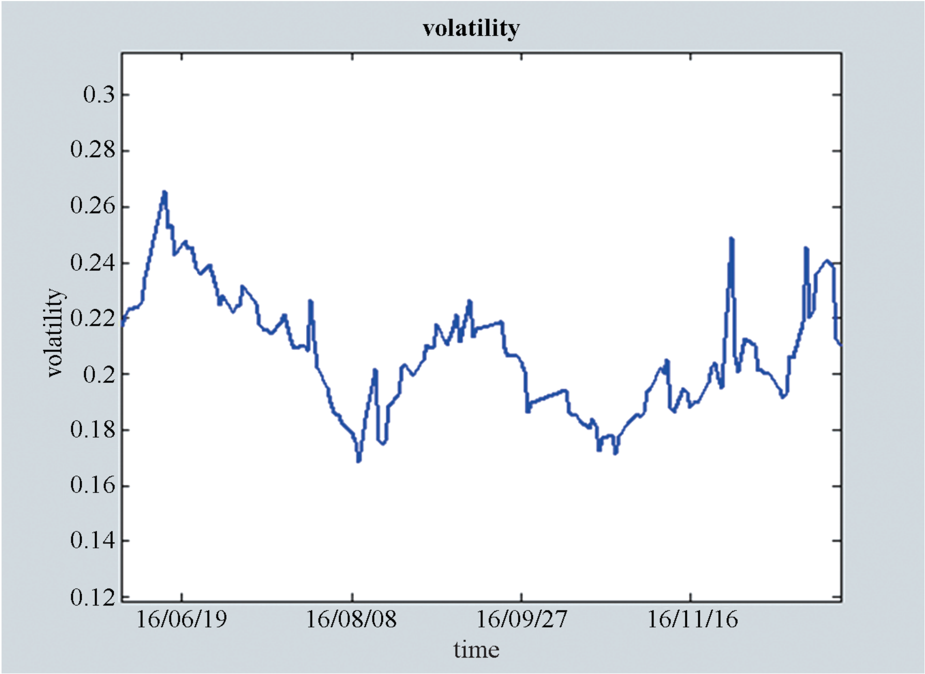

Figure 2
The Volatility of the Price of the 50ETF Stock Index

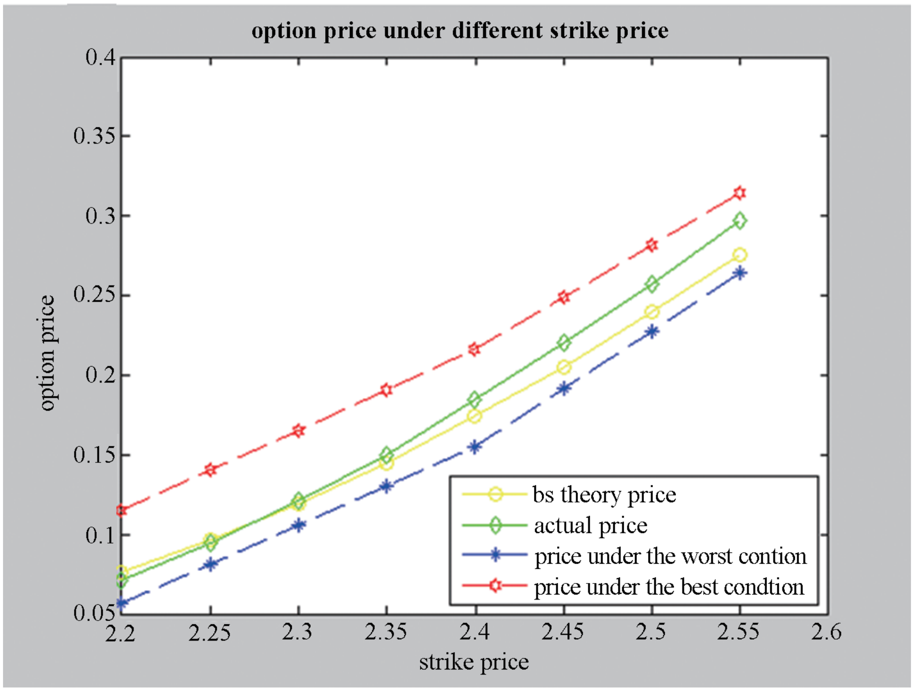

Figure 3
The Option Price Under Different Strike Price

Table1
The Option Price Under Different Strike Price

Strike price	2.2	2.25	2.4	2.35	2.4	2.45	2.5	2.55
Best conditon price	0.12	0.14	0.17	0.19	0.22	0.25	0.28	0.31
Worst condtion price	0.06	0.08	0.11	0.13	0.16	0.19	0.23	0.26
BS price	0.08	0.09	0.12	0.15	0.17	0.21	0.24	0.28

It shows that our model can successfully extend the estimation of option price from point estimation to interval estimation. It also fits the option in the real market better, which can help investors to make better decisions.

CONCLUSION

The main work of our paper is to consider the effect of transaction cost and tax in uncertain volatility models. We assume the volatility randomly changes in an interval and describe it as a stochastic control problem. By applying the HJB function, we transfer such stochastic control problem to a nonlinear partial differential equation. We find the viscous solution of nonlinear partial differential equations by numerical methods when transaction cost and tax exist. Finally, we successfully extend the estimation of option price from point estimation to interval estimation.

As for empirical research, we select the stock option of Chinese securities market as sample, and shows our model is applicable in the real market, which can help investors to make their decisions. The result of our empirical research shows that the uncertain volatility model with dividends, transaction costs and taxes generalizes the BS model, which extends the option price to an interval on different level of market fluctuation. In addition, our paper took transaction cost, tax and dividend into account, which proposed more precise pricing than former uncertain volatility model. The investors can combine the forecasting of future moving of volatility and the option price offered by our model to make their decisions, so it has good values.

For further research, we can use more precise modelling method of volatility to choose the interval of volatility and combine the market sentiment to make a more precise estimation of the interval of volatility.

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