BIG DATA & ALGORITHMIC FINANCE

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MODELING LIQUIDITY IN CORPORATE BOND MARKETS: APPLICATIONS TO PRICE ADJUSTMENTS

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To assign a value to a portfolio, it is common to use Mark-to-Market prices. But how to proceed when the securities are illiquid? When transaction prices are scarce, how to use other available real-time information? In this article dedicated to corporate bonds, we address these questions using an extension of the concept of micro-price recently introduced for assets exchanged on limit order books in the market microstructure literature and ideas coming from the recent literature on OTC market making. To account for liquidity imbalances in OTC markets, we use a novel approach based on Markov-modulated Poisson processes. Beyond an extension to corporate bonds of the concept of micro-price, we coin the new concept of Fair Transfer Price that can be used to value or transfer securities in a fair manner even when the market is illiquid and/or tends to be one-sided.

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