

Factor Timing Strategy Using Macroeconomic Regimes and NLP

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1. Motivation

Factor investing (value, momentum, size) is typically implemented statically, but empirical evidence shows factor returns are regime-dependent. We propose to dynamically allocate across factors using macroeconomic regimes identified via NLP on Federal Reserve statements and economic reports. By combining traditional factor models with ML and NLP, we aim to build a strategy that times factors more effectively and improves risk-adjusted performance.

2. Research Questions

- Can NLP on FOMC minutes and macro reports classify market regimes (expansion, slowdown, recession)?
- Do factor returns (value, momentum, size) vary systematically across these regimes?
- Does an ML-driven factor timing strategy improve Sharpe ratios and drawdown control vs. static factor allocations?

3. Data

- WRDS: CRSP (stock returns), Compustat (fundamentals for value/size), Fama-French factors (via WRDS/Ken French)
- Public: FOMC minutes (federalreserve.gov), FRED macro series (GDP, CPI), economic releases
- Optional: Social sentiment (X API) for macro commentary

4. Methodology

- NLP Regime Classification: Apply FinBERT or similar to Fed minutes/reports to classify regime tone (expansion vs. recession)
- Feature Set: Factor returns, macro indicators, NLP-derived regime scores
- Modeling: Gradient boosting / random forests to predict next-period factor performance
- Strategy: Allocate across factors by overweighting stocks with high exposure to predicted top-performing factors
- Backtest: Weekly rebalancing, realistic costs, benchmarked against buy-and-hold SPY and equal-weight factor allocation