# Forecasting exchange rate volatility: GARCH models versus implied volatility forecasts

Original Paper | Published: 09 May 2014

Volume 12, pages 127–142, (2015) Cite this article

International Economics and

Article | Open access
13 March 2018

Article | 16 April 2018

Chapter | © 2021

## Notes

1. A symmetric model means that when a shock occurs, we will have a symmetric response of volatility to both positive and negative shocks. Asymmetric models on the other hand, allow for an asymmetric response with empirical results show that negative shocks will lead to higher volatility than a positive shock.

2. Over fitting happens when the statistical model describes a random error or noise instead of the underlying relationship, causing biasedness in parameter estimates.

8. Bollerslev et al. (2001) argue that this type of volatility is an unbiased and very efficient estimator of return volatility.

9. It should be noted that the parameters $(\alpha + \beta)$ were less but close to unity, suggesting that the shocks are highly persistent and die out only gradually.

10. It should be noted that the parameters are “forced” to be positive since we are measuring the natural log of returns. In theory, the “EGARCH benchmark model” has an AR(1) mean equation, but in our case the parameters proved to be more significant using a constant mean equation.

## References

Balaban E (2004) Comparative forecasting performance of symmetric and asymmetric conditional volatility models of an exchange rate. Econ Lett 83(1):99–105

Article Google Scholar

Bildirici M, Ersin O (2009) Improving forecasts of GARCH family models with the artificial neural networks: an application to the daily returns in Istanbul stock exchange. Expert Syst Appl 36(4):7355–7362

Article Google Scholar

Bollerslev T (1986) Generalized autoregressive conditional heteroscedasticity. J Econ 31(3):307–327

Chen X, Ghysels E, Wang F (2011) HYBRID GARCH models and intra-daily return periodicity. J Time Ser Econ 3(1):1–28

Article Google Scholar

Donaldson R, Kamstra M (2005) Volatility forecasts, trading volume and the ARCH vs option implied volatility tradeoff. J Financ Res 27(4):519–538

Article Google Scholar

Dunis C, Laws J, Chauvin S (2003) FX volatility forecasts and the informational data for volatility. Eur J Financ 17(1):117–160

Google Scholar

Higgins M, Bera A (1992) A class of nonlinear ARCH models. Int Econ Rev 33(1):137–158

Article Google Scholar

Neely C (2009) Forecasting foreign exchange volatility: why is implied volatility biased and inefficient? and does it matter? J Int Financ Mark Inst Money 19(1):188–205

Article Google Scholar

Nelson (1991) ‘Conditional heteroskedasticity in asset returns: a new approach’. Econometrica 59(2):347–370

Zakoïan J (1994) Threshold heteroskedastic models. J Econ Dyn Control 18(5):931–955

Article Google Scholar

## Acknowledgments

We are extremely grateful for comments and suggestions from participants at the annual European Economics and Finance Society conference 2013 in Berlin and the comments of the two anonymous referees.

## Author information

https://doi.org/10.1007/s10368-014-0289-4

## Keywords

Exchange Rate Volatility modelling

## JEL classification

E44 G12

## Search