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Sufficient conditions under which SSD- and MR-efficient sets are identical. (English)

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Summary: Three approaches are commonly used for analyzing decisions under uncertainty: expected utility (EU), second-degree stochastic dominance (SSD), and mean-risk (MR) models, with the mean-standard deviation (MS) being the best-known MR model. Because MR models generally lead to different efficient sets and thus are a continuing source of controversy, the specific concern of this article is not to suggest another MR model. Instead, we show that the SSD- and MR-efficient sets are identical, as long as (a) the risk measure satisfies both positive homogeneity and consistency with respect to the *M. Rothschild* and *J. E. Stiglitz* ["Increasing risk. I: A definition", J. Econ. Theory 2, No. 3, 225–243 (1970; doi:10.1016/0022-0531(70)90038-4)] definition(s) of increasing risk and (b) the choice set includes the riskless asset and satisfies a generalized location and scale property, which can be interpreted as a market model. Under these conditions, there is no controversy among MR models and they all have a decision-theoretic foundation. They also offer a convenient way to compare the estimation error related to the empirical implementation of different MR models.

MSC:

91B16 Utility theory
91B06 Decision theory
91B26 Auctions, bargaining, bidding and selling, and other market models
91B30 Risk theory, insurance (MSC2010)

Keywords:

efficient sets; utility theory; generalized location and scale property; mean-risk models; second-degree stochastic dominance

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