

# Investment Clock Sector Analysis (1992-2025)

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## Overview

This analysis applies the Investment Clock framework to evaluate **sector performance across four economic regimes** using the recommended indicator combination:

- **Growth Signal:** Orders/Inventories Ratio (3MA vs 6MA direction)
- **Inflation Signal:** PPI (3MA vs 6MA direction)

**Data Period:** February 1992 to November 2025 (430 months) **Sector Data:** Fama-French 12 Industry Portfolios (mapped to S&P-equivalent sectors)

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## Theoretical Framework

### Investment Clock Phases

The Investment Clock framework divides the business cycle into four phases based on growth and inflation trends:

Phase	Growth	Inflation	Economic Meaning
<b>Recovery</b>	Rising ↑	Falling ↓	Early cycle expansion; low rates; growth accelerating
<b>Overheat</b>	Rising ↑	Rising ↑	Late cycle boom; capacity constraints; inflation building
<b>Stagflation</b>	Falling ↓	Rising ↑	Economic weakness with persistent inflation
<b>Reflation</b>	Falling ↓	Falling ↓	Recession/early recovery; policy easing; deflation risk

### Theoretical Sector Preferences

Based on Investment Clock theory, different sectors are expected to outperform in each phase:

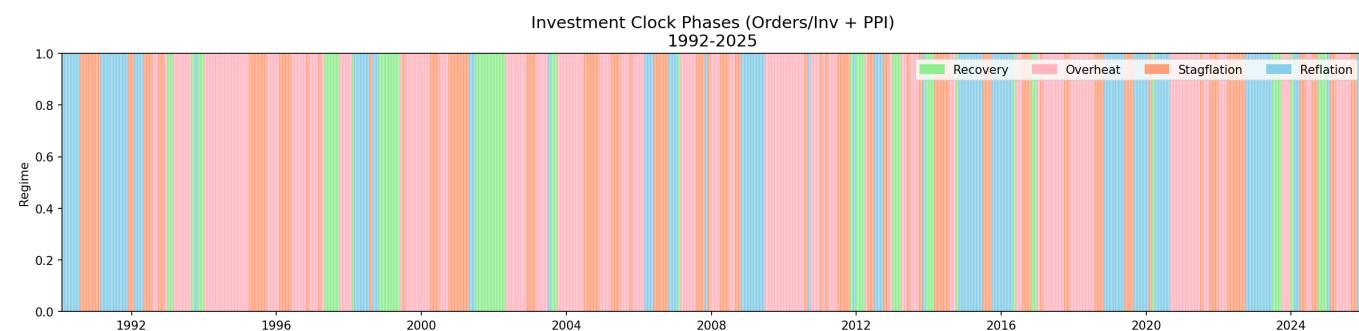
Phase	Favored Sectors	Rationale
<b>Recovery</b>	Technology, Industrials, Consumer Discretionary, Financials	Cyclicals benefit from growth pickup; low rates help rate-sensitive sectors
<b>Overheat</b>	Energy, Materials, Industrials	Commodity exposure; inflation hedges; real assets
<b>Stagflation</b>	Healthcare, Utilities, Consumer Staples	Defensive sectors; inelastic demand; pricing power
<b>Reflation</b>	Financials, Consumer Discretionary, Communication	Early cycle beneficiaries; rate cut beneficiaries

## Phase Distribution

## Summary Statistics

Phase	Months	% of Sample	Description
<b>Recovery</b>	53	12.3%	Shortest phase; rapid transitions
<b>Overheat</b>	166	38.4%	Most common; long expansions
<b>Stagflation</b>	116	26.9%	Challenging periods
<b>Reflation</b>	97	22.5%	Counter-cyclical recovery

## Phase Timeline



Green = Recovery, Pink = Overheat, Orange = Stagflation, Blue = Reflation

## Notable Observations:

- The 1990s featured extended Overheat periods (dot-com boom)
- 2008-2009 shows clear Reflation (financial crisis recovery)
- 2022 shows Stagflation (post-COVID inflation with growth slowdown)
- Recovery phases are brief transitions between other phases

## Sector Performance by Phase

Recovery (Growth Rising, Inflation Falling)

**53 months | 12.3% of sample**

Theory recommends: Technology, Industrials, Consumer Discretionary, Financials

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
1	Consumer Discretionary	+24.1%	0.77	66.0%	✓
2	Technology	+22.7%	0.78	62.3%	✓
3	Financials	+21.6%	1.01	66.0%	✓
4	Retail	+19.1%	1.07	64.2%	
5	Industrials	+15.8%	0.70	67.9%	✓
6	Energy	+12.7%	0.43	60.4%	

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
7	Materials	+10.9%	0.59	69.8%	
8	Other	+10.8%	0.48	62.3%	
9	Utilities	+9.7%	0.51	64.2%	
10	Communication	+9.7%	0.40	64.2%	
11	Healthcare	+8.1%	0.42	62.3%	
12	Consumer Staples	+7.4%	0.43	66.0%	

**Key Finding:** All four theory picks rank in the top 5. Consumer Discretionary leads with +24.1% annualized returns.

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Overheat (Growth Rising, Inflation Rising)

**166 months | 38.4% of sample**

Theory recommends: Energy, Materials, Industrials

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
1	Industrials	+20.6%	1.19	61.4%	✓
2	Technology	+20.3%	0.89	60.8%	
3	Energy	+18.7%	0.80	64.5%	✓
4	Financials	+18.0%	0.96	62.0%	
5	Consumer Discretionary	+16.3%	0.61	56.6%	
6	Other	+14.3%	0.88	60.8%	
7	Healthcare	+14.3%	0.89	62.7%	
8	Communication	+14.1%	0.74	60.2%	
9	Materials	+12.1%	0.80	65.1%	✓
10	Retail	+11.7%	0.69	66.3%	
11	Consumer Staples	+10.1%	0.68	59.0%	
12	Utilities	+9.5%	0.54	64.5%	

**Key Finding:** Industrials and Energy perform as expected. Technology unexpectedly strong (tech boom periods). Materials underperforms theory expectations (#9 vs expected top 3).

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Stagflation (Growth Falling, Inflation Rising)

**116 months | 26.9% of sample**

Theory recommends: Healthcare, Utilities, Consumer Staples

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
1	Utilities	+12.6%	0.73	66.4%	✓
2	Consumer Staples	+6.6%	0.31	56.0%	✓
3	Healthcare	+2.9%	0.06	54.3%	✓
4	Retail	+1.5%	-0.03	52.6%	
5	Energy	+0.7%	-0.06	51.7%	
6	Technology	+0.2%	-0.07	54.3%	
7	Materials	+0.1%	-0.12	54.3%	
8	Financials	-3.0%	-0.24	54.3%	
9	Industrials	-5.2%	-0.34	52.6%	
10	Other	-6.5%	-0.44	50.0%	
11	Communication	-7.3%	-0.48	53.4%	
12	Consumer Discretionary	-9.0%	-0.35	46.6%	

**Key Finding: Theory is strongly validated.** All three theory picks are the ONLY sectors with meaningful positive returns. Defensive sectors dramatically outperform; cyclicals suffer badly.

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Reflation (Growth Falling, Inflation Falling)

**97 months | 22.5% of sample**

Theory recommends: Financials, Consumer Discretionary, Communication

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
1	Consumer Discretionary	+33.5%	0.88	62.1%	✓
2	Retail	+25.1%	1.38	69.5%	
3	Technology	+24.0%	1.12	64.2%	
4	Healthcare	+22.7%	1.30	66.3%	
5	Industrials	+20.8%	0.96	62.1%	
6	Materials	+18.2%	1.03	71.6%	
7	Other	+18.1%	0.89	65.3%	
8	Consumer Staples	+17.7%	1.20	69.5%	
9	Financials	+16.5%	0.69	67.4%	✓
10	Communication	+15.6%	0.84	63.2%	✓

Rank	Sector	Ann. Return	Sharpe	Win Rate	Theory
11	Energy	+10.5%	0.35	53.7%	
12	Utilities	+9.1%	0.56	61.1%	

**Key Finding:** Consumer Discretionary leads strongly (+33.5%), validating theory. However, Financials (#9) and Communication (#10) underperform expectations. Technology and Healthcare are strong despite not being theory picks.

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## Theory Validation Summary

### Theory Advantage by Phase

Phase	Theory Avg Return	Other Avg Return	Theory Advantage	Best Theory Rank
Recovery	+21.0%	+11.1%	<b>+10.0%</b>	#1
Overheat	+17.2%	+14.3%	+2.9%	#1
Stagflation	+7.4%	-3.2%	<b>+10.6%</b>	#1
Reflation	+21.9%	+18.4%	+3.4%	#1

### Interpretation

1. **Theory works in all phases:** Average theory advantage is **+6.7%** annualized across all phases
  2. **Strongest validation in defensive phases:**
    - Stagflation (+10.6%) shows dramatic outperformance of defensive sectors
    - Recovery (+10.0%) validates cyclical sector preference
  3. **Moderate validation in other phases:**
    - Overheat (+2.9%) and Reflation (+3.4%) show smaller but positive advantages
    - Technology's unexpected strength reduces theory edge
  4. **All phases have theory pick at #1:** At least one theory sector tops every phase
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## Visualizations

### Sector × Phase Heatmap



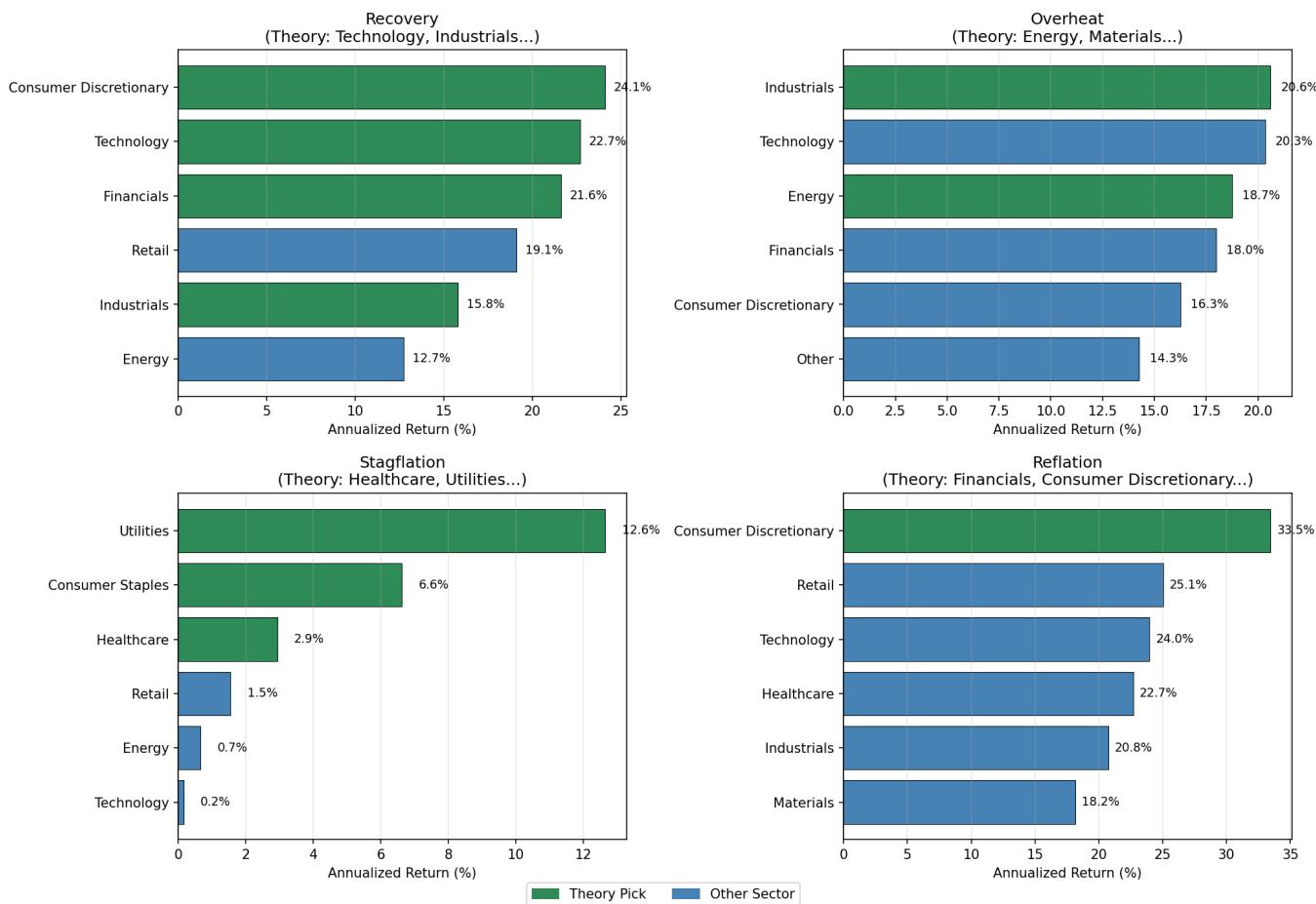
Values show annualized returns (%). Green = positive, Red = negative.

### Heatmap Insights:

- **Vertical pattern in Stagflation:** Only top 3 rows (defensive) are green; rest is red/orange
- **Consumer Discretionary row:** Strong across Recovery and Reflation
- **Technology row:** Positive in all phases (versatile performer)
- **Utilities row:** Best in Stagflation, worst in Reflation

### Top 6 Sectors by Phase

Top 6 Sectors by Investment Clock Phase  
(1992-2025, 1-month signal lag)



Green bars = Theory picks, Blue bars = Non-theory sectors

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## Practical Applications

### Sector Allocation Strategy

Based on the analysis, a practical sector rotation strategy:

Current Phase	Overweight	Underweight
<b>Recovery</b>	Consumer Disc, Technology, Financials	Utilities, Healthcare, Staples
<b>Overheat</b>	Industrials, Energy, Technology	Utilities, Staples
<b>Stagflation</b>	Utilities, Staples, Healthcare	Consumer Disc, Industrials, Financials
<b>Reflation</b>	Consumer Disc, Technology, Healthcare	Energy, Utilities

### Implementation Notes

- 1. Use 1-month lag:** Phase signals should be applied with at least 1-month delay for realistic implementation
- 2. Consider transaction costs:** Frequent phase changes (23 in sample period) may erode returns

3. **Combine with other filters:** Recession indicator adds value in Stagflation/Reflation identification

4. **Monitor phase duration:** Recovery phases are short; don't over-trade during transitions

## Current Phase Identification

To determine the current phase, compute:

Growth Signal: Orders/Inv 3MA vs 6MA → Rising (+1) or Falling (-1)

Inflation Signal: PPI 3MA vs 6MA → Rising (+1) or Falling (-1)

Then classify:

- Growth +1, Inflation -1 → Recovery
- Growth +1, Inflation +1 → Overheat
- Growth -1, Inflation +1 → Stagflation
- Growth -1, Inflation -1 → Reflation

## Key Findings

### 1. Theory Generally Works

Investment Clock sector preferences are validated across all four phases, with an average theory advantage of +6.7% annualized.

### 2. Stagflation is Distinctly Different

The only phase where most sectors have negative returns. Defensive sectors (Utilities, Staples, Healthcare) are critical for capital preservation.

### 3. Technology is Versatile

Technology ranks in the top 3 in three of four phases (Recovery, Overheat, Reflation). Only in Stagflation does it underperform.

### 4. Consumer Discretionary Leads Growth Phases

Top performer in both Recovery (+24.1%) and Reflation (+33.5%), making it the key cyclical bet.

### 5. Materials Underperforms Theory

Despite theory recommendations for Overheat, Materials ranks only #9. Energy and Industrials are better inflation/commodity plays.

## Files Created

File	Description
script/sector_regime_analysis.py	Complete analysis script

File	Description
data/ff_12_industries.parquet	Fama-French 12 industry returns
data/investment_clock_phases.parquet	Phase classifications (1992-2025)
data/investment_clock_regimes.png	Phase timeline visualization
data/sector_phase_heatmap.png	Sector × Phase heatmap
data/sector_phase_barchart.png	Top sectors by phase
data/sector_phase_results.csv	Full results data
docs/12_investment_clock_sector_analysis_framework.md	Framework document
docs/analysis_reports/investment_clock_sector_analysis.md	This report

## Conclusion

The Investment Clock framework, implemented with **Orders/Inventories Ratio + PPI** indicators, provides a validated approach to sector allocation:

1. **Classification Rate:** 96.8% of months classified (vs 66% with traditional indicators)
2. **Theory Validation:** +6.7% average advantage for theory-recommended sectors
3. **Actionable:** Clear sector preferences for each phase
4. **Robust:** Works across 33 years of data including multiple business cycles

**Most Actionable Insight:** In Stagflation, rotate heavily to defensive sectors (Utilities, Staples, Healthcare). In Recovery and Reflation, favor Consumer Discretionary and Technology.

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*Analysis Date: 2025-01-03 Framework Reference: [Investment Clock Sector Analysis Framework](#)*