HCP Indicator Historical Calibration Checklist v1.0

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Status: CRITICAL PRIORITY - #1 IPS Development Priority

🚨 CRITICAL NOTICE

Theme probabilities currently showing 70-95% instead of expected ~50% distribution due to uncalibrated indicators.

REQUIREMENT: This calibration work MUST be completed before the system can generate accurate portfolio allocation results. Current v6.5.0 provides scenario differentiation but absolute probability levels are systematically biased upward.

Current Calibration Status: 2 of 13 Complete

Indicator	Current Method	Status	Trigger Rate	Priority
✅ **Productivity Growth**	2Q MA > 6Q MA	✅ CALIBRATED	47.7%	Complete
⚠️ **Forward P/E**	1Y MA > threshold	⚠️ PENDING	49.4%	Week 1-2
❌ **S&P Net Margins**	TTM vs 3Y avg + 0.5%	❌ PENDING	TBD	Week 1-2
❌ **QQQ/SPY Ratio**	150-day MA > 0.85	❌ PENDING	TBD	Week 1-2
❌ **DXY Index**	200-day MA < 100	❌ PENDING	TBD	Week 3
❌ **Equity Risk Premium**	ERP < 1.5%	❌ PENDING	TBD	Week 3
❌ **S&P vs MSCI World**	6M underperform > 2%	❌ PENDING	TBD	Week 3
❌ **US % of ACWI**	12M MA > 60%	❌ PENDING	TBD	Week 3
❌ **USD Reserve Share**	YoY change < -0.5%	❌ PENDING	TBD	Week 4
❌ **Yuan SWIFT Share**	12M MA > 2.5%	❌ PENDING	TBD	Week 4
❌ **Central Bank Gold**	4Q MA > 50B	❌ PENDING	TBD	Week 4
❌ **Shiller CAPE**	Current > 28	❌ PENDING	TBD	Week 4
❌ **TIC Net Flows**	12M sum < 0	❌ PENDING	TBD	Week 4

Implementation Phases

🔴 HIGH PRIORITY (Week 1-2)

Target: Canary indicators - highest responsiveness needed

1. ✅ **Productivity Growth** - COMPLETE (47.7% trigger rate)
2. ⚠️ **Forward P/E** - Final calibration with Yardeni data (threshold ~21-22)
3. **S&P Net Margins** - Test TTM vs 3Y avg + 0.5% threshold
4. **QQQ/SPY Ratio** - Verify 150-day MA > 0.85 threshold

🟡 MEDIUM PRIORITY (Week 3)

Target: Primary indicators - core signals

5. **DXY Index** - Confirm 200-day MA < 100 threshold
6. **Equity Risk Premium** - Validate ERP < 1.5% threshold
7. **S&P vs MSCI World** - Test 6-month underperformance > 2%
8. **US % of ACWI** - Verify 12-month MA > 60% threshold

🟢 LOWER PRIORITY (Week 4)

Target: Structural indicators - confirmation signals

9. **USD Reserve Share** - Confirm YoY change < -0.5%
10. **Yuan SWIFT Share** - Validate 12-month MA > 2.5%
11. **Central Bank Gold** - Test 4Q MA > 50B threshold
12. **Shiller CAPE** - Verify CAPE > 28 threshold
13. **TIC Net Flows** - Confirm 12-month sum < 0

Methodology Requirements

Base Rate Target: 50% ± 5%

Each indicator should trigger approximately **45-55%** of the time to create:

- Balanced scenario probabilities (~25% Momentum, ~60% Neutral, ~15% Defensive)
- Earlier regime recognition
- Reduced momentum bias

Validation Requirements

For each indicator, document:

📊 Quantitative Metrics

- **Historical trigger frequency** (vs 50% target)
- **Recommended MA periods** for comparisons
- **Signal quality metrics** (false positives, whipsaws <10%)
- **Correlation with other theme indicators** (0.3-0.7 within theme)
- **Cross-theme independence** (<0.3 correlation between themes)

📈 Distance-to-Trigger Validation

- **Time-to-trigger prediction accuracy**
- **Probability calibration at various distances**
- **Edge case behavior verification**
- **Volatility adjustment requirements**

Implementation Timeline

Week	Dates	Focus	Deliverables
Week 1-2	Aug 26 - Sep 8	High Priority Indicators	4 indicators calibrated
Week 3	Sep 8 - Sep 15	Medium Priority Indicators	4 more indicators calibrated
Week 4	Sep 15 - Sep 22	Lower Priority + Documentation	All 13 indicators complete
Q3 Rebal	Sep 19, 2025	Deploy validated thresholds	Live system update
Oct 2025		Publish IPS v4.0	Finalized specifications

Key Deliverables

📋 Per Indicator Documentation

1. **Threshold Specifications** - Exact trigger values
2. **Backtest Results** - Historical trigger frequencies and dates
3. **Signal Quality Report** - Whipsaw analysis and regime detection
4. **Correlation Analysis** - Inter-indicator relationships

📑 System-Level Outputs

1. **Correlation Matrix** - All 13 indicators vs each other

2. **Theme Coherence Report** - Validate 4-theme structure

3. **IPS Update** - Version 4.0 with finalized specifications

4. **Calibration Validation** - Prove ~50% trigger rates achieved

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Data Sources & Tools

Data Platforms

- **FRED** - Federal Reserve Economic Data

- **Yahoo Finance** - Market prices and ratios

- **Shiller Website** - CAPE data

- **IMF Statistics** - COFER and reserves

- **World Gold Council** - Gold demand data

- **US Treasury** - TIC flows

Analysis Tools

- **Python/Pandas** - Data manipulation

- **Excel** - Quick calculations

- **Jupyter Notebooks** - Documentation

Risk Factors

Data Challenges

- **Limited History** - Yuan (2010), QQQ (1999), COFER (1999)

- **Manual Collection** - Yuan SWIFT requires PDF extraction

- **Access Issues** - S&P margins may need institutional access

- **Calculation Complexity** - US % ACWI may need construction

Methodology Risks

- **Regime Dependence** - 50% target may not suit all environments

- **Correlation Changes** - Relationships vary across cycles

- **Threshold Stability** - May need periodic recalibration

- **Data Mining** - Avoid overfitting to historical data

Open Questions for Resolution

1. Should **Canary indicators** have higher trigger rates (55-60%) for earlier signals?

2. How do we handle **indicators with limited history** (e.g., Yuan data from 2010)?

3. Should **theme weights vary** based on signal tier composition?

4. Is **ACWX/SPY optimal** for international signals or consider EFA/SPY?

5. How frequently should **thresholds be recalibrated**?

6. How sensitive should **distance-to-trigger** be near MA crossings?

7. Should **time-to-trigger estimates** vary by indicator volatility?

8. Do **MA comparison methods** need volatility adjustments?

Success Criteria

✅ Completed When:

☐ All 13 indicators achieve 45-55% historical trigger frequency

☐ Signal quality shows <10% false signals (whipsaws)

☐ Theme coherence: indicators within themes correlate 0.3-0.7

☐ Cross-theme independence: themes correlate <0.3

☐ Distance-to-trigger predictions validated against actual crossings

☐ IPS v4.0 published with finalized specifications

☐ Theme probabilities center around 50% ± reasonable dispersion

🎯 Expected Outcome

Theme probabilities should show balanced distributions:

- Tech Boom: AI=70-80%, USD=20-30%, P/E=30-40%, Intl=25-35%

- USD Strength: USD=70-80%, AI=20-30%, P/E=40-50%, Intl=15-25%

- Realistic scenario differentiation with proper 50% baseline calibration

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VERSION CONTROL

- v1.0 (2025-09-01): Initial checklist extracted from project knowledge

- **NEXT:** Update status as indicators are completed

- **FILE LOCATION:** Save in offline documentation system for project tracking