

1145-60-785

Weijie Pang* (wpang@wpi.edu) and **Stephan Sturm**. *XVA Valuation Under Market Illiquidity*.

Before the 2008 financial crisis, most option pricing methods ignored the effects of counterparties' default and funding illiquidity. Recently models were proposed to compute the total valuation adjustment (XVA) of a European claim, including funding costs, counterparty credit risk and collateralization. However, those models abstract from an important fact: the repo market froze during the 2008 financial crisis, because of the rarity of general collateral and loss of confidence in other collaterals. The frozen repo market led to a shutdown of short trades in stock. Thus, it's very important to include the different behavior of repo and stock market in normal and financial crisis status. In our research we describe the switching between two financial status by an alternating renewal process, which switches between zero and one with inter-arrival times following exponential distributions. We develop a framework for pricing the XVA of a European claim in this state-dependent framework. We show the existence of a unique classical solution to the pricing BSDE based on a martingale decomposition theorem on a space generated by not-independent increment stochastic processes. (Received September 14, 2018)