



SOCIETY OF ACTUARIES

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The Frequency of Drawdowns

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Drawdown, or maximum drawdown, measures the decline in value from a historical peak over a given period of time. It is one of the most frequently quoted indicators for hedge funds and commodity trading advisers. From risk management point of view, large drawdowns are considered as extremal events of which not only severity but also frequency need to be investigated. In this paper, we focus on the frequency of drawdowns.

Although the first drawdown over a prespecified size has been well defined and extensively studied in previous researches, identifying subsequent drawdowns appears to be controversial. We define two types of drawdown time sequences depending on whether or not a historical running maximum needs to be recovered. For each type, we study the distribution of the time of the n -th drawdown, the distribution of the running maximum and the value process at the n -th drawdown, the frequency rate of drawdowns, and many other quantities of interest.