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Statistical Anomalies of the Project Cost and Stock Market Fluctuations ANATOLEY ZHELEZNYAK, DORU VELEA, Planning Systems Inc., VA — Based on the analysis of fluctuations of both project cost and stock market data, we identified some conditions when the statistics significantly depart from conventional distributions such as Heston and Ornstein-Uhlenbeck. Considering the Probability Distribution Functions (PDF) for subsets of fluctuations with the initial conditions corresponding to the extreme fluctuations, we found that the bell-shaped PDFs are gradually distorted and approach the form that is better approximated by the uniform distribution, once the magnitude of initial fluctuations is increased. Similar statistical anomalies were found from analysis of the stock market time series intra-day data. Considering the PDFs for different volumes, we found the similar distortion of the statistical regimes when the large volume transactions occur on the short time intervals, which potentially could be used as a viable tool for identifications of the extreme fluctuations. We believe that the fluctuations could be divided into two classes: the first class covering the majority of fluctuations that obeys the conventional statistical models, and the second class of the fluctuations having the entirely different statistical behavior and possibly belonging to non-Markov processes.

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