



Department of Mathematics

## Numerical Mathematics and Applied Analysis Group Seminar (NMAA)

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### Turbo Warrants (Callable Bull / Bear Contracts) under Stochastic Volatility

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on Wednesday, September 6, 2006 at 2:30p.m.  
in Room 517, Meng Wah Complex, HKU

#### **Abstract**

Turbo warrants have experienced huge growth since they first appeared in late 2001. In Germany, buying and selling turbo warrants constitutes 50% of all derivative trading nowadays. In Asia, the Hong Kong Exchange and Clearing Limited (HKEx) introduced the callable bull/bear contracts, which are essentially turbo warrants, to the market in 2006. Turbo warrants are special types of barrier options in which the rebate itself is a path-dependent option. It is commonly believed that turbo warrants are less sensitive to the volatility. Eriksson (2005, to appear in Risk Magazine) has considered the pricing of turbo warrants under the Black-Scholes model. However, the pricing and characteristics of turbo warrants under stochastic volatility are not answered so far. This paper investigates the valuation of turbo warrants considered by Eriksson (2005) but extends the analysis to the CEV, the fast mean-reverting stochastic volatility and the two time-scale volatility models. We obtain analytical solutions for turbo warrants under the aforementioned models. This enables us to examine the sensitivity of turbo warrants to the implied volatility surface.

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*All are welcome*

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