Regime Detection Proposal

Regime Detection & Indicator Scoring System

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Status: PROPOSAL — awaiting group review

The Core Insight

Different market regimes favor different indicators. A trending market rewards momentum indicators (MA crossovers, MACD, ADX). A mean-reverting market rewards oscillators (RSI extremes, Bollinger Band reversals). When the indicators that were "working" stop working, it signals we've entered a different regime — and our trade selection criteria need to adapt.

The danger of ignoring regimes: If we blindly apply the same Shannon Stage 2 + MA alignment framework in a choppy, mean-reverting market, we'll get whipsawed. Conversely, if we switch to mean-reversion in a strong trend, we'll sell winners too early and buy losers too soon.

Four Market Regimes

Regime	Characteristics	What Works	What Fails
Trending Up	Higher highs/lows, expanding breadth, MAs fanning out	MA alignment, MACD, breakouts, "buy the dip"	RSI overbought sells, mean-reversion shorts
Trending Down	Lower highs/lows, contracting breadth, MAs compressing	Short setups, "sell the rip", breakdown entries	RSI oversold buys, MA support bounces
Range/Chop	Flat MAs, price oscillating around a mean, false breakouts	RSI extremes, support/resistance bounces, Bollinger reversals	MA crossovers (whipsaw), breakout entries (fail)
High Volatility Transition	Wide daily ranges, gap-and-reverse days, VIX spike	Cash, reduced size, wider stops	Tight stops (get hunted), trend-following (false signals)

Indicators to Score (6 Signals)

For each watchlist ticker, score these signals daily on a 1/0 (correct/incorrect) basis:

1. MA Trend Signal

- **Signal logic:** If SMA20 > SMA50 > SMA200 (bullish stack) → expect price up next N days
- **Score:** Did price close higher 5 days later? 1 = yes, 0 = no
- **Works in:** Trending regimes
- **Fails in:** Chop (whipsaw around MAs)

2. RSI Mean-Reversion Signal

- **Signal logic:** RSI < 35 → expect bounce. RSI > 65 → expect pullback.
- **Score:** Did price reverse in the expected direction within 5 days? 1 = yes, 0 = no
- **Works in:** Range/chop regimes
- **Fails in:** Strong trends (RSI stays overbought for weeks in Stage 2)

3. MACD Momentum Signal

- **Signal logic:** MACD histogram positive and rising → expect continuation up. Negative and falling → expect continuation down.
- **Score:** Did price continue in signal direction 5 days later? 1 = yes, 0 = no
- **Works in:** Trending regimes
- **Fails in:** Chop (oscillates around zero line)

4. Volume Confirmation Signal

- **Signal logic:** If price up on above-average volume → expect follow-through. If price up on below-average volume → expect failure.
- **Score:** Did the follow-through/failure happen within 5 days? 1 = yes, 0 = no
- **Works in:** All regimes (volume is regime-neutral)
- **Fails in:** Rarely — volume is the most reliable confirmer

5. Support/Resistance Signal

- **Signal logic:** Price at identified VP POC or MA support → expect bounce. Price at resistance → expect rejection.
- **Score:** Did the level hold within 5 days? 1 = yes, 0 = no
- **Works in:** Range/chop regimes (levels respected)
- **Fails in:** Strong trends (levels get blown through)

6. Breakout Signal

- **Signal logic:** Price breaks above prior resistance on above-average volume → expect continuation.
- **Score:** Did price stay above the breakout level 5 days later? 1 = yes, 0 = no

- **Works in:** Trending regimes
- **Fails in:** Chop (false breakouts)

Scoring Methodology

Rolling Window

- **Window:** 20 trading days (1 month)
- **Update:** Daily at market close
- **Per ticker:** Each indicator gets a rolling accuracy % (correct signals / total signals in window)

Regime Classification Logic

Score the 6 indicators into two groups: - **Trend indicators:** MA Trend + MACD Momentum + Breakout (3 signals) - **Mean-reversion indicators:** RSI + S/R + (inverse of Breakout failure rate) (3 signals)

Trend Avg Accuracy	Mean-Rev Avg Accuracy	Regime Call
> 60%	< 50%	**Trending** — use Shannon framework aggressively
< 50%	> 60%	**Range/Chop** — shift to mean-reversion entries
< 50%	< 50%	**High Vol Transition** ⚠ — reduce size, widen stops, cash up
> 55%	> 55%	**Goldilocks** — most indicators working, deploy confidently

Regime Change Alert

When the rolling accuracy of the DOMINANT group (whichever was working) drops below 50% for 5 consecutive days → **REGIME CHANGE SIGNAL**

This gets flagged in the weekly report and the daily proforma notes.

Implementation Plan

Phase 1: Data Collection (Week 1)

- Add `indicator_scores` table to portfolio DB
- Daily cron (after 2 PM lock) computes and stores scores for each ticker
- Schema:

```
        CREATE TABLE indicator_scores (
          id INTEGER PRIMARY KEY,
          date TEXT NOT NULL,
          ticker TEXT NOT NULL,
          indicator TEXT NOT NULL,      -- 'ma_trend', 'rsi_reversion',
'macd_momentum', 'volume_confirm', 'sr_hold', 'breakout'
          signal_direction TEXT,        -- 'bullish', 'bearish', 'neutral'
          signal_value REAL,            -- the indicator value that generated
the signal
          outcome INTEGER,              -- 1 = correct, 0 = incorrect, NULL =
pending (within 5-day window)
          outcome_date TEXT,            -- when the outcome was scored
          created_at TEXT DEFAULT (datetime('now'))
        );
```

Phase 2: Scoring Engine (Week 2)

- Backfill 20 days of historical scores using chart data
- Build rolling accuracy calculator
- Add regime classification logic

Phase 3: Reporting (Week 3)

- Weekly regime report to Tigerrr group
- Per-ticker indicator heatmap (which indicators are working for which names)
- Regime dashboard widget on the portal

Phase 4: Integration (Week 4)

- Proforma cron reads current regime before scoring
- Trade selection criteria adjusts based on regime:
  - **Trending:** Weight MA alignment + breakout signals heavily, relax RSI overbought concern
  - **Chop:** Weight RSI extremes + S/R levels, skip breakout entries, tighter targets
  - **Transition:** Reduce position sizes, widen stops, require higher conviction threshold

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What Changes in Practice

Today (no regime awareness): > "NVT passes Gate 2 — Stage 2, MAs aligned, RSI 54. Propose entry."

With regime awareness: > "NVT passes Gate 2 — Stage 2, MAs aligned, RSI 54. **Regime: Trending (MA signal 72% accurate, breakout 65% accurate over 20d).** MA alignment is a HIGH-CONFIDENCE signal in current regime. Propose entry."

OR:

> "NVT passes Gate 2 — Stage 2, MAs aligned, RSI 54. **Regime: Chop (MA signal 38% accurate, RSI reversion 71% accurate over 20d).** ⚠ MA alignment is LOW-CONFIDENCE in current regime — breakouts failing. Wait for RSI < 40 pullback to support instead."

Open Questions for the Group

1. **5-day forward look** — is this the right window for scoring? Longer (10d) captures more but is slower to detect changes. Shorter (3d) is noisier but faster.
2. **Per-ticker vs market-wide regime?** Propose per-ticker (each stock can be in its own regime) PLUS market-wide (SPY/QQQ as the macro regime). Trade selection uses the intersection.
3. **How much should regime override the 3-gate system?** Proposal: regime adjusts the WEIGHTS within Gate 2, not the gates themselves. A "chop regime" doesn't skip Gate 2 — it changes which indicators get more weight.
4. **Minimum data before regime calls?** Need 20 trading days of scores before the system can make reliable calls. That means ~4 weeks of data collection before it's useful.

This is a proposal for group review. Implementation begins after approval.