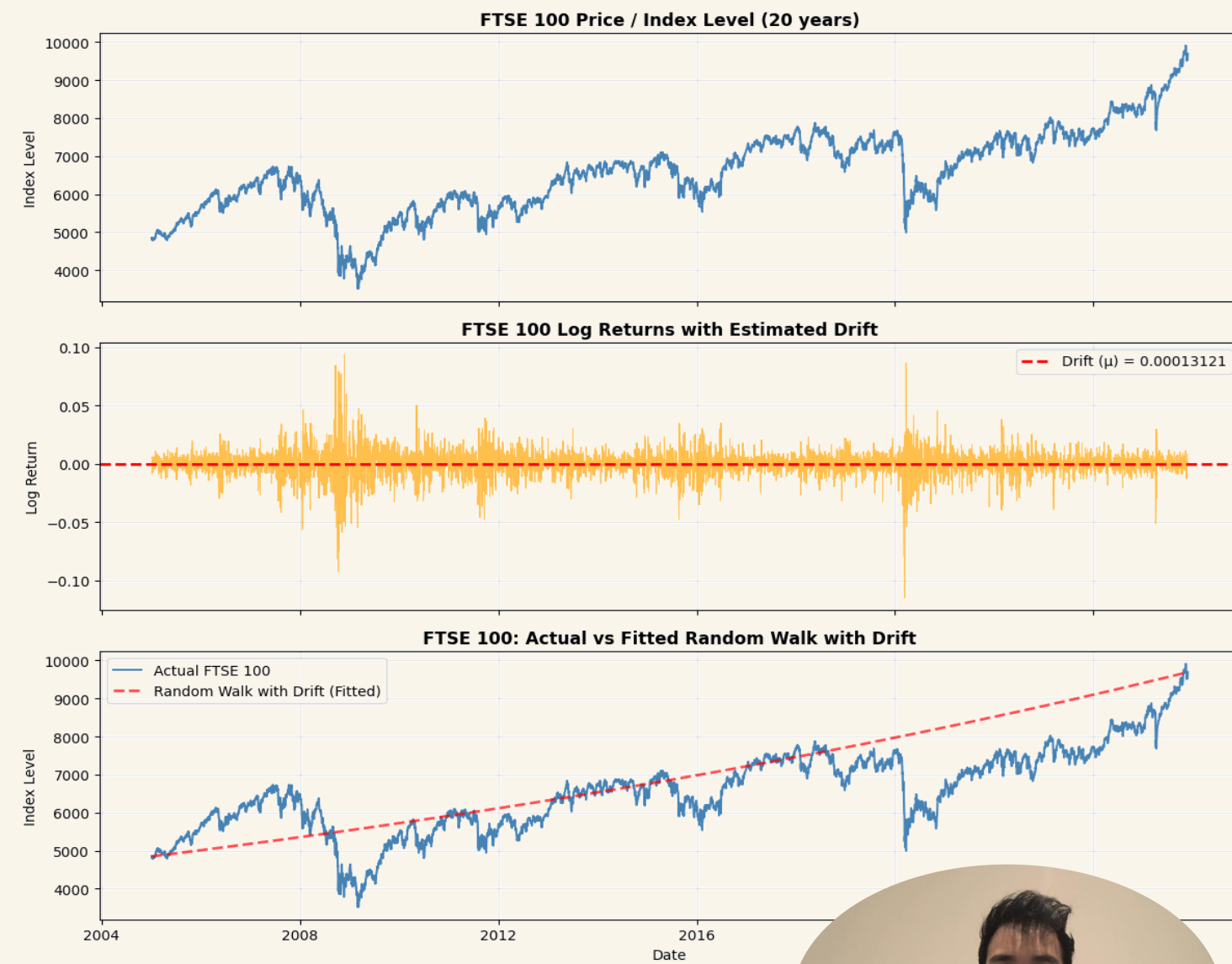
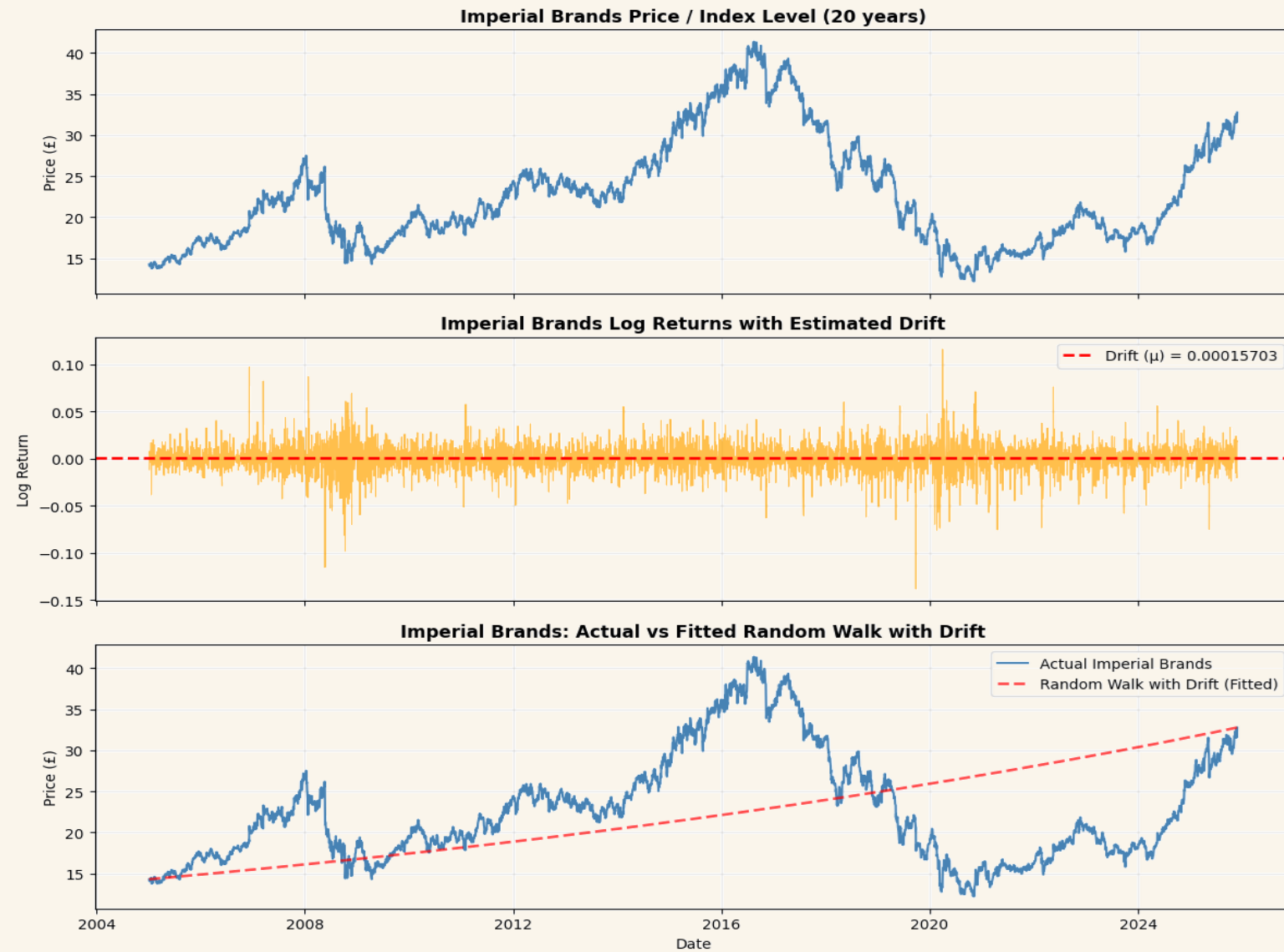


Random Walk Hypothesis Testing Market Efficiency

The random walk hypothesis claims tomorrow's price is today's plus random noise—pure efficiency. We tested this using a random walk with drift model on FTSE 100 data.



Daily Drift Estimation
0.000131 daily (annualized ~3.3%)

Volatility Measurement
1.1% daily (annualized ~17.4%)

ADF Sta
Rejected non-stationarity



Random Walk: Two Perspectives

In Favour View

ADF rejection validates market efficiency locally. Shocks are temporary, supporting the long-run random walk assumption. Prices don't predictably trend—classic EMH confirmation.

Opposition View

The model catastrophically fails at capturing real dynamics. Residual analysis shows clear patterns—crashes aren't random noise, they're clustered. The 2008 crisis, COVID crash, and recent volatility spikes are systematic events the simple model completely missed.

- ❑ **Critical Insight:** Over 20 years, ignoring structural breaks, jumps, and volatility clustering isn't just a limitation—it's analytical malpractice for risk management.

