for return predictability. More recently, authors have suggested a new classification. It is in fact a change of name. It includes parameters for the identification of information under analysis. Now, efficiency is examined both on the basis of information contained in prices, and on its origin.

First of all, "endogenous" information gathers all data collected from the market itself. These are quantitative data: time series for yields (prices, volatility, etc.), market financial and economic variables (exchange rates, etc.), trade frequency and the trading volume. All these elements are contained in the weak form. Endogenous information includes the weak form of efficiency and merges all the particular aspects of a financial market, such as volume and historical stock prices. These pertain to information inside markets, summarized under the designation of endogenous information, which means information relative to the market operators and to their specific exchange conditions. Then, "exogenous" information relates to public - or made public - information, similarly to the semi-strong form. These are qualitative data, published by a transmission channel called the media. It includes macroeconomic indicators for the sector concerned (such as commercial previsions, the social context, etc.) but also microeconomic data on the firm concerned (profits, changes of Directors,...), or with regard to the firm's sector (mergers, competitors acquisition, new technology,...). Exogenous information refers with an economic reality, the environment, the social context, the classic elements for financial analysis, the commercial reality. The analysis of efficiency, according to endogenous or exogenous information, is similar to the weak form or the semi-strong form. Nevertheless, it indicates immediately and clearly on the nature of information (quantitative or qualitative) but also on their origin (inside or outside of the market), in the light of the available information. This change of terminology is certainly a definite improvement in the way the analysed informational content in the "set of available information", is apprehended, just as Fama (1991) had previously done. The empirical literature has mostly focused on the validity of the efficiency hypothesis, on the basis of an accurate econometric analysis for a particular type of informational content. We are thus reviewing the results of the main techniques

used with regard to the efficiency hypothesis according to the examined informational content. The aim of this article is to make a survey of the research studies, methods and especially results on efficiency tests of the past 40 years. To this purpose, we shall examine efficiency on the basis of information used on the market (endogenous or exogenous), rather than the forms of efficiency (weak and semi-strong). The analysis of efficiency according to information rather than Fama's forms is merely a change of terminology. On the other hand it allows better understanding of the type of information being examined. Research studies have examined efficiency on the basis of endogenous information, through predictability tests on returns, variance ratios, long memory, and seasonal bias or on trading volume analysis. Each of these analyses is carried out with a specific econometric method which has evolved and strengthened with the successive authors. In the case of exogenous information, the evolution has been quite different. The method of analysis has remained unchanged since the first research studies on the topic of announcement effects. All these studies are always undertaken in the context of specific events. To this purpose, they use data from a great number of firms in order to study the announcement effect. Recently, some innovative research studies have broadened the scope of previous analyses. They have worked on manifold exogenous information, and no longer on the basis of a few announcement effects. They introduce an informational analysis to identify the informative content. The authors classify the different types of exogenous information according to the notion of 'informative coloration' defining the impact of exogenous information on returns. These authors show that the market does not immediately assimilate exogenous information into stock returns. These results significantly challenge efficiency with regard to exogenous information.

*Monika MOŚCIBRODZKA, Anna ĆWIAKAŁA-MAŁYS
Administration and Economics University of Wrocław*

THE USE OF CZEKANOWKI'S DIAGRAM IN A GROUPING OF PUBLIC UNIVERSITIES

Managing public universities depends to a great degree on effective management of economic information. Its presentation is particularly vital and it should be clear and open. These requirements are especially important in comparative analysis which allow to create rankings. The rankings allow to undertake certain actions in the area of evaluating situation of a unit with reference to other similar institutions, eg. those that are in a given group. Spatial analysis of costs can be used by internal and external decision-makers in a process of creating a new strategy of an effective usage of public sources. Obtained results should constitute a basis for further more detailed cause and effect analysis.

The aim of this work is to present possibilities of methods by which we can group budget units due to the level and structure of generated costs in order to rationalize politics of financing universities. This article is a continuation of conducted researches in the area.

The study was conducted in a spatial frame during two academic years and concerned 57 public universities of academic character. The researched universities were initially divided into six groups according to the following scheme: general universities, universities of technology, universities of economics, universities of life sciences, universities of physical education, and pedagogical universities. The research was conducted in 2004 and 2006. The data concerning structure of costs in particular years were standardised. A starting point for the research was a matrix of distance, defined as a certificated 'town'. Distance measuring instruments of this matrix were divided into five classes of similarities. Each similarity class were given graphic symbols which create so called chaotic Czekanowski's diagram.

A classification of public universities due to the level and structure of costs in a spatial frame was conducted with the usage of Czekanowski's diagram. This method is the oldest taxonomic