

SZU-YU PAI

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PUBLICATIONS AND PROJECTS

Pai, S. Y., 2013. *Modeling mortgages with prepayment penalties by numerical PDE methods.*

- By using finite element method to solve PDEs for mortgage price. The new methods can determine the profit region, which cannot be determined in paper of Sharp et al.

Pai, S. Y., 2013. *Modeling credit risk by numerical PDE methods in two dimensions with time depended threshold.*

- We developed a generalized method for both fixed and time depended default threshold and for arbitrary interest rate model. It can only be done with Hull and White's interest rate model in paper of Briys and De Varenne.

Pai, S. Y., 2012. *Modeling credit risk by numerical PDE methods in two dimensions with fixed default threshold.*

- By using BiCGStab method to solve 2D PDE in Longstaff and Schwartz's model. The numerical method is even faster than Longstaff and Schwartz's semi-analytic solution.
- We can have better performance compared with alternating direction implicit (ADI) methods by using BiCGStab method.

Pai, S. Y., & Kopriva, D. A., 2012. *Modeling credit risk by numerical PDE methods.* Pacific Basin Finance Economics Accounting and Management conference.

- Developing two methods, fixed meshes method and moving meshes method, to solve a one dimensional PDE with moving boundary, which is the default threshold of Black and Cox's structural model.

Fuh, C. D., & Pai, S. Y., 2010. *Arbitrage Detection from Stock Data: An Empirical Study.* Handbook of Quantitative Finance and Risk Management. Springer-Verlag, 1577-1591.