## Review Form 3

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| Journal Name: | **Journal of Economics, Management and Trade** |
| Manuscript Number: | **Ms_JEMT_121191** |
| Title of the Manuscript: | **Prediction of Popular Global Stock Indexes Volatility by Using ARCH/GARCH Models** |
| Type of the Article | |

## Review Form 3

**PART 1:** **Review Comments**

| **Compulsory** REVISION comments | **Reviewer's comment** | **Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.** | This study contributes significantly to the field of financial econometrics by offering a thorough analysis of volatility dynamics across major global indices, employing rigorous data preparation, and validating the effectiveness of various GARCH models. The GARCH (1,1) model's demonstrated reliability and practical applicability highlight its value in volatility forecasting, while the study's recommendations for future research offer a clear direction for further advancements in this area. | |
| **Is the title of the article suitable?<br>(If not please suggest an alternative title)** | **Yes.** | |
| **Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.** | **Yes.** | |
| **Are subsections and structure of the manuscript appropriate?** | **Yes.** | |
| **Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.** | This study makes several important contributions to the field of financial econometrics by examining the volatility dynamics of five major global financial indices—FTSE 100, Hang Seng, NIKKEI 225, NSE 50, and S&P 500—over a decade-long period using various GARCH models. The key contributions in detail:<br><br>1. **Longitudinal Data Coverage**: By analyzing data from January 1, 2014, to December 31, 2023, the study captures a wide range of market conditions and significant events, including the COVID-19 pandemic. This extensive coverage ensures that the findings are robust and applicable across different market phases.<br>2. **Ensuring Data Stationarity**: The study meticulously preprocesses the data to ensure stationarity, a critical prerequisite for accurate volatility modeling. This involves calculating log returns and conducting multiple stationarity tests, including the Augmented Dickey-Fuller (ADF) test, the Augmented Dickey-Fuller Generalized Least Squares (ADF-GLS) test, and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. Ensuring stationarity enhances the reliability of the subsequent GARCH model analyses.<br>3. **Detection of ARCH Effects**: The use of the ARCH-LM test to identify significant ARCH effects confirms the presence of time-varying volatility, which is a key characteristic that GARCH models are designed to capture. This step is crucial in justifying the application of GARCH models for the analysis.<br>4. **Application of Multiple GARCH Models**: The study applies a range of GARCH models—GARCH (0,1), GARCH (1,1), GARCH (1,2), and GARCH (2,2)—to assess their effectiveness in capturing and forecasting volatility. This comprehensive approach allows for a thorough evaluation of each model's strengths and weaknesses.<br>5. **Identification of the GARCH (1,1) Model as the Most Effective**: The findings reveal that the GARCH (1,1) model strikes a robust balance between simplicity and statistical significance. Despite some more complex models offering better fit measures according to the Akaike Information Criterion (AIC) and Schwarz Criterion (SC), the GARCH (1,1) model consistently provides significant parameter estimates and reliable predictive performance. This identification is valuable for practitioners looking for a balance between model accuracy and computational efficiency. | |

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| | 6. **Consistent Performance Metrics**: The study evaluates model performance using Root Mean Square Error (RMSE) and Mean Absolute Error (MAE). The GARCH (1,1) model's consistent performance across these metrics underscores its reliability in volatility forecasting, providing practitioners with confidence in its application.<br>7. **Practical Implications for Volatility Forecasting**: By demonstrating the effectiveness and parsimony of the GARCH (1,1) model, the study offers practical insights for financial analysts and policymakers. The GARCH (1,1) model's ability to effectively capture time-varying volatility makes it a preferred tool for forecasting and risk management.<br>8. **Foundation for Future Research**: The study suggests that future research could explore more advanced GARCH model variations, such as asymmetric GARCH models, to further refine volatility forecasting. This recommendation provides a clear direction for subsequent studies to build on the current findings and enhance the understanding of volatility dynamics. | |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **Yes.** | |
| Minor REVISION comments<br><br>**Is the language/English quality of the article suitable for scholarly communications?** | **Yes.** | |
| **Optional/General** comments | The study concludes that the GARCH (1,1) model is a preferred choice for volatility forecasting due to its effectiveness and parsimony. However, it also acknowledges the potential for further research to explore more advanced GARCH model variations, which could offer additional insights or improved forecasting accuracy.<br>Overall, this study contributes to the field of financial econometrics by providing a thorough examination of volatility dynamics across major global indices and highlighting the practical applicability of the GARCH (1,1) model. | |

**PART 2:**

| | **Reviewer's comment** | **Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
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| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* | |

**Reviewer Details:**

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