

ABSTRACT

**JAKARTA COMPOSITE INDEX VOLATILITIES MODELLING AND
FORECASTING DURING THE COVID-19 PANDEMIC**

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The covid-19 pandemic hit globally at the end of 2019 and negatively affected countries' economies, including Indonesia. A day after World Health Organization (WHO) announced Covid-19 as a world pandemic, Jakarta Composite Index (JKSE) price had plunged by 2.2%. These short-term shocks may eradicate a considerable amount of investors' wealth in a financial market. Thus, A reliable measurement model for volatilities during this pandemic is critical to help investors decide their investment choices in the Indonesian stock market. In this study, GARCH (1,1), GJR GARCH (1,1), and EGARCH (1,1) are employed to model volatility using the Jakarta Composite Index (JKSE) returns for 20 years, focusing on three different data frequencies, namely daily, weekly, and monthly. Overall, for daily and weekly series, the EGARCH (1,1) model seems to forecast better in times of high volatility, such as the early Covid-19 pandemic breakout. In a period of more tranquillity, the GARCH (1,1) provides more performance in predicting the volatility. Meanwhile, only GARCH (1,1) successfully models volatility with effective coefficients for the monthly series.

Keyword: volatility, GARCH, EGARCH, GJR GARCH, JKSE

ABSTRAK

PEMODELAN DAN PERAMALAN VOLATILITAS INDEKS HARGA SAHAM GABUNGAN SELAMA PANDEMI COVID-19

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Pandemi covid-19 melanda secara global pada akhir tahun 2019 dan berdampak negatif terhadap perekonomian negara-negara, termasuk Indonesia. Sehari setelah Organisasi Kesehatan Dunia (WHO) mengumumkan Covid-19 sebagai pandemi global, harga Indeks Harga Saham Gabungan (IHSG) anjlok 2,2%. Guncangan jangka pendek ini dapat menggerus sejumlah besar kekayaan investor di pasar keuangan. Oleh karena itu, model pengukuran volatilitas yang andal selama pandemi sangat penting untuk membantu investor memutuskan pilihan investasi mereka di pasar saham Indonesia. Dalam studi ini, GARCH (1,1), GJR GARCH (1,1), dan EGARCH (1,1) digunakan untuk memodelkan volatilitas atas pengembalian Indeks Harga Saham Gabungan (JKSE) selama 20 tahun, dengan fokus pada tiga frekuensi data yang berbeda. yaitu harian, mingguan, dan bulanan. Secara keseluruhan, untuk seri harian dan mingguan, model EGARCH (1,1) memiliki hasil permodelan yang lebih baik pada saat volatilitas tinggi, seperti awal pandemi Covid-19. Dalam periode yang lebih tenang, GARCH (1,1) memberikan lebih banyak kinerja dalam memprediksi volatilitas. Sementara itu, hanya GARCH (1,1) yang berhasil memodelkan volatilitas dengan koefisien efektif untuk seri bulanan.

Kata kunci: volatilitas, GARCH, EGARCH, GJR GARCH, IHSG