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Primary Article

# The Distribution of Realized Exchange Rate Volatility

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## Abstract

Using high-frequency data on deutschemark and yen returns against the dollar, we construct model-free estimates of daily exchange rate volatility and correlation that cover an entire decade. Our estimates, termed realized volatilities and correlations, are not only model-free, but also approximately free of measurement error under general conditions, which we discuss in detail. Hence, for practical purposes, we may treat the exchange rate volatilities and correlations as observed rather than latent. We do so, and we characterize their joint distribution, both unconditionally and conditionally. Noteworthy results include a simple normality-inducing volatility transformation, high contemporaneous correlation across volatilities, high correlation between correlation and volatilities, pronounced and persistent dynamics in volatilities and correlations, evidence of long-memory dynamics in volatilities and correlations, and remarkably precise scaling laws under temporal aggregation.

KEY WORDS:

Forecasting   High-frequency data   Integrated volatility   Long-memory   Quadratic variation

Realized volatility   Risk management

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Corrections

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