USD/JPY and Key Macroeconomic Variables

Bridging the Gap Between Theory and Empirical Evidence

1. Objective

This analysis examines **which macroeconomic factors have driven movements in USD/JPY**, by organizing its **co-movements with multiple candidate variables** spanning financial markets, the real economy, and risk sentiment.

The focus is on explicitly highlighting the **disconnect between textbook theories**—such as Uncovered Interest Parity (UIP) and the safe-haven hypothesis—and **actual data behavior**, and providing **structural interpretations** for why these discrepancies arise.

---

2. Observed Relationships

2.1 US Short-Term Interest Rates (2-Year) and USD/JPY

Theory

Higher US short-term rates → wider US-Japan rate differential → JPY selling → JPY depreciation

Empirical Findings

- 2000s–2019: Strong positive correlation, consistent with theory
- Post-2020: USD/JPY often continues to depreciate even when US short-term rates decline

Interpretation

- The yen has shifted from a "currency that reverts with rate differentials" to a **structurally unattractive holding currency**
- FX markets now price **long-term expectations (real returns and credibility)** rather than short-term rates

---

2.2 US Long-Term Interest Rates (10-Year) and USD/JPY

Observation

- Positive correlation exists, but weaker than with short-term rates

Interpretation

- Long-term yields reflect medium-to-long-run growth, inflation, and institutional stability
- Current yen weakness reflects **funding-currency dynamics and relative return deterioration**, not immediate fiscal or sovereign-risk concerns

---

2.3 VIX (Risk Indicator) and USD/JPY

Theory

Higher VIX (risk-off) → safe-haven demand → JPY appreciation

Empirical Findings

- Short run: VIX spikes trigger temporary yen appreciation
- Medium to long run: Yen depreciation trend persists even at elevated VIX levels

Interpretation

- The yen's safe-haven property still exists **momentarily**, but no longer **reverses trends**
- The yen has become a currency that is **briefly unwound**, not accumulated

---

2.4 Equity Markets (S&P 500, Nikkei) and USD/JPY

Observation

- Very strong positive correlation between USD/JPY and the S&P 500
- High positive correlation with the Nikkei as well

Theoretical Tension

- Textbook intuition would suggest equity gains → JPY appreciation

Interpretation

- Japanese equities rise mainly as a **spillover from US and global growth**, not domestic fundamentals
- In global risk-on environments, capital flows into higher-return assets (e.g., US equities), while the yen is sold
- The observed correlation reflects a **common global factor**, not direct causality

---

2.5 Oil Prices and USD/JPY

Theory

Higher oil prices → higher Japanese inflation → lower real rates → JPY depreciation

Empirical Findings

- Historically, oil prices often showed a negative correlation with USD/JPY
- Recently, oil price increases and yen depreciation increasingly coincide

Interpretation

- Around 2008: Oil price hikes reflected global instability → yen functioned as a safe haven
- Recently: Oil price hikes reflect **supply-constraint inflation**, worsening Japan's terms of trade and trade balance
- JPY selling pressure now dominates

---

3. Core Insight: Why Theory and Reality Diverge

Across variables, the key driver of FX movements is **not the variable itself**, but the **market**

regime through which it is interpreted:

- Interest rates: rate differentials vs. real returns
- Equity prices: domestic growth vs. global risk-on
- Oil prices: global fear vs. supply-driven inflation
- VIX: safe-asset demand vs. position adjustment

---

4. Variables for Quantitative Verification

Tier 1 (Core Drivers)

- US-Japan short-term rate spreads (nominal and real)
- Equity return spreads (S&P 500 − Nikkei)
- VIX
- Oil prices

→ Capturing FX movements driven by **returns and risk**

Tier 2 (Structural Understanding)

- Japan's trade balance (especially energy)
- Gold prices (alternative safe haven)
- FX hedging costs (cross-currency basis)

→ Explaining **why the yen is no longer chosen**

Tier 3 (Expectations and Frictions)

- Inflation expectations (BEI)
- Positioning indicators (CFTC)
- Policy event dummies

→ Proxies for short-run distortions and expectations

---

5. Summary

The yen has **structurally transformed** from

- "a currency that rebounds when rate differentials narrow"
- "a currency held in risk-off episodes"

into a **low-return funding currency**.

Current USD/JPY dynamics should be understood not through short-term rates or temporary risk sentiment, but as the outcome of **global expected returns and capital allocation decisions**.