

# Portfolio cross-autocorrelation puzzles\*

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## Abstract

This paper investigates the driving forces underlying lead-lag cross-autocorrelations in daily portfolio returns. By contrasting autocorrelation patterns using portfolio returns based on trade prices before an arbitrary point in the trading day with those using returns based on prices after, we isolate the impact of nonsynchronous trading and conclude decisively that its impact on portfolio correlation patterns is negligible. We also reject the possibility that time-varying returns, contemporaneous correlations or discreteness in pricing underlies the portfolio autocorrelation patterns. Rather, the intra-daily evolution of portfolio autocorrelations reflect inefficient pricing of infrequently-traded stocks—prices of less active stocks appear not to incorporate some of the recent information that is already contained in the prices of more active stocks. Portfolio autocorrelations rise systematically when we calculate returns using later times in the day, indicating that prices of infrequently-traded stocks grow increasingly stale over the trading day.

**JEL Classification:** G12, G14.

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