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Igor Cialenco* (igor@math.iit.edu), Dep. of Applied Math, 10 West 32nd Str, Bld E1, Room 208, Chicago, IL 60616, and **Tomasz R. Bielecki**, **Samuel Drapeau** and **Martin Karliczek**.

Dynamic Assessment Indices.

Measuring the performance and risk of a given cash flow is one of the fundamental question in finance, being crucially important for all market participants. For a given portfolio, trading strategy, company value, or any other random cash flow, as time passes and new information arrives, it is important to know “how acceptable” is the relevant future cash flow. Traditionally the industry benchmarks of measuring performance and risk are Sharpe Ratio, and Value at Risk, respectively. Dynamic Assessment Indices (DAI) are measures of performance more general than both risk measures and performance measure. DAI is a function that takes as an input a process (a cash flow) and gives as an output another process (the performance or acceptability of that cash flow), which is quasiconcave, monotone and local (properties understood in the sense of L^0 -module theory.) We will present the robust representation theorem of DAI. Next, we will show how the general theory is applied to stochastic processes, with special emphasis on dynamic consistency property. Also, we will show how such measures can be used for finding arbitrage free bid and ask prices of derivative securities in models of discrete time markets with transaction costs. (Received August 14, 2013)