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THE MARKET DUALISM IN DYNAMIC MODELING

Historical series of financial instruments have served as an object of applied research in financial econometrics for a long time, and the presence of the cyclic changes in the historical observations is recognized by both economists and researchers. Due to the fact that these cyclic changes do not have strict periodicity they do not provide practical benefits in terms of the ability to build a forecast of future dynamics. Econometrists prefer the waves length in a few years. As a rule, causes of cyclic changes are economic (more rarely socio-political). Adherents of the dominant influence of external factors are at times less and the most frequent reason for explaining market periodicity here is the periodicity of sunspots that correlates with many phenomena as well as in society and in the climatic area. Shorter and widely known cycles - Moore cycles explain business cycles for fluctuations in yields which, in its turn, depend (after Moore) on the distance between the Earth and the nearest large planet [1].

In contrast to the econometric approach the efficient market theory that underlies the stochastic modern market theory denies the ability to predict market dynamics using methods of mathematical statistics. Naturally the question arises: how opposite are these two approaches?

The development of science shows the growth of the unity of the synthesis of knowledge, the enrichment of natural and social sciences, the historical process of joining the various separate scientific knowledge in a single picture is traced. The principle of complementarity suggested by N. Bore [3] was a logical continuation and generalization of previously suggested principles of compliance and uncertainty. V.Heisenberg justifying the uncertainty principle in radiophysics 1927 noted: “Naturally both pictures (wave and corpuscular) exclude each other mutually so as a defined object cannot be both a particle and a wave at the same time... But both pictures complement each other.” [3]

In continuation of Kant's ideas about the world nature dualism we suggest to extend the principle of complementarity in the area of market research considering the price of the asset both a random variable and a carrier of certain determinism, as well as the market as a whole cannot be regarded as extremely effective (arbitrage-free) and only inefficient, i.e. contains patterns that can be identified and used for prediction [4]. We can assume that seeing different sides of the same coin in different periods of time, we become alternately supporters of one of the theories - in the role of technical analysts agreeing with the postulate of random walks of prices, as designers who follow the ideas of fundamental analysis – allowing the existence of explaining factor arguments.

Following the principle of complementarity articulated about market processes we can speak of as different qualities (randomness and determinism) market that exist in different historical periods and about these two, at first sight contradictory qualities simultaneously present in the market nature. The econometric approach to market analysis considers deterministic and random components as mutually exclusive, thereby limiting the set of mathematical methods that can be used to analyze market dynamics.

Thus, the proposed rates of certain financial instruments at the same time should be considered random (given the randomness of news affecting the price change, including the size of orders) and deterministic (for example, when market makers have information about future prices and reinforce or extinguish general dynamics). Resulting from this approach the arsenal of mathematical techniques that can be used for analysis and dynamics modeling of the market indicators becomes wider than in the case of using only one of two existing approaches.

List of used sources:

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