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Securities Pricing with Information-Sensitive Discounting

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(Submitted on 20 Jan 2010)

In this paper incomplete-information models are developed for the pricing of securities in a stochastic interest rate setting. In particular we consider credit-risky assets that may include random recovery upon default. The market filtration is generated by a collection of information processes associated with economic factors, on which interest rates depend, and information processes associated with market factors used to model the cash flows of the securities. We use information-sensitive pricing kernels to give rise to stochastic interest rates. Semi-analytical expressions for the price of credit-risky bonds are derived, and a number of recovery models are constructed which take into account the perceived state of the economy at the time of default. The price of European-style call bond options is deduced, and it is shown how examples of hybrid securities, like inflation-linked credit-risky bonds, can be valued. Finally, a cumulative information process is employed to develop pricing kernels that respond to the amount of aggregate debt of an economy.

Subjects: **Pricing of Securities (q-fin.PR)**

Cite as: **arXiv:1001.3570v1 [q-fin.PR]**

Submission history

From: Andrea Macrina [view email]

[v1] Wed, 20 Jan 2010 12:46:59 GMT (61kb,D)

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