

AUTOCORRELATION AND PARTIAL AUTOCORRELATION ANALYSIS OF 60/40 PORTFOLIOS IN CHINA'S A-SHARE MARKET

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This article applies ACF and PACF analysis to 60/40 portfolios in China's A-share market for 2004–2024. The results reveal a negative one-year effect and a four-year mean-reversion pattern. These findings support annual rebalancing and show that large-cap portfolios are most sensitive to cyclical dynamics.

Keywords: 60/40 portfolio, China's A-share market, autocorrelation, partial autocorrelation, rebalancing, asset allocation.

Portfolio management in emerging markets requires data-based tools for identifying return dynamics and improving allocation decisions. Autocorrelation and partial autocorrelation analysis are useful for this purpose because they show whether past returns contain information relevant to current portfolio behavior. Previous studies demonstrate that autocorrelation may affect intertemporal portfolio choice and dynamic allocation models [1; 3].

The purpose of this article is to examine the time-series structure of 60/40 portfolios in China's A-share market and to determine whether autocorrelation patterns can support practical rebalancing decisions. The relevance of the study is connected with the need to develop quantitative tools for portfolio management in emerging markets.

Materials and methods. The empirical analysis is based on China's A-share market data for 2004–2024. Market information is taken from the Choice financial terminal and Wind financial database (<https://www.choice.com.cn>; <https://www.wind.com.cn>). Five 60/40 portfolios with different stock and bond compositions are compared. The stock component includes CSI 300, CSI 500 and CSI 1000 indices, while the bond component includes 10-year and 20-year Chinese government bonds.

The study uses the autocorrelation function (ACF) and the partial autocorrelation function (PACF). ACF identifies the relationship between current and past portfolio returns, while PACF shows whether this relationship remains after excluding intermediate lag effects.

Results and discussion. The ACF results show that the first-lag autocorrelation coefficients are negative for all five 60/40 portfolios. This indicates

a short-term reversal effect: after a strong annual return, the portfolio tends to demonstrate weaker performance in the following year, and vice versa. Therefore, the negative first-lag autocorrelation supports the use of annual rebalancing.

Another important result is connected with the fourth lag. The average autocorrelation coefficient at lag four has the largest absolute value among the observed lags. This suggests a negative relationship between current returns and returns four years earlier and points to a four-year mean-reversion cycle. Such a pattern may reflect the influence of broader economic-cycle dynamics on portfolio returns.

The PACF results confirm that the first-lag and fourth-lag effects are direct rather than accidental. The autocorrelation structure of 60/40 portfolios is mainly formed by these two lags, while intermediate lags have weaker explanatory power. Portfolios with a higher share of large-cap stocks show the clearest cyclical pattern, which may explain their stronger suitability for rebalancing strategies [2]. By contrast, changes in the internal bond allocation have a limited impact on the autocorrelation structure.

Conclusion. The study shows that ACF and PACF analysis can be used to evaluate the dynamic properties of 60/40 portfolios in China's A-share market. The main empirical result is the negative first-lag autocorrelation effect, which supports annual rebalancing. The fourth-lag effect suggests a four-year mean-reversion cycle. Portfolios with a higher share of large-cap stocks demonstrate the clearest cyclical structure, while bond allocation has a weaker influence on return autocorrelation. These findings may be useful for portfolio diagnostics, risk control and rebalancing decisions in emerging markets.

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АВТОКОРРЕЛЯЦИОННЫЙ И ЧАСТНЫЙ АВТОКОРРЕЛЯЦИОННЫЙ АНАЛИЗ ПОРТФЕЛЕЙ 60/40 НА РЫНКЕ АКЦИЙ КЛАССА А КИТАЯ

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аспирант

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В статье применяется ACF- и PACF-анализ к портфелям 60/40 на рынке А-акций Китая за 2004–2024 гг. Выявлены отрицательный эффект первого лага и четырёхлетний цикл возврата к среднему. Результаты подтверждают целесообразность ежегодной ребалансировки и показывают большую цикличность портфелей с преобладанием акций крупной капитализации.

Ключевые слова: портфель 60/40, рынок акций класса А Китая, автокорреляция, частная автокорреляция, ребалансировка, распределение активов.