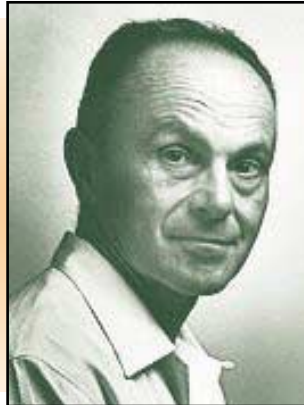


## EUGENE F. FAMA

doc. PhDr. Monika Šestáková, DrSc.  
 College of Management / City University European Programs

*The University of Chicago professor Eugene F. Fama is considered one of the most significant theoreticians in the field of business finance and capital markets. He is rightly called the father of "efficient capital market theory". Although Professor Fama has not yet been awarded the Nobel Prize for economics (as have other authors covered in the series "Profiles of World Economists"), it is quite possible that in the future he will be awarded this honour. He was after all*



*the co-author of the Theory of Finance (1972) together with M. Miller, who received the Nobel Prize for economics. The range of Professor Fama's works is rich and oriented on a broad range of issues in the field of financial theory and practice. A key issue however remains capital market theory, the formation of security prices and investment strategies at the capital market. We shall therefore concentrate primarily on interpreting these issues in Professor Fama's work.*

Eugene F. Fama was born on 14.2.1939 in Boston, Massachusetts. It is somewhat paradoxical that this world-renowned theoretician of economics and finance began his university studies in a quite different field, majoring in Romance languages at Tufts University, where he earned his bachelor degree in 1960. It was only afterwards that his orientation changed and he devoted himself, indeed his whole life, to economics and finance. He gained an MBA (1963) and PhD (1964) at the Graduate School of Business, University of Chicago.

The academic carrier of E. F. Fama has been incredibly fast. Only one year after gaining his MBA he presented his doctoral dissertation "The Behaviour of Stock Market Prices", which was also published in the renowned Chicago University Journal of Business (the whole of the 1965 January issue being devoted to this one work) and brought wide response not only from among theoreticians, but also from among the practising financial investment community. Eugene Fama became a professor at the University of Chicago even before reaching the age of 30. He developed a modern theory of the capital market in the

1960s- at a time when this theory had not yet been recognised as a scientific discipline. He also pioneered the use of computer technology in financial theory.

The list of varied domestic and foreign awards Professor Fama has gained is extensive. Besides diplomas in economics he also has two doctorates in law (University of Rochester, 1987 and dePaul University, 1989). This is understandable, given that the financial issues he has dealt with have important institutional-legal consequences. And moreover, he has devoted several papers also to issues concerned with the corporate organisation and governance and their interconnections with financial strategy.

At present E. F. Fama is a professor of finance at the Graduate School of Business, University of Chicago and since 1993 has also been the holder of the McCormick Distinguished Service Professor of Finance. He also is the head of the Centre for Research in Security Prices - CRSP. He works actively as an advisor in the field of financial investments and on the editorial boards of renowned American economic and financial journals.

### The essence of efficient capital market theory

At the start of the 1960s there was a widespread effort in US academic circles to find some sort of general law underlying the securities market, in particular the stock prices. There had already been amassed sufficient empirical data on the development of the capital market and there were also relatively (at that time) high performance computers,

making it possible to process this data and test various hypotheses. Signs emerged of what was later to become known as efficient capital market theory; though a generally accepted, codified capital market theory did not yet exist.

It was E. Fama who in his thesis offered precisely such a theory, and therefore it is no wonder that his work was received by academic circles with such enthusiasm. The position of practitioners at the capital market was however more



sceptical. Their efforts were focused on finding techniques that would enable them to beat the market and in this way achieve extraordinary profits. The efficient capital market theory, however, claims that no such thing is possible over the long term. Individual investors may temporarily achieve extraordinarily good (or extraordinarily bad) results, though in the long term these profits and losses balance out.

The essence of the efficient capital market theory is the thesis that security prices reflect all available information<sup>1</sup>, and investors always pay the correct price for securities of the respective risk class. Their role is just to decide what risk they are willing to bear in order to achieve the expected yield. With regard to this E. Fama identifies three different factors of risk (his theory is therefore sometimes termed the "three-factor model"), where the investor must decide on what is acceptable and preferable. This concerns the selection of the share of bonds and stock in a portfolio, the decision as to whether they want to concentrate on the stock of large or small firms and on the decision as to whether they want to aim at growth stocks (which for a certain time bear no dividend) or on value stocks, where the dividend payout positively influences the market value of the shares<sup>2</sup>.

Fama formulated the core of the theory of passive investors at the capital market, who merely copy the development of a market portfolio and try to have in their portfolios those securities (or at least a representative set of them) that are the basis of stock indices in a given period (mostly in a month). Many institutional investors (according to Fama at

least 40% of investors on the capital market) operate in this manner.

Fama claims that there is no sense in trying to beat the market through the stock picking, to speculate on their rise or fall (according to whether at a given moment they seem undervalued or overvalued). It is enough merely to monitor prices and adapt the portfolio to the market index. There is no generally applicable theory that would enable the development of individual share prices to be predicted. This development is purely random. Managers who operate a passive investment policy are in fact not passive, but through flexible adaptation of their portfolio to the market situation best serve the interests of individual investors.

### How efficient capital market theory has weathered the test of time

In financial theory and in particular practice criticism is often made through highlighting various anomalies in actual behaviour of securities prices. Various authors have also attempted to empirically test the hypotheses on which this theory is based.

The subject of research became primarily the question as to whether security prices sufficiently flexibly reflect relevant facts, whether there is a long term under-valuation or over-valuation of certain securities. Were this to occur, speculation with individual securities could lead to a long-term higher return than that achieved through passive investing.

In the 1980s and 1990s in the USA behavioural financial theory<sup>3</sup> gained popularity, which attempts to derive certain generally valid conclusions for financial theory from investors behaviour over the long term. For example according to F. M. DeBontd and R. Thaler investors who over the preceding three to five years achieved extraordinarily high returns, in following years suffer losses and vice-versa. According to this hypothesis the market overreacts to past returns, which ultimately leads to a reversal of any trend.

To this Fama remarks that too overreaction in practice occurs almost as often as underreaction and that eventually the market corrects inappropriate reactions. The behavioural approach does not provide generally valid conclusions that might be an alternative to the efficient capital market theory.

<sup>1</sup> We have dealt with the assumptions of the efficient capital market theory also in another article in the "Profiles of World Economists" series. See: Šestáková, M. Merton, H. Miller, BIATEC, 2002 no. 8, pgs. 22 – 24.

According to what information is reflected in security prices three forms (or levels) of market efficiency are usually differentiated. The first, the so-called weak form, assumes that existing prices reflect all information on the past development of security prices. Technical analysis of past trends is simply a waste of time and money. The second, so-called semi-weak form, assumes that prices react flexibly to all publicly available (published) information – for example in the annual reports of corporations, their strategic objectives, etc. This thesis has essentially been confirmed also by empirical research. Finally, the third, the so-called strong form of efficiency means that prices reflect also other information on the performance of firms, which may be gained by means of fundamental analysis.

<sup>2</sup> E. Fama deals with these issues in more detail in a series of articles published jointly with K. R. French in the Journal of Financial Economics and the Journal of Finance over the years 1993 – 1996.

<sup>3</sup> See for example Thaler, R. H. (ed.): Advances in Behavioral Finance, Russel Sage Foundation, New York, 1993.



Anomalies are essentially a matter of chance, where an important role in identifying anomalies is played also by the methodology used.

The New York Stock Exchange crash in 1987 is often given as a practical example of capital market inefficiency. On a single day October 19th, 1987 ("Black Monday"), the Dow Jones index of industrial corporations fell by 23 points and in its wake several foreign indices fell by even higher values. There are various interpretations as to why this fall occurred. In Fama's opinion this case was a mistake, there did not exist any principal information that would have required such a large break in security prices. This still however does not mean that the efficient capital market theory is invalid. It is possible that securities prices were before overvalued, and then reached a normal level. It cannot convincingly be proven whether the price of an individual security is undervalued or overvalued, the development of these prices is random. It is interesting that the stock exchange crash did not change essentially the relative prices of individual securities. And it is in this field of relative prices that the efficient capital market theory has its focus from the aspect of its importance for investors. Prices apparently continued to reflect relevant information and attempts to beat the market again cannot be successful over the long term.

Even though the basic paradigm of the efficient market is still valid, the efficient capital market theory has over the past decades undergone a certain development. E. Fama himself sees this development primarily in the deeper understanding of the various dimensions of risk. The traditional capital asset pricing model (CAPM) recognises actually only one dimension of risk, sensitivity to market return or the so-called market beta. This approach is still popular. In Fama's view however a more complex model is necessary, one that would include the various dimensions of risk.

We have already mentioned above the three

dimensions of risk (the so-called three-factor model). The volatility of security prices can have various causes and different sources of risk are reflected differently in market prices. Returns on so-called value stocks in essence do not fluctuate more than those on growth stocks, but this will be reflected in prices in a different manner. Historically, according to Fama, investors can do better by tilting their portfolio in value direction.

Special sources of risk arise in international investing, where it is necessary to take into consideration different income taxation systems. As regards emerging capital markets, return volatility is too high and in Fama's view it takes roughly one hundred years before it is clear whether investors are compensated or not.

In sum it is shown that the efficient capital market theory has successfully survived the attacks of critics and still fills the role of the most general theoretical basis that may be useful also for the practical decision making of investors and financial managers in business.

It is true that this theory is based on the assumption of a developed market economy and requires also the fulfilment of certain institutional requirements (for example in the functioning of the stock market and various financial institutions, in legislation for providing information to investors etc). It cannot mechanically be applied to emerging capital markets in transforming economies. It would perhaps be absurd to assume that share prices in these capital markets actually reflect all relevant information. Nevertheless, sooner or later these markets will have to develop and approach the criteria of an efficient market.

The conclusions of the efficient capital market theory can however already today be instructive for our collective investment institutions (for example mutual funds), which purchase foreign stock and attempt to implement an active portfolio management policy – often to the detriment of their shareholders.

#### E. F. Fama – the most important publications

- Fama, E. – Miller, M.: *The Theory of Finance*. Holt, Rinehart and Winston, New York 1972.
- Fama, E.: *Foundations of Finance: Portfolio Decisions and Securities Prices*. New York, Basic Books., 1976
- Fama, E.: *Market Efficiency, Long-Term Returns and Behavioral Finance*. *Journal of Financial Economics*,

September 1998, pp.. 283-30 (This article was awarded the prize for the best paper in the areas of capital markets and assets pricing, published in this journal)

- Fama, E.: *Perspectives on October 1987, or What Did We Learn from the Crash*. In: Kamphuis, R.W. – Kormendi, R.C. Watson, J.W.H. (eds.): *Black Monday and the Future of Financial Markets*. Homewood: Dow-Jones-Irwin, 1989.