

## **An Empirical Analysis of the Nikkei 225 Option Prices using by ARCH, ARCH-t and SV Model**

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In this paper, we predicted option prices using ARCH, ARCH-t and SV model. And we compared the forecast power of three models. From the analysis result, t distribution is better than normal distribution for the error of ARCH type model. But we could not say that ARCH-t type model is better than ARCH-n type model in the point of forecast of future option prices. Comparing with SV model and ARCH-n type model, ARCH-n type model is better. The best forecasting model to the option market prices is QGARCH-t and QGARCH-n model for call options, and EGARCH-n model for put options. In addition, the relation of the forecast power of these models depends on moneyness and changes. Especially, there are no differences in the forecast power of BS model and other models when the moneyness is deep-in-the-money. And the difference of the forecast power grows for deep-out-of-the-money options.