Summary of results (36-month signals, annual formation):

- Beta quintiles (Equal-Weighted): q1 = 1.74%, q5 = 0.81% → 5-1 spread = -0.93% per month
- Beta quintiles (Value-Weighted): q1 = 0.84%, q5 = 0.64% → 5-1 spread = -0.19% per month
- Idiosyncratic-volatility quintiles (Equal-Weighted): q1 = 0.97%, q5 = 1.01% → 5-1 spread ≈ +0.04% per month (tiny)
- Idiosyncratic-volatility quintiles (Value-Weighted): q1 = 0.65%, q5 = 0.28% → 5-1 spread = -0.36% per month

Interpretation:

- The negative 5-1 beta spread (both equal-weighted and value-weighted) indicates that low-beta portfolios outperformed high-beta portfolios on average, with a stronger effect in equal-weighted returns. This is consistent with the well-known "betting against beta" anomaly.
- The effect weakens under value-weighting (-0.19% vs -0.93%), suggesting that smaller firms contribute more to the low-beta outperformance.
- For idiosyncratic volatility, results are flat to slightly negative. Equal-weighted returns show only a negligible positive spread, while value-weighted returns show underperformance of high-IVOL stocks. This aligns with evidence that high-IVOL firms do not deliver higher average returns and often underperform.

Connection to volatility decomposition:

- In macro-stress periods (2008-09, 2020, 2022), systematic volatility dominates. High-beta stocks move more with the market and experience larger drawdowns, depressing their long-run returns.
- In calmer regimes (2013-17, 2021), systematic volatility is muted and idiosyncratic volatility accounts for a larger share of risk. However, high IVOL still does not generate higher returns, consistent with "lottery stock" preferences and limits-to-arbitrage stories.

Conclusion:

- Low-beta stocks outperform high-beta stocks, especially in equal-weighted portfolios
- High idiosyncratic volatility does not earn a premium; if anything, those stocks underperform once you weight by size
- These results are consistent with the volatility decomposition and with prior empirical findings in the asset pricing literature