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Valuing American options by simulation: a simple least-squares approach. (English)

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Summary: This article presents a simple yet powerful new approach for approximating the value of American options by simulation. The key to this approach is the use of least squares to estimate the conditional expected payoff to the optionholder from continuation. This makes this approach readily applicable in path-dependent and multifactor situations where traditional finite difference techniques cannot be used. We illustrate this technique with several realistic examples including valuing an option when the underlying asset follows a jump-diffusion process and valuing an American swaption in a 20-factor string model of the term structure.

MSC:

[91G20](#) Derivative securities (option pricing, hedging, etc.)

[60G40](#) Stopping times; optimal stopping problems; gambling theory

[91G60](#) Numerical methods (including Monte Carlo methods)

Cited in **331** Documents

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