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FRACTAL ANALYSIS OF WORLD CAPITAL MARKETS IN THE CONTEXT OF THE GLOBAL FINANCIAL CRISIS

The modern financial theory and methodology of researches develops extremely fast rates, but paradigms, models and principles which it offers in scope of modern scientific analysis, not always precisely and authentically describe the sophisticated complex processes. Therefore it is especially actual for the modern scientist – theorist or practicing one – resolving an imperative problem of optimization and transformation of existing directions of researches for more exact and deep researches concerning the dynamic processes in the world financial markets.

Classical methods of the analysis of the stock markets development (and share indexes as its key category) not always precisely and unequivocally describe such dynamic processes. First of all, it is related to, initial optimization and simplification of nonlinear models to level of the linear.

For a quite long time in the modern theory of the capital markets, so-called "efficient market hypothesis" and "random walk theory" dominates. As a matter of fact, these theories are not represented from a position of the analysis of the stock market as they contain a number of incorrect postulates (which incorrectness is proved empirically), namely:

1. Disinclination the investor risk.
2. Super confidence of the investor of own optimality.
3. Linearity of reaction of the investor on external changes.
4. Prevalence of rationality of the market over rationality of each its separate participant.

These and a whole number of other positions have only one purpose – to justify application of the calculations and linearity in the market analysis (including the share analyze). At the present stage development the efficiency of the nonlinear models is proved and substantiated by analyzing of the market, which in turn gives deeper and as much as possible exact results.

Within the bounds of this research we have carried out the nonlinear analysis of share indexes of leading world trading platforms and indexes of Ukraine and the Russian Federation, which, in our opinion, to a full measure contain and display a condition, dynamics and prognostics characteristics of the world and domestic capital markets.

Our research is based on nonlinear fractal analysis of dynamics of aforementioned share indexes from the position of the theory of chaos and "fractal market hypothesis".

The role of critical background basis of "efficient market hypothesis" in the given work play the theoretical analysis of standard deviations of indexes on the basis of empirical comparisons of normal distribution with distributions of their dynamic numbers acts, and the practical analysis based on the use of R/S – analysis and calculation of Hurst factors, the entropy and correlation indicators, and also some other parameters which unequivocally characterize and define nonlinear character of dynamics of investigated indexes.

"Persistence of index memory" estimations and predicted estimations of dynamics of investigated numbers in prospects with different terms are made.

The carried out research shows an inconsistency of modern methods of fundamental and technical analyses from a position of their unauthenticity and low level of correlation of the results received on the basis of their modelling use, with real data.

Summarizing, the carried out research shows expediency and rationality of the theory of chaos application and methods of fractal analysis in comparison with quantitative likelihood methods by estimation and forecasting of dynamics of share indexes and in researches dealing with capital markets.

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