

Aleksander Jakimowicz, Jacek Juzwiszyn

Balance in the Turbulent World of Economics

The stock market balance can be presented as a result of mutual effect of the supply and demand on the market. This creates high dynamics of prices for shares, what in turn leads to the appearance of the three-dimensional rotary trajectories of the market. The 3-D space is a Cartesian product: prices, volumes, and time. In this space whirling vectors form rotary-spiral trajectories and, they in turn, determine in the appropriate time periods side surfaces of solids of revolution, which rotate as well. Perpendicular projections of rotary trajectories on planes with standing out time axis cause that economic rotary phenomena are depicted on the mentioned planes by means of flat zigzags. Double rotating of economic vectors resembles precession movement. This is the precession movement which guarantees oscillating-rotating vectors around the hypothetical line of economic balance. Economic vectors are always set in rotary motion mainly by stimulating the vectors of demand and supply. Dynamically changing volumes of the mentioned forces cause that permanent state of economic balance practically do not exist in market reality. In the modified by the authors cobwebbed model states of fragile balance are explained by means of precession and accompanying it nutation. The rotary movement occurs universally in our world. The effects of vortexes from the world of nature are extremely quickly reflected in changing in chaotic way forces of demand and supply which in turn are the main generators of economic vortexes. Then the relationship is unambiguous and can be expressed by a short general statement claiming that vortexes generate vortexes regardless of the environment in which they occur. The resemblance between the rotary trajectories observed in hydrodynamics and the stock market rotary-spiral trajectory was the inspiration for creating the econophysical analogue of the so-called stock market Reynold's number (Re).