

## Continuous Ocone Martingales as Weak Limits of Rescaled Martingales

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### Abstract

Consider a martingale  $M$  with bounded jumps and two sequences  $a_n, b_n$  to infinity. We show that if the rescaled martingales

$$M^{a_n, b_n}_t = \frac{1}{\sqrt{a_n}} M_{\lfloor b_n t \rfloor}$$

converge weakly, then the limit is necessarily a continuous Ocone martingale. Necessary and sufficient conditions for the weak convergence of the rescaled martingales are also given.

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