Introduction

1.2 Numéraires and asset payoffs

$\sum_{j\in J}\alpha_{i,j}g_{i,j} - g_i$

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an investigation tool to uncover which type of pricing model a trader uses when quoting derivative prices.

Please insert **Figure 1 : Densities in the modified market model**

Please insert **Figure 2 : Densities in the modified Gaussian model**

5 Concluding remarks

We have presented a general approach for the valuation and the hedging of a book of interest rate derivative products, such as caplets. The proposed valuation is different from the usual approach based on continuously adjusted self-financing portfolios. In particular, we do not rely on a particular time evolution of the state variables and institutional assumptions such as frictionless trading. The usual dynamic approach makes it difficult to take into account observed prices, and is mainly aimed at providing a structural model that will be modified according to the information contained in observed prices. We conjecture that our static approach will tend to outperform the dynamic ones regarding the hedging performance. The hedge here directly involves short and long positions in assets with similar payoffs instead of a dynamic trading in the underlying asset. Of course, the quality of the static approach will depend on the one hand on the number of currently traded assets and observed prices and on the other hand on the quality of the a priori model.

Our main focus was interest rate products such as caplets. This is a rich framework to introduce different numéraires and provide simple general formulas for interest rate options. Our framework ought to be extended in order to take into account more general assets such as swaptions. However, this work involves technical difficulties since swaption payoffs depend on the whole forward curve and not only on a single Libor rate.

References

Avellaneda M.

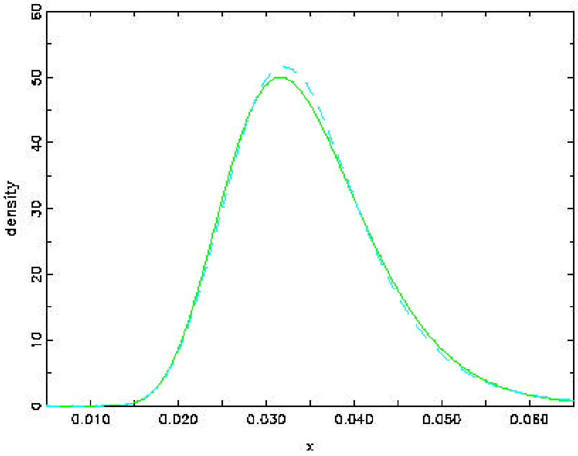

Figure 1 : **Densities in the modified market model**

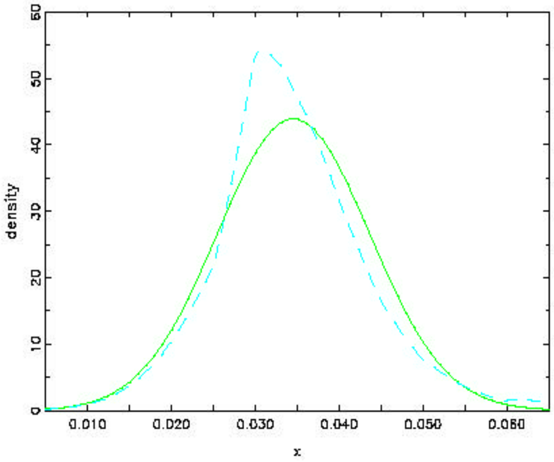

Figure 2 : **Densities in the modified Gaussian model**