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Theoretical and ML-Driven Identification of a Mispriced Credit Risk

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Abstract : Due to illiquidity, mispricing on Credit Markets is inevitable. This creates huge challenges to banks and investors as they seek to find new ways of risk valuation and portfolio management in a post-credit crisis world. Here, we analyze the difference in behavior of the spread-to-maturity in investment and high-yield categories of US corporate bonds between 2014 and 2023. Deviation from the theoretical dependency of this measure in the universe under study allows to identify multiple cases of mispriced credit risk. Remarkably, we observe mispriced bonds in both categories of credit ratings. This identification is supported by the application of the state-of-the-art machine learning model in more than 90% of cases. Noticeably, the ML-driven model-based forecasting of a category of bond's credit ratings demonstrate an excellent out-of-sample accuracy (AUC = 98%). We believe that these results can augment conventional valuations of credit portfolios.

Keywords : credit risk, credit ratings, bond pricing, spread-to-maturity, machine learning
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