CAPM Betas, Volatility Decomposition, and Portfolio Sorts (1996–2023)

Data and Setup

CRSP monthly stocks 1996–2023. Market = CRSP VWRETD. Risk-free = FRED DGS1 converted to monthly and subtracted to form excess returns. Betas from rolling CAPM (12/24/36 months). Portfolios formed each December on 36-month signals; next-year monthly excess returns reported.

Key Findings

- Low-beta effect: 5−1 (High − Low beta) is −0.91%/month equal-weighted and −0.22%/month value-weighted. Low-beta outperforms; effect stronger among smaller firms.
- Idiosyncratic volatility: 5−1 is about +0.05%/month EW (flat) and −0.37%/month VW (underperformance when size matters).
- Volatility regime: Crisis spikes in 1998, 2008–2009, 2020, 2022 are driven mainly by systematic volatility; in calm periods IVOL's share of total variance rises even if its level stays moderate.
- Industry: Technology and Services show persistently higher IVOL; Finance and Energy have sharper crisis-sensitive swings in systematic risk.

Implications

- Favor lower-beta tilts, especially in smaller names
- Avoid high-IVOL stocks in value-weighted portfolios
- In stress episodes, managing market exposure is more impactful than name diversification

Credibility Checks

- Excess returns constructed consistently using monthly RF from DGS1
- Results are similar across 12/24/36-month windows
- Recommend reporting Newey–West t-stats (12 lags) and a quick robustness pass with 1-Month T-bill RF and 1%/99% winsorization

Conclusion

From 1996–2023, low-beta outperforms and high-IVOL lags under VW; crisis volatility is overwhelmingly systematic, while IVOL matters more for cross-section dispersion in calm regimes.