

## **Application of Jump Diffusion Models in Insurance Claim Estimation**

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### **Abstract**

We investigated if general insurance claims are normal or rare events through systematic, discontinuous or sporadic jumps of the Brownian motion approach and Poisson processes. Using firm quarterly data from March 2010 to December 2018, we hypothesized that claims with high positive (negative) slopes are more likely to have large positive (negative) jumps in the future. As such, we expected salient properties of volatile jumps on the written products/contracts. We found that insurance claims for general insurance quoted products cease to be normal. There exist at times some jumps, especially during holidays and weekends. Such jumps are not healthy to the capital structures of firms, as such they need attention. However, it should be noted that gaps or jumps (unless of specific forms) cannot be hedged by employing internal dynamic adjustments. This means that, jump risk is non-diversifiable and such jumps should be given more attention.