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STATISTICAL CAUSALITY AND EXTREMAL MEASURES

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ABSTRACT. In this paper we consider the concept of statistical causality in continuous time between flows of information, represented by filtrations. Then we relate the given concept of causality to the equivalent change of measure that plays an important role in mathematical finance. We give necessary and sufficient conditions, in terms of statistical causality, for extremality of measure in the set of martingale measures. Also, we have considered the extremality of measure which involves the stopping time and the stopped processes, and obtained similar results. Finally, we show that the concept of unique equivalent martingale measure is strongly connected to the given concept of causality and apply this result to the continuous market model.

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