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### Comment on "Financial Stylized Facts and the Taylor-Effect in Stochastic Volatility Models" by H. Veiga

Helena Veiga

*Departamento de Estadística, Universidad Carlos III de Madrid*

#### Abstract

In this comment we include and emphasize the contribution to the literature of a missing reference in the published version of the paper by Veiga (2009).

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## Comment

The purpose of this comment is to include and emphasize the contribution to the literature of a previous paper by Mora-Gálan et al. (2004). Mora-Gálan et al. (2004) had already analyzed the *Taylor-Effect* in the context of the symmetric autoregressive stochastic volatility model (ARSV). Their main results are: first, the ARSV model is able to generate the *Taylor-Effect* for the usual parameter values found empirically. Second, the autocorrelation function of  $|y_t|^\theta$ , where  $y_t$  with  $t = 1, \dots, T$  is the return series, is maximized for different values of  $\theta$ , depending on the distribution of the errors of the model and the kurtosis of the return series. In particular, they conclude that if the errors are normal and the kurtosis is close to three, the autocorrelation function of the squared observations is the largest. Nevertheless, when the distribution of the error of the mean equation of the ARSV model follows a  $t$ -Student distribution, the result changes and the authors conclude that the value of  $\theta$  that maximizes the autocorrelation function of  $|y_t|^\theta$  is very close to one for the majority of the cases. Third, the *Taylor-Effect* can be generated by the symmetric ARSV model for moderate sample sizes and parameter values close to the ones found empirically. Moreover, considering the same previous conditions, the authors observed that the *Taylor-Effect* is not a sample phenomenon caused by the estimated autocorrelation biases. Finally, Mora-Gálan et al. (2004) fitted the symmetric ARSV to eight daily series of financial returns and conclude that the model is able to reproduce the autocorrelation functions of square and absolute observations for five out of eight considered return series.

The paper by Veiga (2009) is related to the paper by Mora-Gálan et al. (2004), firstly, because it also deals with the *Taylor-Effect*. However, its purpose is to present some possible reasons for the relations among the most popular financial empirical facts (asymmetry, kurtosis and volatility persistence) and the *Taylor-Effect* in the context of Gaussian asymmetric stochastic volatility models with short and long memory. The paper by Mora-Gálan et al. (2004), on the other hand, studied deeply the autocorrelation functions implicit by the symmetric autoregressive stochastic volatility model with errors following either a normal or a  $t$ -Student distribution. Secondly, in the same context of Gaussian asymmetric stochastic volatility models with short and long memory, it infers about the model's ability to generate the *Taylor-Effect* via Monte Carlo experiments. As in Mora-Gálan et al. (2004), we do not observe cases where the *Taylor-Effect* is only observed empirically and not in the population or viceversa. However, we do observe a case where the estimated empirical *Taylor-Effect* is stronger than the one in the population (asymmetric ARSV model).

## References

- Mora-Gálan, A., A. Pérez and E. Ruiz (2004) “Stochastic Volatility Models and the Taylor Effect” Universidad Carlos III de Madrid working Paper number 04-63.
- Veiga, H. (2009) “Financial Stylized Facts and the Taylor-Effect in Stochastic Volatility Models” *Economics Bulletin* **29**, 265–276.