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Gordan Zitkovic* (gordanz@math.utexas.edu), Department of Mathematics, University of Texas at Austin, 1 University Station, C1200, Austin, TX 78712-0257. *Are option-pricing and utility-maximization problems well-posed?* Preliminary report.

The effectiveness of the utility-maximization techniques for derivative pricing or portfolio management rests on the ability to correctly estimate the parameters of the dynamics of the financial assets. In the setting of possibly incomplete financial markets, we investigate whether the small perturbations of the market coefficient processes lead to small perturbations in the pricing schemes and portfolio strategies derived from solutions to the related utility-maximization problems. Mathematically, we identify the topologies on the parameter-process space and the solution space under which the utility maximization is a continuous operation, and provide counterexamples showing that our results are, in a certain sense, best possible. Several novel results about the structure of the solution of the utility-maximization problem where the prices are continuous semimartingales are established as offshoots of the proof of the central result. (Received January 17, 2006)