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Correction: Modelling exchange rate volatility using GARCH models

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ABSTRACT

The article titled "Modelling exchange rate volatility using GARCH models" published in the Gazi Journal of Economics and Business, 2021; in 7(1): 1-16 as Article 1 has been corrected.

Revisions

The manuscript entitled as "Modeling exchange rate volatility using GARCH models" between pages 1-16 in the Volume 7, Issue 1 needs revision.

The title number 3 "3. Indicators of the knowledge economy", was misplaced at the typesetting stage and the title should be revised as "**3. Data collection and analytical techniques**".

Moreover, the "4. Conclusion" section which was supposed to be at page 14, was accidentally deleted during the typesetting and this part should be revised as follows:

"4. Conclusion

This paper investigates the behaviour of the volatility in the US Dollar and EURO against Turkish Lira exchange rates between January 2005 and December 2019. The key objectives are to estimate the presence of asymmetric effect in the times series of the volatility. Therefore, the stochastic properties of the time series are first tested and modified by applying the ADF unit root test. Heteroscedasticity LM ARCH effect, Wald test, and Ljung-Box test also have been conducted throughout the analytical phase in preparing this paper to ensure the validity of the models being approached. ARMA (p,q) ARCH (q), GARCH (1,1), GJR-GARCH (1,1) EGARCH (1,1) and PGARCH (1,1) are used in modelling daily exchange rate return of the two currencies USD/TRY and EUR/TRY. In addition to that, Engle NG test has also been tested for asymmetric effect and finally, Root Mean Square Error, Mean Absolute Error and Mean Absolute Percentage Error have been conducted in the selection of the best model in predicting future volatility. The result finds the presence of ARCH effect in both USD/TRY and EUR/TRY exchange rates return series. With this condition met, the generalized autoregressive conditional heteroscedasticity (GARCH) models have been processed. Among the GARCH family models, symmetric GARCH (1,1) and asymmetric GJR-GARCH (1,1) are the most appropriate in modelling volatility in the case of USD/TRY Exchange rate return. Moreover, GJR-GARCH (1,1) static is the best model in volatility forecasting with a significant approval of accuracy for the USD/TRY. On the other hand, PGARCH (1,1) along with GARCH (1,1) GJR-GARCH(1,1) are the best approaches in modelling the volatility in EUR/TRY exchange rate return. As for forecasting EUR/TRY future returns, it concluded that GJR-GARCH (1,1) static also is the most appropriate forecasting model to capture the volatility in the future in this paper according to Root Mean Square Error and Mean Absolute Error tests. However, Mean Absolute Percentage Error test's result has been excluded due to inaccuracy."

Düzeltme: GARCH yöntemleri kullanarak döviz kuru volatilitelerinin modellenmesi

ÖZ

Gazi İktisat ve İşletme Dergisi, 2021; 7(1): 1-16'da 1. Makale olarak, yayınlanan "GARCH yöntemleri kullanarak döviz kuru volatilitelerinin modellenmesi" adlı makalede düzeltme yapılmıştır.

Düzeltmeler

Cilt 7, Sayı 1'de 1. Makale olarak, 1-16 sayfa aralığında yayımlanan "GARCH yöntemleri kullanarak döviz kuru volatilitelerinin modellenmesi" adlı makalenin 6. Sayfasında yer alan 3 numaralı başlık sehven "3. Bilgi ekonomisinin göstergeleri" şeklinde, dizgi aşamasında yanlış konulmuş olup olması gereken doğru başlık "**3. Data collection and analytical techniques**" şeklindedir.

Aynı makalenin 14. Sayfasında olması gereken "4. Conclusion" başlıklı kısım dizgi aşamasında sehven silinmiş olup bu kısım aşağıdaki gibidir.

"4. Conclusion

This paper investigates the behaviour of the volatility in the US Dollar and EURO against Turkish Lira exchange rates between January 2005 and December 2019. The key objectives are to estimate the presence of asymmetric effect in the times series of the volatility. Therefore, the stochastic properties of the time series are first tested and modified by applying the ADF unit root test. Heteroscedasticity LM ARCH effect, Wald test, and Ljung-Box test also have been conducted throughout the analytical phase in preparing this paper to ensure the validity of the models being approached. ARMA (p,q) ARCH (q), GARCH (1,1), GJR-GARCH (1,1) EGARCH (1,1) and PGARCH (1,1) are used in modelling daily exchange rate return of the two currencies USD/TRY and EUR/TRY. In addition to that, Engle NG test has also been tested for asymmetric effect and finally, Root Mean Square Error, Mean Absolute Error and Mean Absolute Percentage Error have been conducted in the selection of the best model in predicting future volatility. The result finds the presence of ARCH effect in both USD/TRY and EUR/TRY exchange rates return series. With this condition met, the generalized autoregressive conditional heteroscedasticity (GARCH) models have been processed. Among the GARCH family models, symmetric GARCH (1,1) and asymmetric GJR-GARCH (1,1) are the most appropriate in modelling volatility in the case of USD/TRY Exchange rate return. Moreover, GJR-GARCH (1,1) static is the best model in volatility forecasting with a significant approval of accuracy for the USD/TRY. On the other hand, PGARCH (1,1) along with GARCH (1,1) GJR-GARCH(1,1) are the best approaches in modelling the volatility in EUR/TRY exchange rate return. As for forecasting EUR/TRY future returns, it concluded that GJR-GARCH (1,1) static also is the most appropriate forecasting model to capture the volatility in the future in this paper according to Root Mean Square Error and Mean Absolute Error tests. However, Mean Absolute Percentage Error test's result has been excluded due to inaccuracy."