

“Reaction of the USD/PLN Exchange Rate to Published Macroeconomic Data under Conditions of Imperfect Information: Data Analysis from October 2018 to December 2023” *

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Abstract

The foreign exchange market is the largest and most dynamic financial market globally, with exchange rates predominantly influenced by economic factors. U.S. macroeconomic data play a critical role in driving short-term volatility in exchange rates. This study examines the impact of U.S. macroeconomic data releases on short-term volatility in the USD/PLN exchange rate under conditions of imperfect information. The aim is to identify which macroeconomic indicators most significantly affect fluctuations in this currency pair. This research addresses a significant gap in the existing literature, as no prior studies have specifically investigated the effect of six types of U.S. macroeconomic data on the USD/PLN exchange rate within the M30 interval. The findings are intended to provide valuable insights for Forex market participants trading the USD/PLN pair, helping them make more informed investment decisions.

The study employs regression and statistical analysis techniques, utilizing a linear regression model with a GARCH process to model the stochastic component. Parameters were estimated using 30-minute exchange rate data for three currency pairs, with the analysis conducted in Stata 15. The results demonstrate that USD/PLN volatility increases following the release of U.S. macroeconomic data. The most notable reactions were observed after the release of Non-Farm Employment Change and Consumer Price Index data, while New Home Sales and Unemployment Claims also triggered significant responses. The COVID-19 pandemic was linked to elevated volatility in the USD/PLN exchange rate, while the outbreak of the war in Ukraine further intensified fluctuations in this currency pair.

Keywords: Foreign Exchange Markets, currency exchange rates, GARCH model.