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# Global Markets Division Behavioral Equilibrium

**Exchange Rate (BEER)** 

**Currency Trade** 

**Investment Horizon: 1 Year** 

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# **BEER Model Framework**









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# Understanding the Concept

#### Purpose and Benefits of the BEER Model



A BEER model estimates where a currency **should be trading** based on economic fundamentals. It provides a benchmark **"fair value"** rate, making it easier to assess if a currency is misaligned with its **economic reality**.

Value Misalignments Compares **actual spot** and forward exchange rates to **BEER-derived fair values** to highlight overvalued and undervalued currencies. This provides a solid basis for making **more informed** trading or hedging decisions.



The BEER model incorporates long-term, medium-term and short-term factors, making it a robust tool. This multi-layered approach captures both structural and cyclical influences on a currency's value.



Being easily adjustable, it allows to stress-test potential 'what-if' scenarios in the future and forecasts how such changes affect the "fair value" equilibrium rate.

# $\log(REER) = \alpha + \beta_1 \log(GDP_{pc}) + \beta_2 \log(CPI) + \beta_3 \log(Trade) + \epsilon$

#### **Model Overview**

- Our model analyzes 14 currencies consisting of G10 and 4 EM picks
- Utilizes data spanning from Q1 2000 to Q1 2025
- Operates on a quarterly data frequency for robust trend capture
- Incorporates REER, CPI, GDP per Capita, and Trade as core inputs for the model

#### **Technical Approach**

BEER model was built in **Python** for robust and reproducible analysis



Data sourced and vetted manually to ensure quality, consistency, and transparency

Long-run relationships between REER and its fundamentals estimated using OLS regression Model built as a multi time-series regression of REER on its economic drivers

# **Currency Selection**



## Mapping Out the Selection Process

## Strategic Selection



#### **Define Selection Criteria**

Prioritize **G10** currencies for relevance and liquidity and incorporate emerging markets to capture regional **diversity and structural misalignment** potential



Screen EM currencies based on trade exposure, capital flow importance, global financial presence, and monetary regime diversity

#### **Build Candidate Set**



Identify currencies that meet the strategic filters and hold **potential** for meaningful **macroeconomic** insights

#### **Model Suitability Test**



#### **Data Availability**

Ensure consistent macro data for key BEER inputs like productivity, interest rates, and external balances



#### **Suitability Assessment**

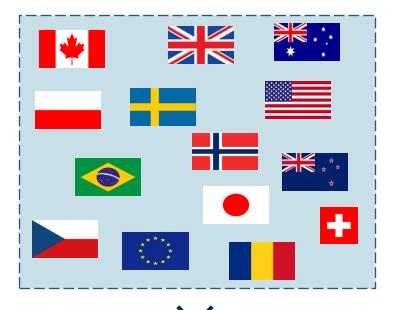
Testing behavior of candidate currencies within the BEER framework, ensuring economic interpretability



#### **Final Selection**

Select currencies that align with technical model requirements and passed suitability tests, supporting reliable output

#### **Results of the Screening Process**



The selected currencies were chosen for their strategic relevance and model suitability, fulfilling the predefined criteria for model estimation and providing great foundation for a meaningful misalignment analysis.

# **Quantitative Input**

How Each Variable Influences the "Fair Value" Exchange Rate

#### Real Effective Exchange Rate (REER)



Inflation adjusted trade weighted exchange rate index



Dependent variable explained by fundamentals



Used as benchmark to compare against BEER

$$REER = NEER \times \frac{Foreign CPI}{Domestic CPI}$$

#### **GDP** per Capita (PPP)



Income per person adjusted for purchasing power



Proxy for productivity and structural strength



Higher GDP per capita increases BEER

$$GDP \ per \ Capita = \frac{GDP \ in \ USD}{Population}$$

#### **Consumer Price Index (CPI)**



Standard measure of consumer price inflation



Reflects relative competitiveness



Higher CPI lowers BEER

*CPI* = *Price Index of Goods* (*relative to base year* 2010)

#### Trade Openness (as % of GDP)



Sum of exports and imports as share of GDP



Indicates level of trade integration



Higher trade openness increases BEER

$$Trade\ Openness = \frac{Exports + Imports}{GDP}\ x\ 100$$

# **BEER Model Methodology**



The Detailed Process and Snapshots of the Model's Outcome

#### **The Model Process**



**Define Regression** 

**Estimate Model** 

Compute BEER

**Calculate Misalignment** 

**Interpret for Trade** 



Quarterly data from a large time frame to ensure robustness



REER as dependent variable, fundamentals as independent inputs



OLS regression estimates REER based on economic fundamentals



Receive model-implied "fair value" based on fundamentals

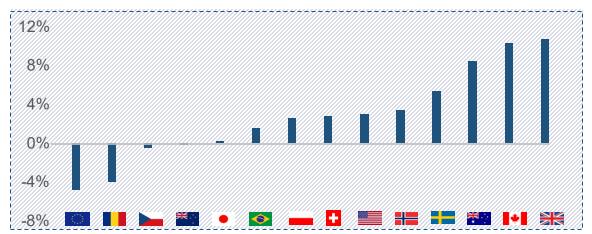


Difference between actual REER and BEER fair value

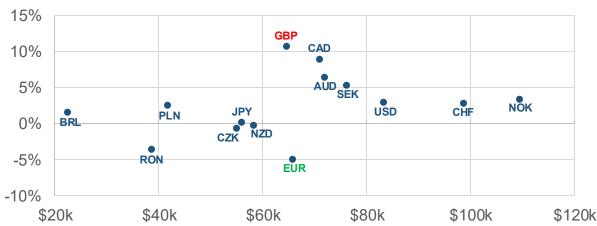


Long EUR / Short GBP based on BEER misalignment

## **Currency Misalignment Summary**



#### "Fair Value" Misalignment in Relation to GDP per Capita



# **Analyzing BEER Model Outcomes**





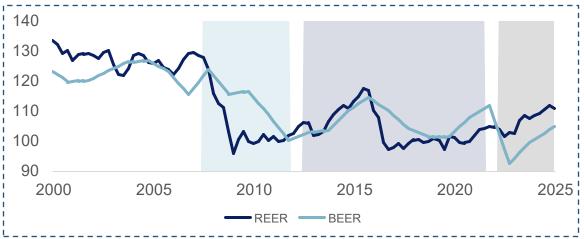


Historical Over- and Undervaluation of the EUR and GBP

#### **EUR: REER vs BEER (relative value)**



#### **GBP: REER vs BEER (relative value)**



#### 2004-2010



eur was continuously overvalued according to the BEER model due to favorable interest rates and confidence in EUR

#### 2012-2018



Low inflation led to a short period of overvaluation which then switched to – undervaluation due to the QE from the ECB

#### 2024-now



EUR significantly undervalued by the largest margin observed in the sample period due to the inflation gap

#### 2008-2012



GBP was significantly undervalued due to high exposure to the financial crisis and the BoE's aggressive monetary easing

#### 2012-2021



Relatively close convergence indicating macroeconomic alignment and fair valuation

#### 2022-now



First time consistently
overvalued for a longer
period since the early
2000s mostly due to the
delayed rate cuts



# Macroeconomic Analysis Eurozone I.



Disinflation with Fragile Growth Supports EUR Repricing

#### Overview



Moderate growth amid uncertainty, stable government deficits due to EU rules



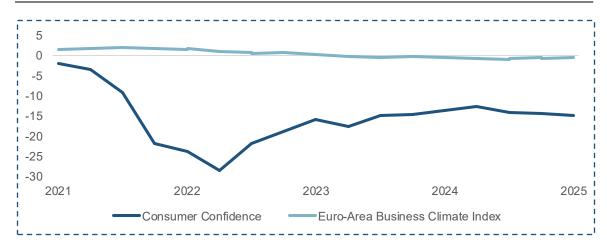
Strong labor markets and inflation near long-term 2% target



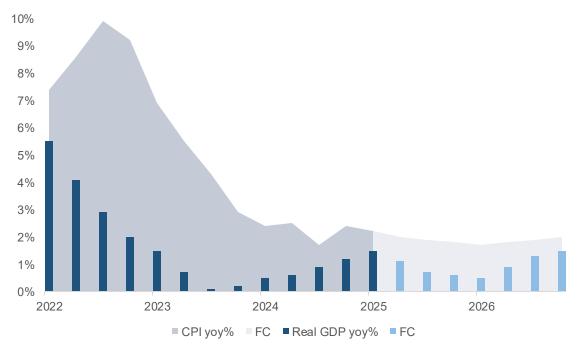
Consistent current account surplus and growing capital inflows as EUR is increasingly seen as a safe haven

#### Moderate growth and shifting monetary policy strengthen EUR

#### **Market Confidence**



#### Trends in CPI and GDP Growth





The Eurozone **economy grew by 0.6%** in the first quarter of 2025, **doubling** the earlier estimate of 0.3%



Eurozone headline **inflation fell** to **1.9% in May 2025**, marking the first drop below the ECB's 2.0% target since September 2024

# Macroeconomic Analysis Eurozone II.



## Monetary Flexibility and Structural Support

#### **Monetary Policy**



"I think we are getting to the end of the monetary policy cycle, that was responding to compounded shocks"

- Christine Lagarde (ECB President), 5 June 2025



No pre-commitment reflects the ECB's response to uncertainty



Markets are currently **pricing in one more 25 bps cut** by the ECB this year

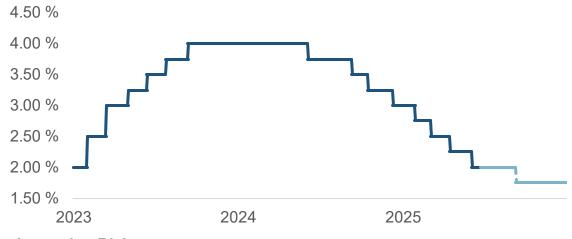
#### **Fiscal Policy**







#### **Eurozone Interest Rate Forecast**



## **Assessing Risks**

#### **Tariff Uncertainty**

EU–US trade talks remain uncertain amid internal divisions and sector-specific tariff threats

Weak industrial output persists in several member states, clouding nearterm growth outlook

**Manufacturing Weakness** 

#### **Export Headwinds**

A stronger euro could weigh on exports and raise concerns over external competitiveness

Diverging fiscal strategies among member states may challenge unified policy coordination

**Policy Fragmentation** 



# Macroeconomic Analysis UK I.







# Subdued Growth and Lingering Inflation Risks

#### Overview



Sluggish economic growth, high government deficits, and uncertainty prevail



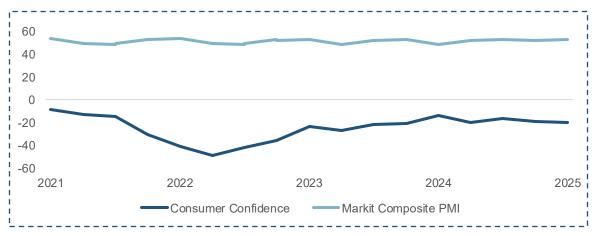
Weak labor markets. slowing inflation and spending cuts



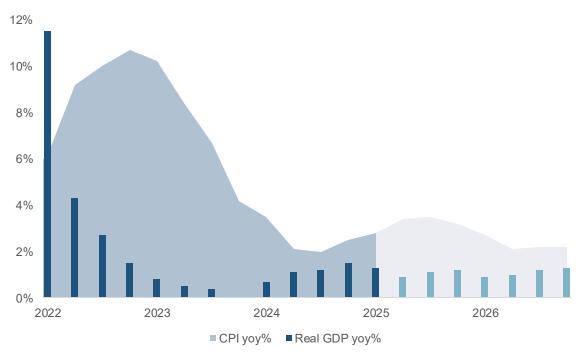
High current account deficits, reliance on foreign capital inflows due to trade imbalance

#### Weak economic outlook making way for rate cuts and currency depreciation

#### **Market Confidence**



#### Trends in CPI and GDP Growth





Inflation declining close to ~2% by end 2025, while GDP growth stagnates below 1% - reflecting limited domestic demand recovery



Market confidence indicators improved slightly post 2022 lows, but remain historically weak - showing consumer caution and low business momentum

# Macroeconomic Analysis UK II.



## Monetary Caution Meets Fiscal Pressure

#### **Monetary Policy**



"Interest rates remain on a gradual downward path, although we left them on hold today"

- Andrew Bailey (BoE Governor), 19 June 2025



BoE held rates at 4.25% in a 6–3 vote, with dissenters favoring a cut amid weak growth and a loosening labor market



Markets are currently **pricing in two further quarter-point** interest rate cuts by the BoE before the end of the year

#### **Fiscal Policy**

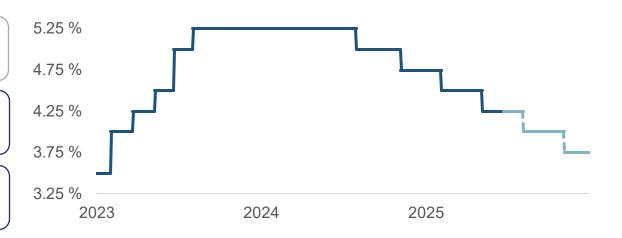






USA

#### **UK Interest Rate Forecast**



### **Assessing Risks**

#### **Oil Price Sensitivity**

Oil prices remain under close watch amid geopolitical tensions in the Middle East

Persistent wage pressures may keep services inflation elevated, forcing the BoE to maintain a restrictive stance

**Wage Pressure** 

#### **CPI Data**

A rebound in GDP or strong consumer data could improve sentiment toward the pound

A stabilizing labour market could shift policy outlook, reducing urgency to cut interest rates

**Labour Market** 



# **Currency Trade Setup**



## Capitalizing on Currency Mispricing

#### **GBP** Positioning

British Pound trades 10.74% above fair value, near peak of historical misalignment range

Policy divergence intensifies, with **two further** expected BoE rate cuts in 2025

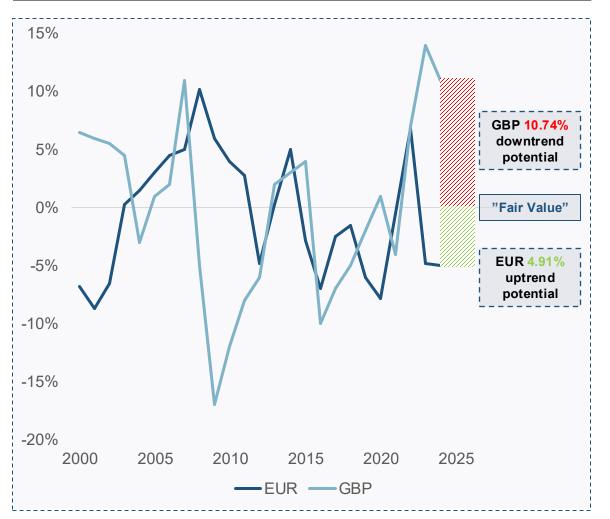
Weak fiscal outlook and rising tax burden undermine structural confidence

#### **Short GBP:**

Position via FX forwards or futures

Stronger mispricing and earlier BoE cuts justify a larger high-conviction short allocation

## **EUR GBP Misalignment chart**



## **EUR Positioning**

Euro trades **4.91% below fair value**, with consistent undervaluation over recent months

ECB priced for **one more 25bps rate cut** in 2025, limiting scope for policy-driven downside

Improving business sentiment and stable external balance support gradual revaluation

#### Long EUR:

Position via FX forwards or futures

Limited ECB activity and steady undervaluation support a controlled long position



# Appendix I

# W U T I S

# Sources

Source Name	Link	Date of Retrieval	Used for
Bloomberg Finance L.P.	-	BEER Model Data, Macroeconomics	Continuous use
Trading Economics	<u>Link</u>	5/18/2025	Model Methodology
IMF	<u>Link</u>	05/18/2025	Model Methodology
University of Glasgow and Peterson Institute of International Economics	<u>Link</u>	05/18/2025	Model Methodology
Goldman Sachs	FX in Focus: Do BEER Models Work? (2019)	05/18/2025	Model Methodology
Bank of America	FX Value: We prefer BEER (2018)	05/18/2025	Model Methodology
Bank of America	A primer on G10 equilibrium exchange rates (2019)	05/18/2025	Model Methodology
Bank for International Settlements	<u>Link</u>	06/10/2025	REER
World Bank	<u>Link</u>	06/10/2025	CPI, GDP per Capita, Trade
BBC	<u>Link</u>	06/20/2025	UK Monetary and Fiscal Policy
ECB	<u>Link</u>	06/21/2025	Eurozone Monetary Policy
Reuters	<u>Link</u>	06/23/2025	UK Economic Information

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