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**Global Markets Division**

## **German Invoice Swap Spread Trade**

**Rising Risk Premia and Rate Cuts Driving Profits**

**Investment Horizon: 1 Year**

*Upside Potential: +22.79%*

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Anna Hodun, Luca Mark Barontini

Vienna, January 24<sup>th</sup>, 2025

# Team Overview

Global Markets Division



**Emilia Kalss**

**Team Lead**

Storyline  
Macroeconomic Analysis  
Model Outline



BSc (WU) in Economics  
– 5<sup>th</sup> semester



**Lina Arustamyan**

**Analyst**

Econometric Model  
Implementation



MSc (WU) in Quantitative  
Finance – 3<sup>rd</sup> semester



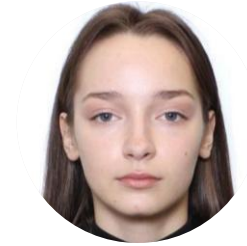
**Amon Scharff**

**Fellow-Analyst**

Trade Strategy &  
Implementation



BSc (WU) in Economics  
– 3<sup>rd</sup> semester



**Anna Hodun**

**Fellow-Analyst**

Bond & Swap  
Developments



BSc (WU) in Business and  
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**Fellow-Analyst**

Macroeconomic Analysis



BA (CEU) in Philosophy,  
Politics and Economics  
– 3<sup>rd</sup> semester

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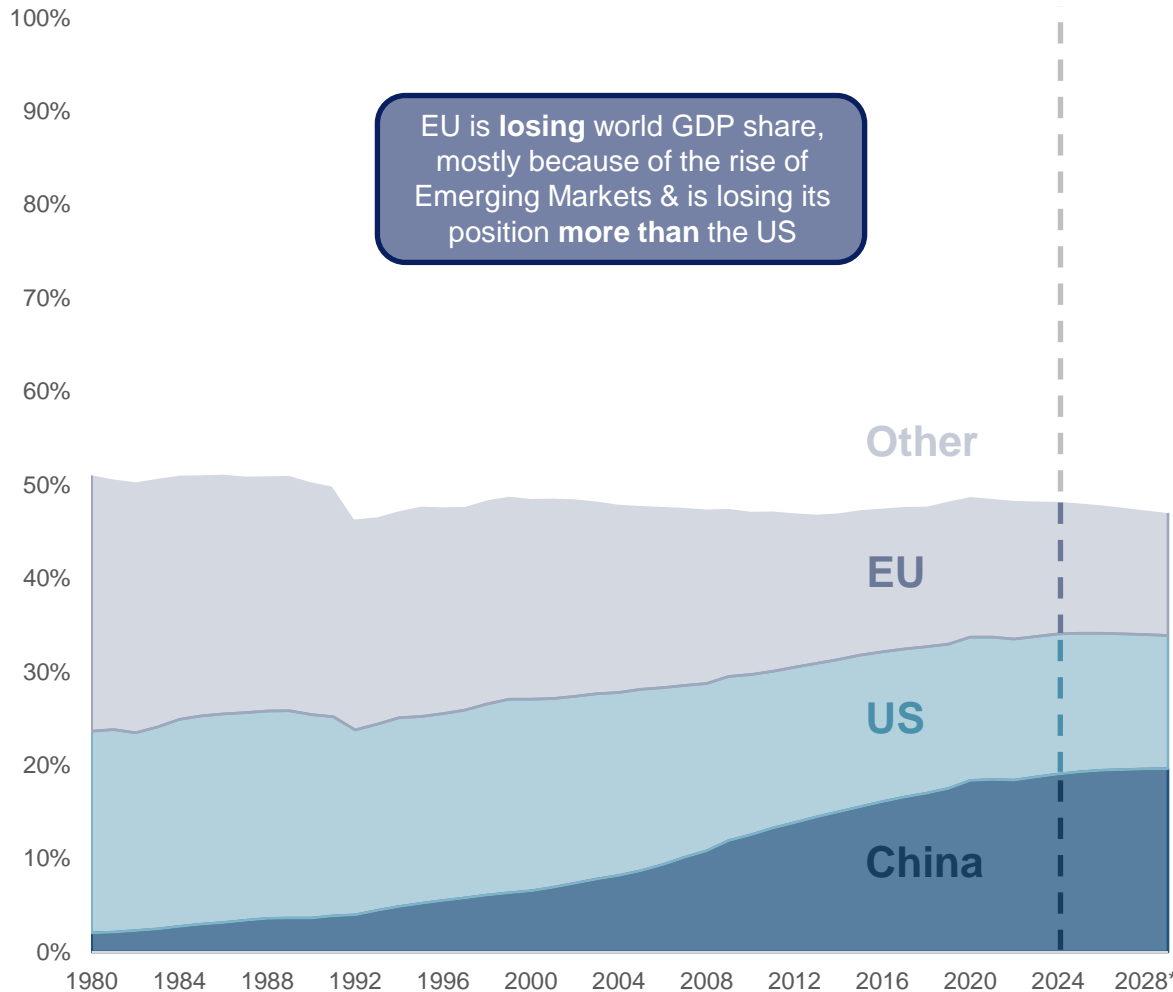
# Macroeconomic Analysis



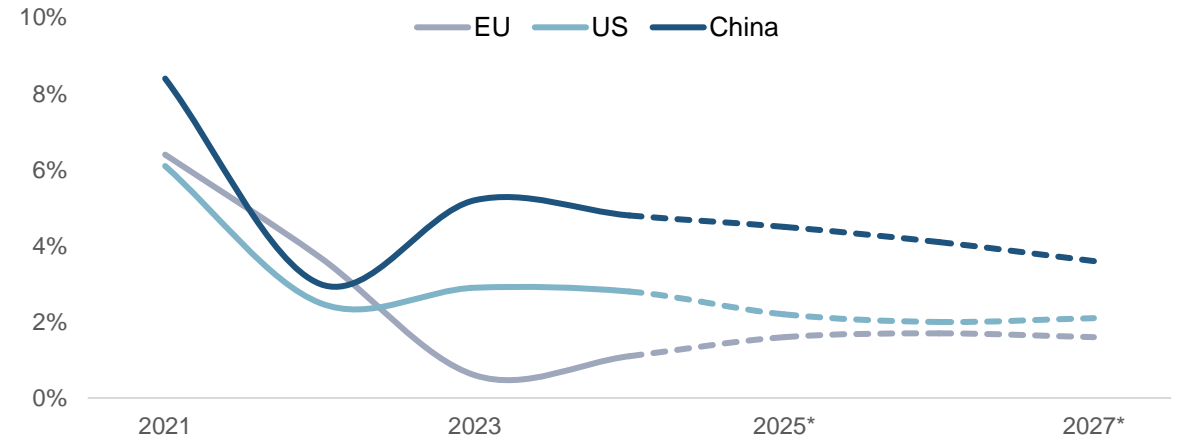
# Europe in the World Economy

## The Position of the EU is Weakening

### World GDP Share Based on Purchasing Power Parity



### Annual Real GDP Growth



### Disadvantages

- 

**Europe is Falling Behind**  
Across different metrics, a **wide GDP gap** has opened up between the EU and the US & China
- 

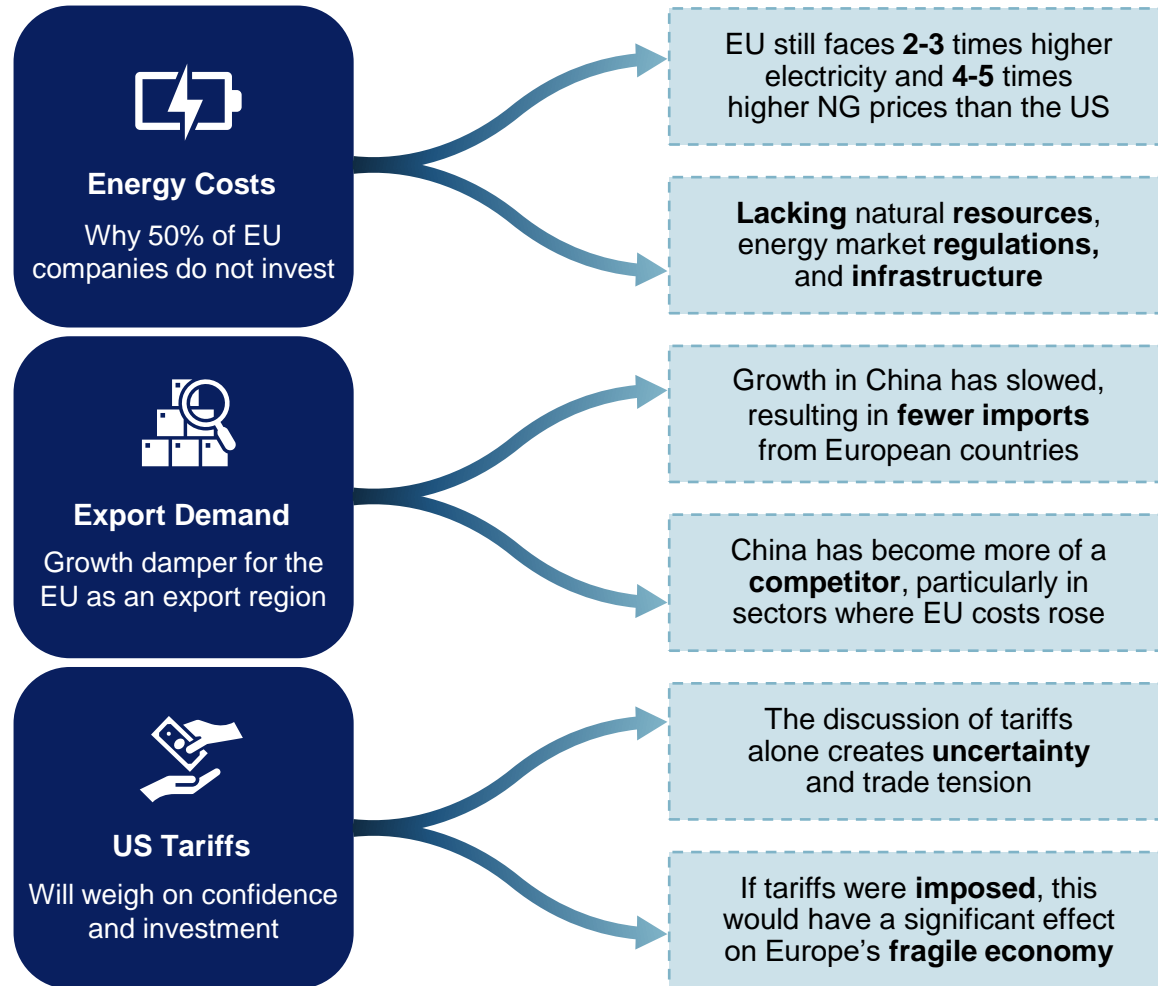
**Growth Conditions Have Faded**  
Benefits from world trade seem to have passed as **world trade growth slows & cheap energy** from Russia has disappeared
- 

**High Ambitions**  
Europe has set ambitious plans for change but **struggles with execution and adaptation** to structural challenges

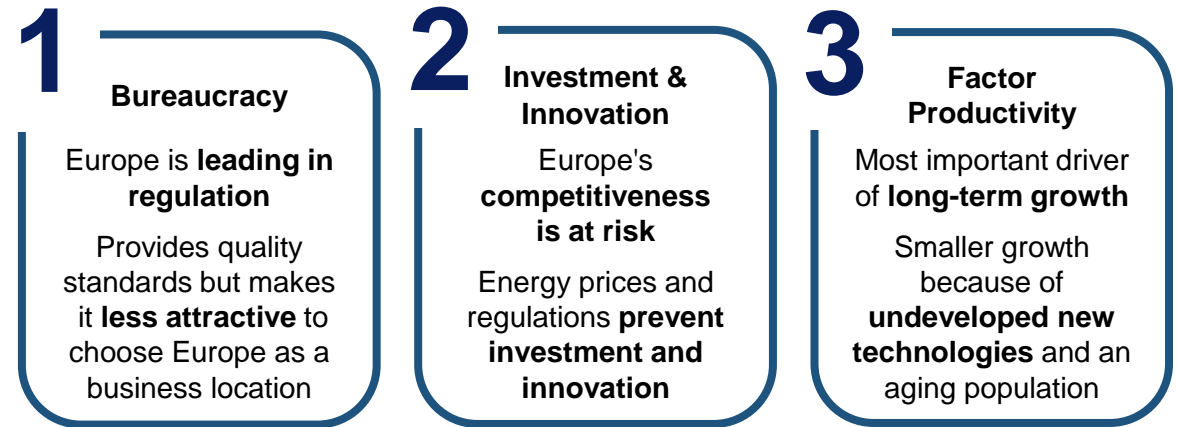
# Challenges for Europe's Economy

## Europe is Not a Competitive Location for Business

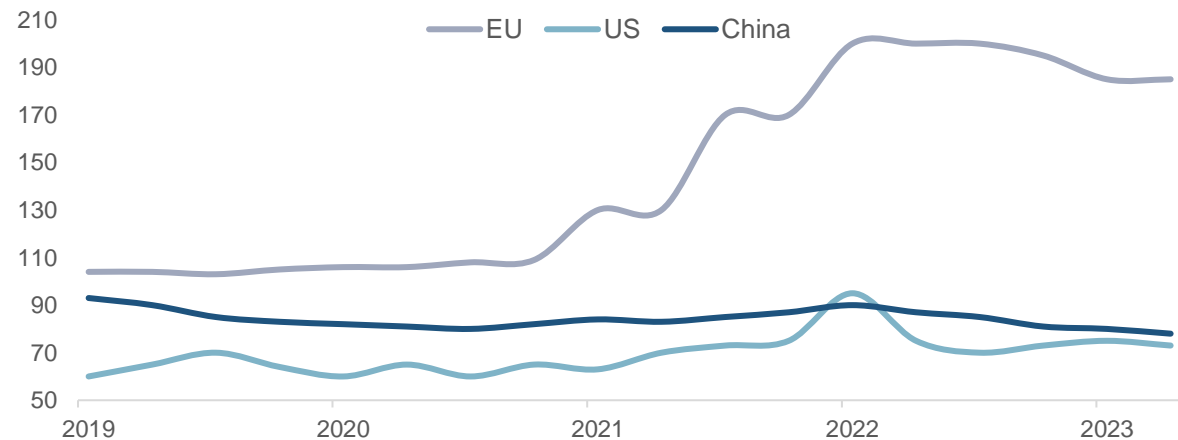
### Current Obstacles to Growth



### Existing Dampers

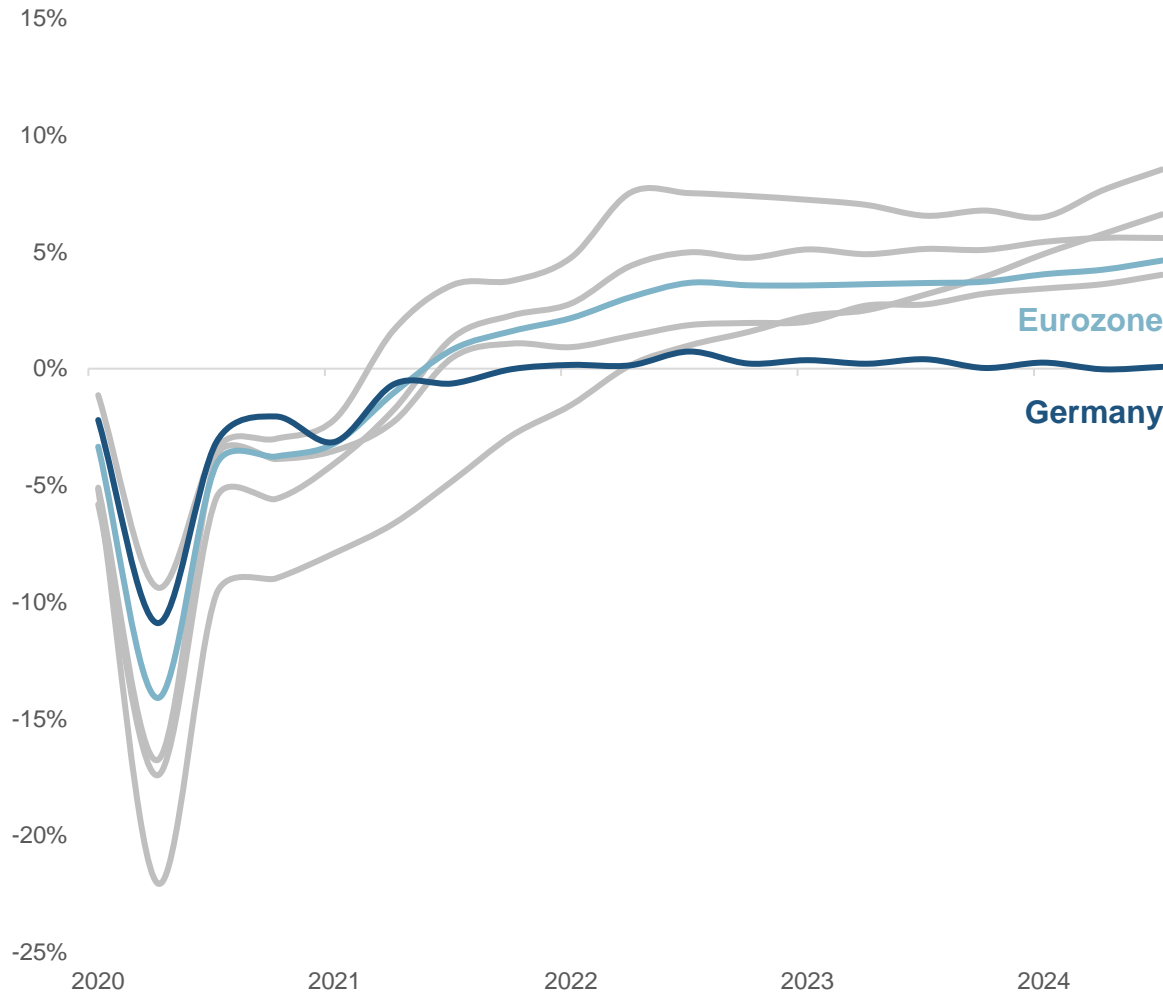


### Industrial Retail Power Prices in EUR/MWh



## Stagnant GDP Calls for Policy Action

### GDP Eurozone Countries, Cumulative Growth Rate Since Q1 2020



### German GDP Developments

#### Stagnation Persists in Eurozone's Largest Economy

Germany experienced the first consecutive annual GDP decline since the early 2000s, marking the **longest period of stagnation** in post-war history. With a third recession year to come, Germany faces **deep structural challenges** affecting growth

#### Germany Underperforms Within the Eurozone

Germany's GDP growth clearly **underperforms** the other big Eurozone economies and stays behind the Eurozone average after not being able to kickstart its economy after COVID due to the **loss of Russian energy** and **lower export demand**

### Eurozone Cries for Stimulus



The Eurozone is experiencing **weak demand and sluggish growth**, with GDP expanding by only **0.4%** annualized in the third quarter of 2024



Germany faces significant **headwinds**, including trade uncertainties, high energy prices, competition from **China**, and an unstable government



**Lower interest rates** would **support investment** and consumption, particularly in countries like Germany where business confidence has been low

## Despite Sticky CPI, Inflation Battle Nears Victory

### Comparing Inflation Rates



In the EU inflation rose to **2.4%** in December 2024, primarily driven by a rise in **energy prices**. Peripheral countries saw **lower inflation** rates, thanks to more stable wage growth. Eastern European states experienced **higher inflation**, due to commodity shocks



German inflation climbed to **2.6%**, exceeding the Eurozone average. This, rather than being the symptom of an aggregate demand increase, **reflects structural imbalances** which point to a **weakened growth outlook**, reinforcing the need for more rate cuts

### Why the ECB Shouldn't Fret

With **core inflation** (excluding energy and food) steady at **2.7%**, underlying price pressures are under control

Much of the current inflation spike is linked to **short-term factors** like supply chain disruptions and energy costs

Medium-term ECB projections show return to the **2% target by 2026**, clearing the way for interest rate cuts

### Inflation in the Eurozone vs. Germany

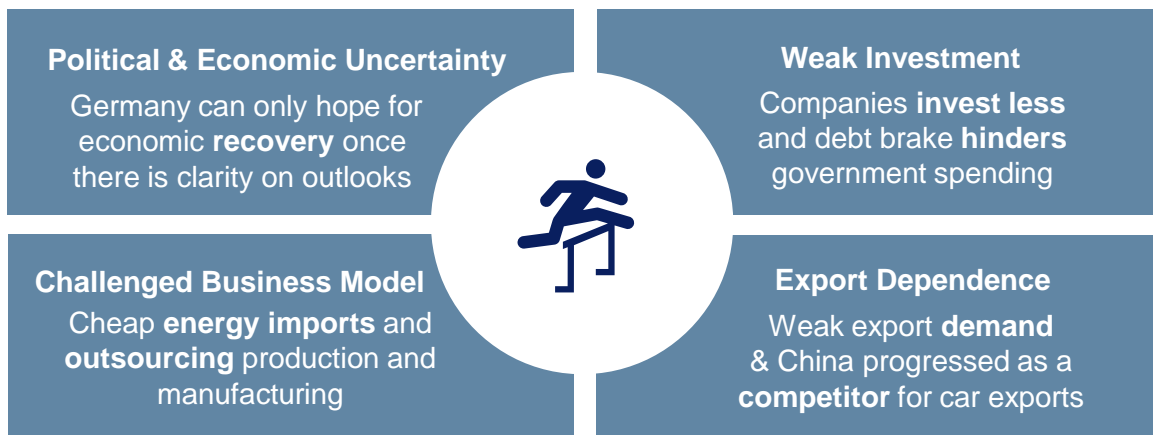




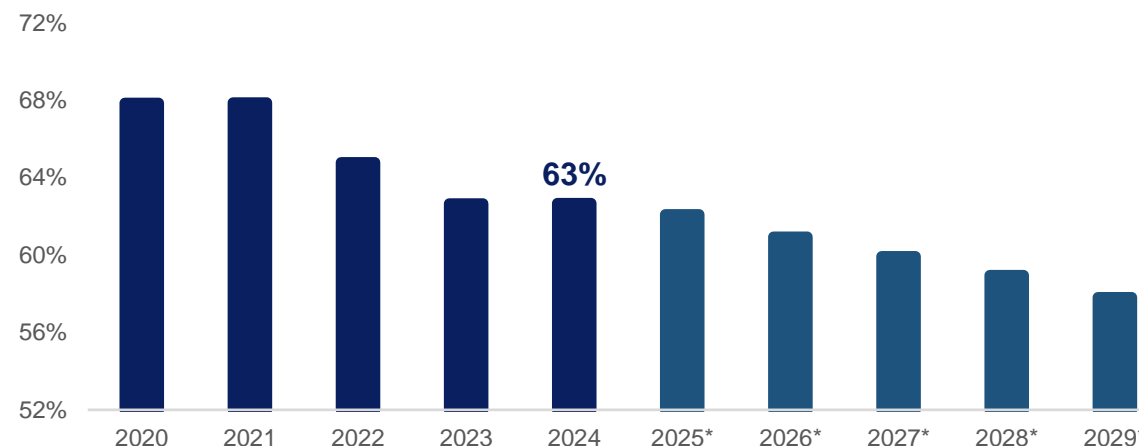
# German Risk Premia

## Is Germany Still the Safest Option?

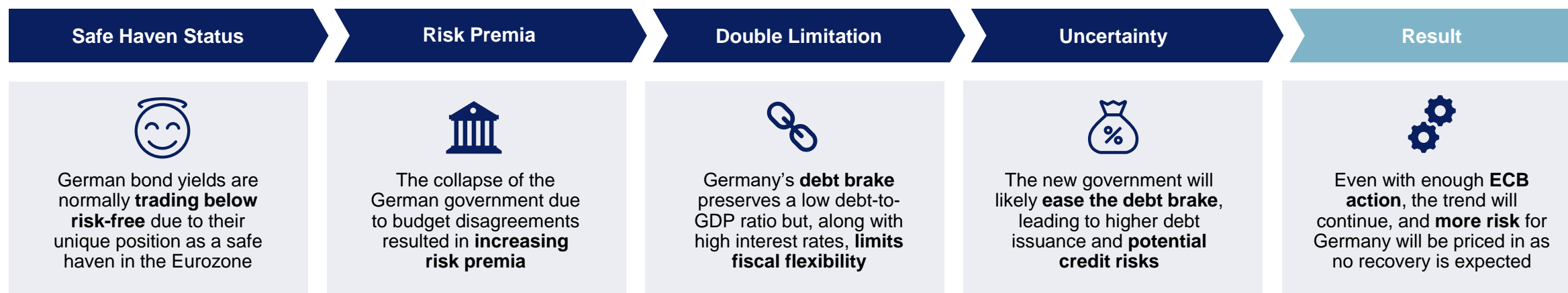
### Structural Challenges



### German Debt-to-GDP Ratio



### Market Reflection







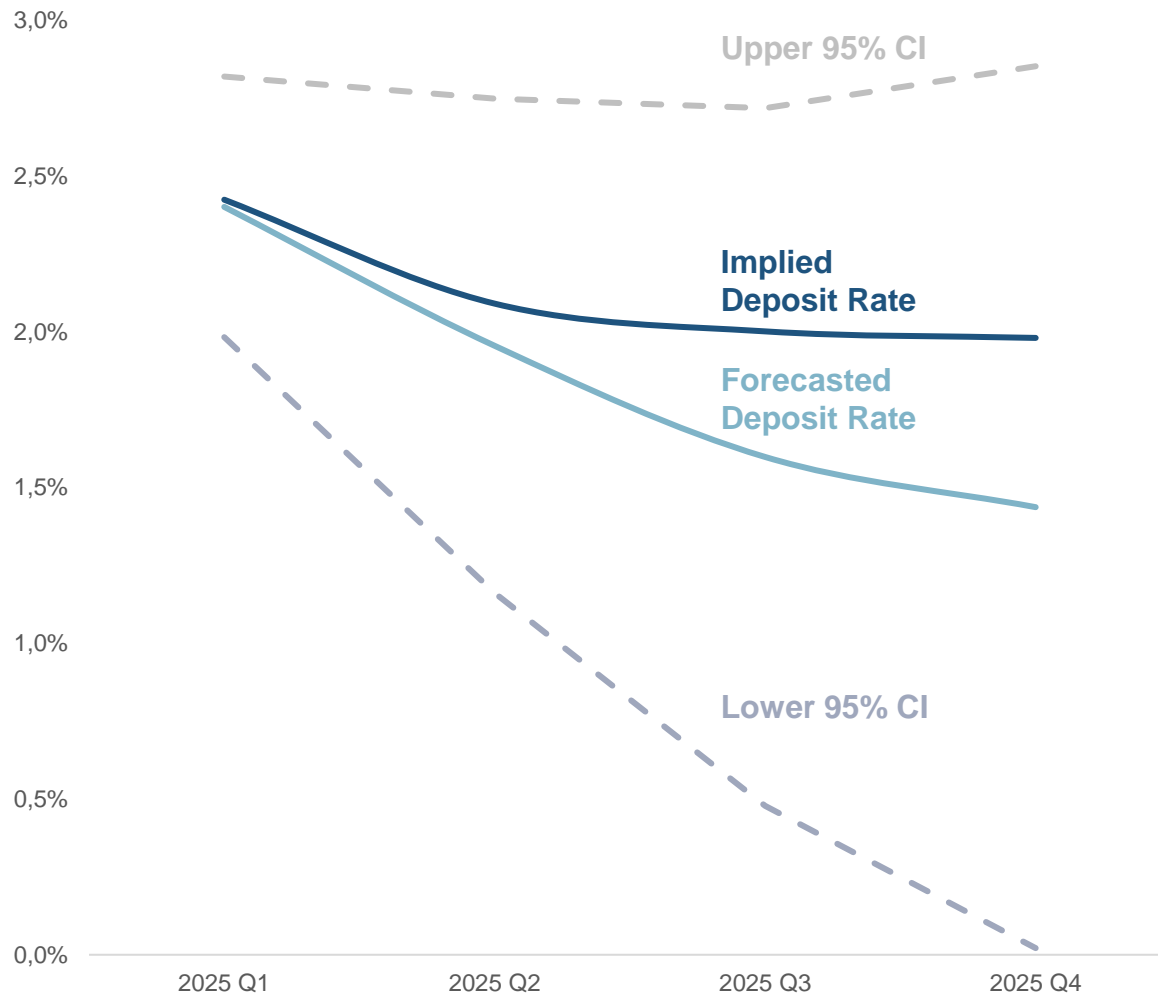
# Econometric Model



# Econometric Model

## VECM Provides Evidence on Priced Interest Rates

### Forecasted vs. Implied Interest Rates



### Econometric Model

Goal

**Econometric Evidence on Current Mispricing**  
Predicting **interest rate** based on macroeconomic variables - Extended Taylor Approach

Data

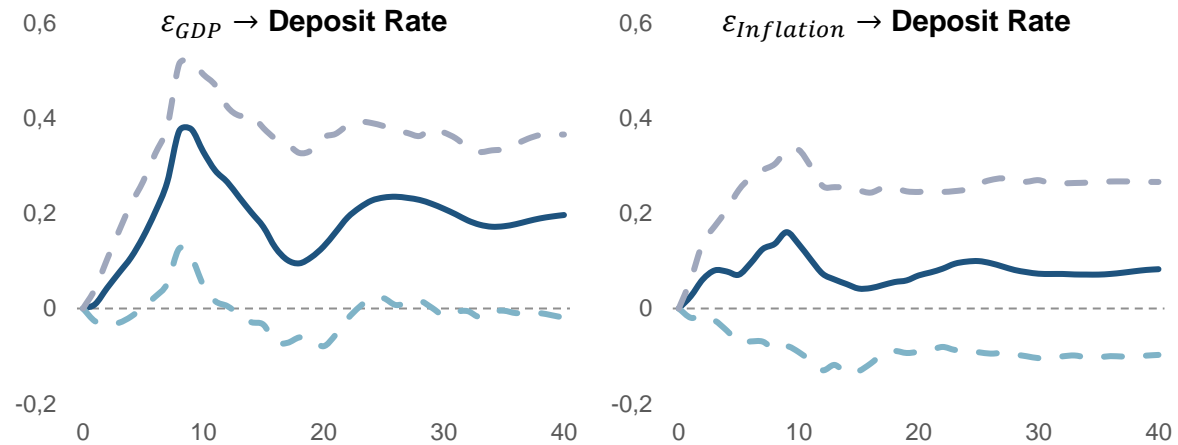
**Macroeconomic Variables**  
Quarterly data (**2000Q1 – 2024Q4**) on real GDP growth rate, unemployment rate, inflation, and deposit rate

Model

**Vector Error Correction Model (VECM)**

$$\Delta y_t = \underbrace{\Pi y_{t-1}}_{\text{Long-run effect}} + \sum_{j=1}^{p-1} \underbrace{\Gamma_j y_{t-j}}_{\text{Short-run dynamics}} + c + \varepsilon_t$$

### Impulse Response Functions – 95% Bootstrap CI (100 runs)



## Eurozone

**1** Low Competitiveness

**2** Weak Economic Indicators

**3** Econometric Evidence

Faster Than Expected Rate Cuts

Short 10Y German Bond & Long 10Y Euro Swapnote

## Germany

**1** Even Worse Economic Outlook

**2** Monetary and Fiscal Constraints

**3** Uncertain Creditworthiness

Rising German Risk Premia





DEM DEUTSCHEN VOLKE

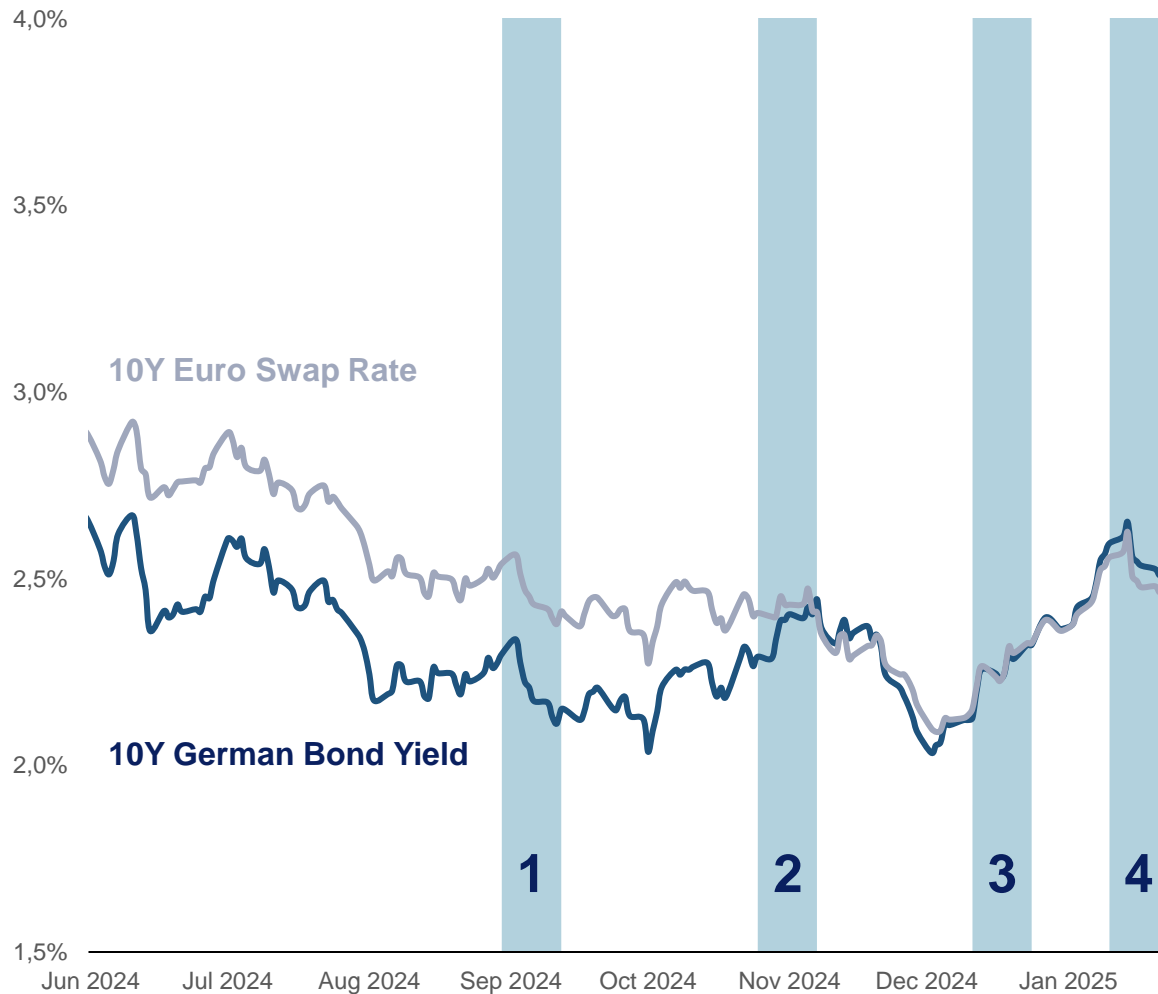
Trade



# 10Y German Bond and 10Y Euro Swap

## Analysing the Current Trend Through Past Performance

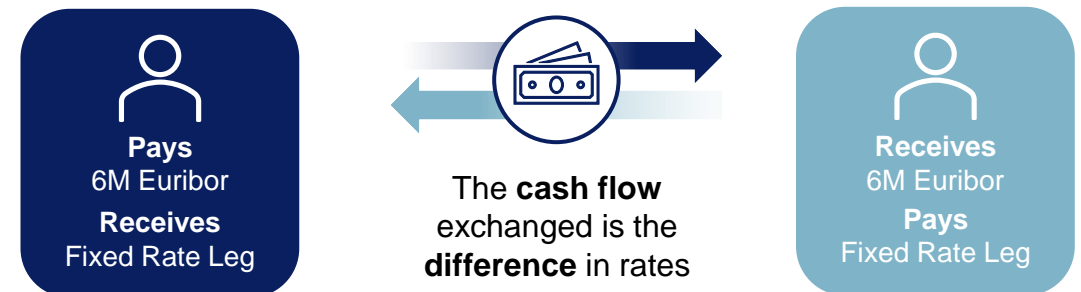
### Understanding the Trend of the Yield and Swap Rate



### Historic Performance

- 1 After a 25-bps rate cut further cuts are expected as EZ inflation nears 2% and GDP growth slows
- 2 Stronger-than-expected GDP growth despite rising inflation pushes German yields higher
- 3 Expectation for 150 bps in rate cuts in 2025 fade due to persistent service inflation
- 4 Soaring European natural gas and energy costs leave the ECB limited room for cuts

### What Does the Swap Tell Us?

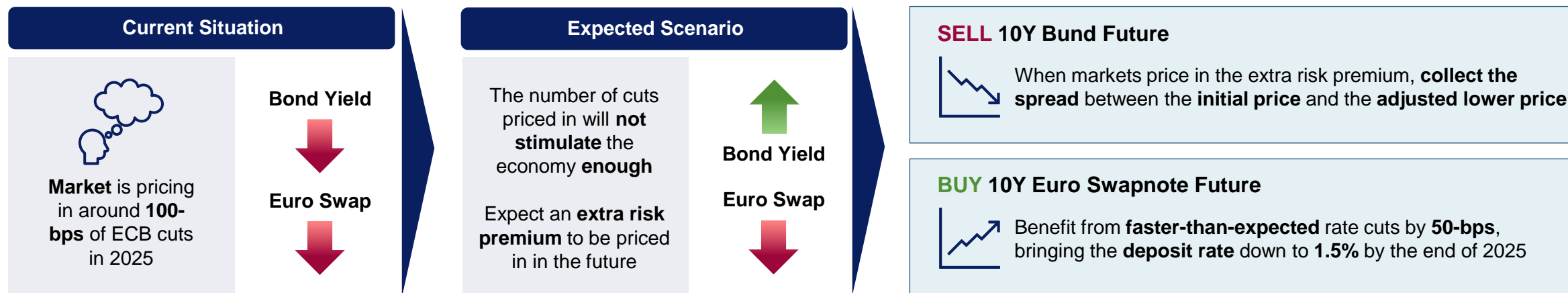


The floating leg serves as a **hedge against fluctuations** in deposit rates  
 In our case, it enables us to **profit from higher-than-expected** rate cuts

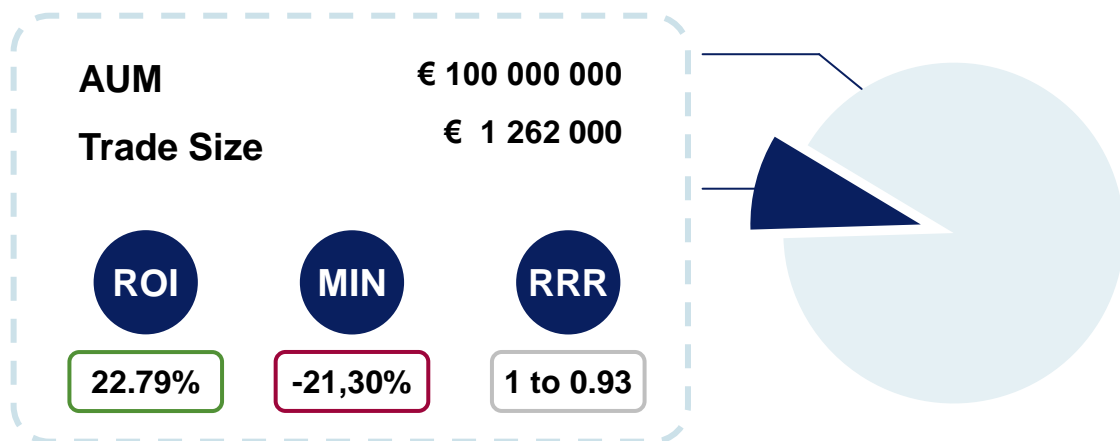
# Trade Overview

Buy the Bund and Sell the Euro Swapnote

## Instruments and Reasoning



## Portfolio Allocation



## The I-Spread

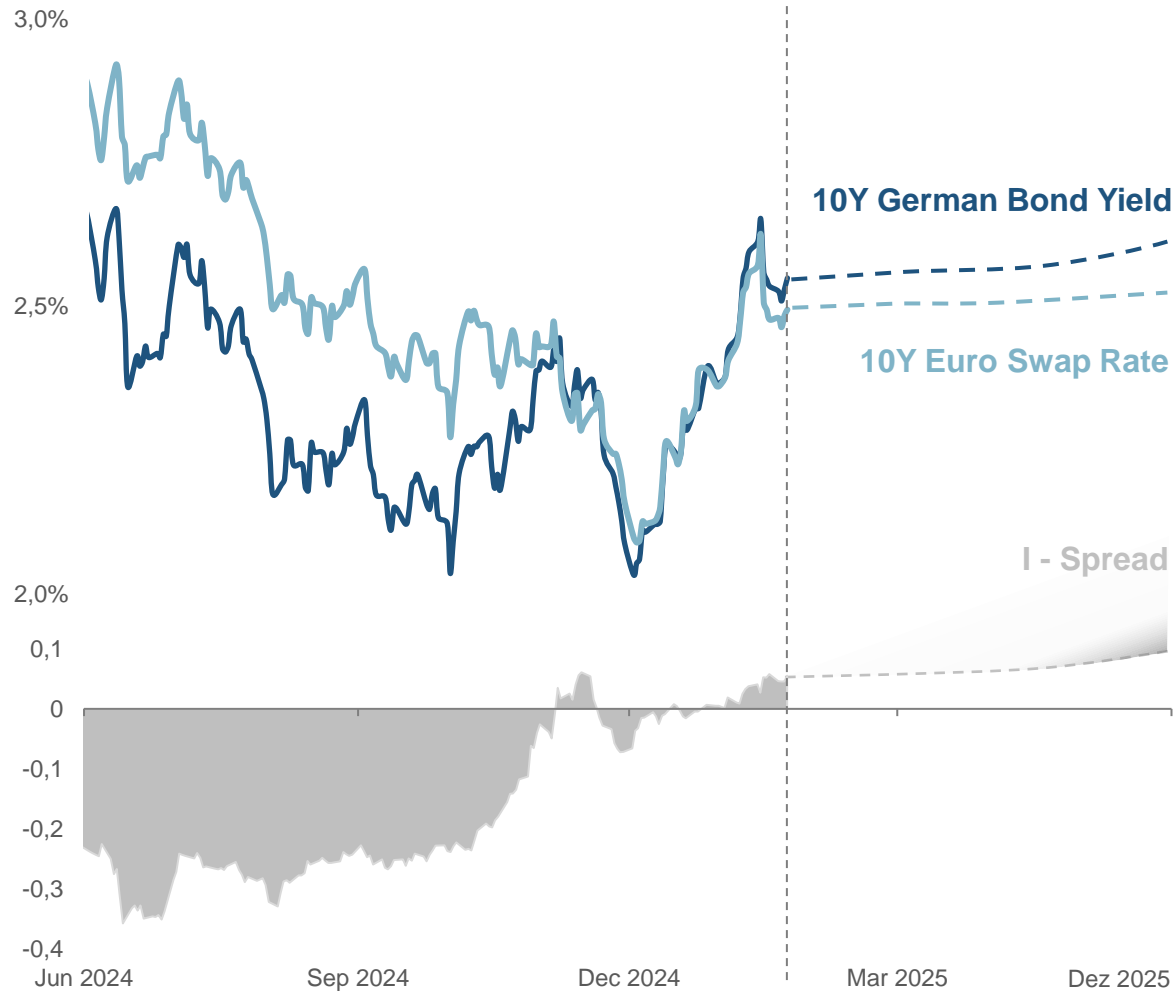
Key indicator for assessing market expectations of **short-term interest rates**, providing insights into **monetary policy and risk premia** changes

The swap spread trade offers exposure to expected changes in the **credit spread** between **private** and **public risk premia**, based on Germany's credit outlook

# Scenario Spread Analysis

## The I-Spread Will Widen

### Bond Yield, Swap Rate and, Their Spread



### 3 Possible Scenarios

#### Scenario 1

The ECB will **cut 50 bps** more than expected, lowering yields and swap rates

**Risk premia** will still widen the spread by **10 additional bps to 20-bps**

#### Scenario 2

The ECB's expected **100-bps** cuts in 2025 is **already priced** into swap rates and yields

Even more **risk premia** could widen the spread above **20-bps**

#### Scenario 3

Against consensus, the **ECB cuts less** than expected, pushing yields and swap rates higher

Still, Germany reduces 30-bps in risk premia, **narrowing the spread below zero**

### Potential Risks



Reforming the German **debt brake** would increase **fiscal flexibility**, allowing for more **public investment** to stimulate growth



A recovery in Germany's **industrial sector** could result in **stronger GDP growth**, which may lower risk premia and **reduce the need for ECB rate cuts**






Rising energy prices and persistent **inflationary pressures** could **limit** the ECB's decision-making for further rate cuts



# Trade Implementation


## Profit and Loss

### Rate Cuts Boost Profits and Risk Premia Widens Swap Spread

		Date	Price	Implied Yield	P/L	
Leg 1 Euro Swapnote Future	BUY	23.01.2025	€ 131.08	2.52%	€ 487 620	 <b>Max. Profits</b> € 287 620 22.79%
	SELL	31.12.2025	€ 135.72	2.02%		
Leg 2 Bund Future	SELL	23.01.2025	€ 131.50	2.55%	-€ 200 000	 <b>Max. Risk</b> -€ 268 775 - 21.3%
	BUY	31.12.2025	€ 133.50	2.22%		
						 <b>RRR</b> 1 to 0.93

### Future Details

Future	Contract Series	Contract Size	Ticks Size	Point Value	BPV	Spread Ratio	BPV	Spread Ratio
Euro 10Y Bund Future	Mar – Dec	€ 100 000	€ 10	€ 1000	106.4	100	106.4	100 Bund contracts
<i>Rollover</i>								
Euro 10Y Swapnote Future	Mar – Dec	€ 100 000	€ 10	€ 1000	101.2	105	101.2	105 Swapnote contracts



The spread ratio of 1 to 1.05 enables maintaining a **neutral position** on parallel rate shifts

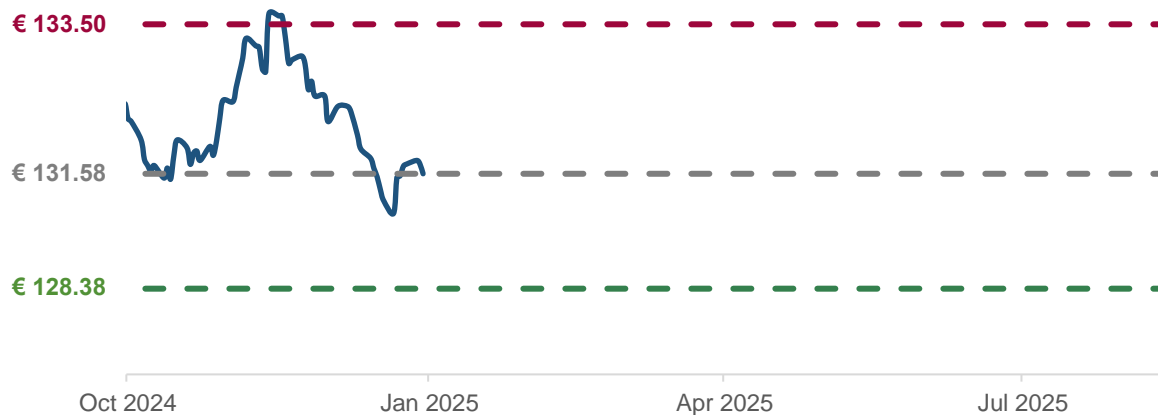
# Trade Implementation

## Profit and Loss

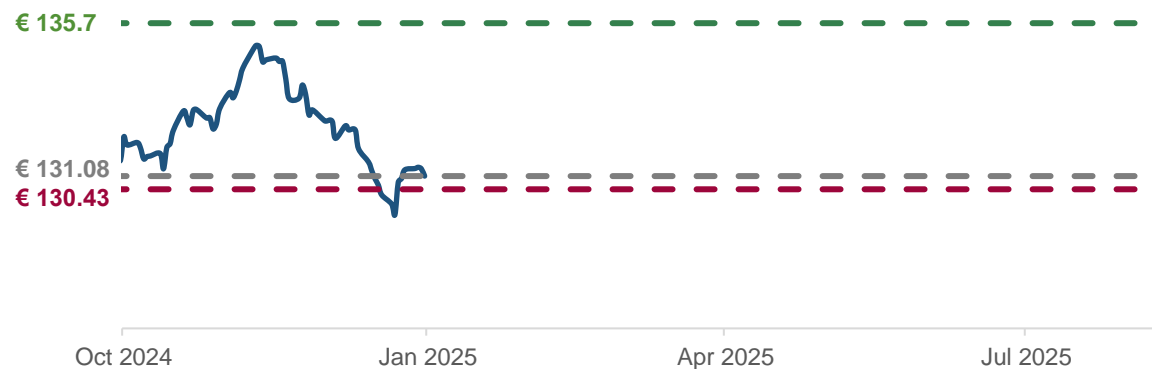
### Stop-Loss Explanation

		Date	Price	Implied Yield	P/L	
Leg 1 Euro Swapnote Future	BUY	23.01.2025	€ 131.08	2.49%	-€ 68 775	<div>➔ 1Y Forward Rate for the Swap</div> <div>📉 Max. Risk -€ 268 775 - 21.3%</div> <div>📊 RRR 1 to 0.93</div>
	SELL	31.12.2025	€ 130.43	2.52%		
Leg 2 Bund Future	SELL	23.01.2025	€ 131.50	2.55%	-€ 200 000	
	BUY	31.12.2025	€ 133.50	2.22%		

### Short on the 10Y Bund Future



### Long on the 10Y Euro Swapnote





# Appendix

Source Name	Link	Date of Retrieval	Used for
IMF	<a href="#">Link</a>	07.01.2025	World GDP Share
IMF	<a href="#">Link</a>	07.01.2025	GDP Growth
Draghi Report	<a href="#">Link</a>	19.01.2025	Eurozone Macro Analysis
Bloomberg Finance L.P.	Software	19.01.2025	Future Pricing and Trade Details
OECD	<a href="#">Link</a>	19.01.2025	GDP Comparison
Trading Economics	<a href="#">Link</a>	19.01.2025	Inflation in Eurozone
Trading Economics	<a href="#">Link</a>	19.01.2025	Inflation in Germany
SAXO	<a href="#">Link</a>	18.01.2025	Germany Inflation
PIMCO	<a href="#">Link</a>	18.01.2025	Understanding IRS
Trading Economics	<a href="#">Link</a>	18.01.2025	Germany 10Y Chart
Reuter	<a href="#">Link</a>	18.01.2025	Explanation of recent rise of German 10Y up movement



Source Name	Link	Date of Retrieval	Used for
APNEWS	<a href="#">Link</a>	18.01.2025	Explanation of German 10Y bond price down-movement
Euro News	<a href="#">Link</a>	18.01.2025	Explanation of German 10Y bond price down-movement
ECB Data Portal	<a href="#">Link</a>	18.01.2025	Inflation data for econometric model
Reuters	<a href="#">Link</a>	19.01.2025	Eurozone Outlook
Reuters	<a href="#">Link</a>	19.01.2025	Germany Outlook
ECB Data Portal	<a href="#">Link</a>	18.01.2025	GDP data for econometric model
ECB Data Portal	<a href="#">Link</a>	18.01.2025	Unemployment data for econometric model
Euro News	<a href="#">Link</a>	21.01.2025	Energy price risks and uncertainties
DW	<a href="#">Link</a>	21.01.2025	German Elections
Reuters	<a href="#">Link</a>	21.01.2025	Risk Analysis
Reuters	<a href="#">Link</a>	21.01.2025	Risk Analysis

Source Name	Link	Date of Retrieval	Used for
ICE	<a href="#">Link</a>	21.01.2025	ICE Swap Rate
ICE	<a href="#">Link</a>	20.01.2025	Trade Ratio
CME Group	<a href="#">Link</a>	03.01.2025	Trade Strategy
CME Group	<a href="#">Link</a>	02.01.2025	Trade Implementation
Statista	<a href="#">Link</a>	22.01.2025	Debt to GDP Ratio

## Calculations

### Scenario 1

1 Leg: Bund	Date	Price	Yield	PnL
Sell	23.01.2025	€ 131,50	2,55%	-€ 200 000,00
Buy	31.12.2025	€ 133,50	2,22%	
		-€ 2,00	-0,33	50 bps minus risk premia
<b>Contracts</b>	100	-€ 2 000,00	PnL per Contract	=(K93/0,01)*J97
<b>Margin</b>	€ 2 120	-94%	PnL on Equity	=K94/J95
<b>Contact Size</b>	€ 100 000	-2%	PnL on Investment	=K94/J96
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

2 Leg: Swapnote	Date	Price	Swaprate	PnL
Buy	23.01.2025	€ 131,08	2,52%	€ 487 620,00
Sell	31.12.2025	€ 135,72	2,02%	
		€ 4,64	-0,50	50 bps more in rate cuts
<b>Contracts</b>	105	€ 4 644,00	PnL per Contract	=(K103/0,01)*J107
<b>Margin</b>	€ 10 000	46%	PnL on Equity	=K104/J105
<b>Contact Size</b>	€ 100 000	5%	PnL on Investment	=K104/100000
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

### Scenario PnL

<b>Contracts</b>	205	=J94+J104	
<b>Total Margin</b>	€ 1 262 000	=J95*J94+J105*J104	
<b>Total Trade Size</b>	€ 20 500 000	=J94*J96+J104*J106	
<b>ROI (Total Trade Size)</b>	1,40%	=M115/J113	
<b>ROE (Total Margin)</b>	22,79%	=M115/J112	€ 287 620,00

### Scenario 2

1 Leg: Bund	Date	Price	Yield	PnL
Sell	23.01.2025	€ 131,50	2,55%	€ 311 700,00
Buy	31.12.2025	€ 128,38	2,72%	
		€ 3,12	0,10	10-bps added risk premia
<b>Contracts</b>	100	€ 3 117,00	PnL per Contract	=(Q93/0,01)*P97
<b>Margin</b>	€ 2 120	147%	PnL on Equity	=Q94/P95
<b>Contact Size</b>	€ 100 000	3%	PnL on Investment	=Q94/100000
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

2 Leg: Swapnote	Date	Price	Swaprate	PnL
Buy	23.01.2025	€ 131,08	2,49%	-€ 68 775,00
Sell	31.12.2025	€ 130,43	2,52%	
		-€ 0,66	0,02	No additional cuts
<b>Contracts</b>	105	-€ 655,00	PnL per Contract	=(Q103/0,01)*P107
<b>Margin</b>	€ 10 000	-7%	PnL on Equity	=Q104/P105
<b>Contact Size</b>	€ 100 000	-1%	PnL on Investment	=Q104/P106
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

### Scenario PnL

<b>Contracts</b>	205	=P94+P104	
<b>Total Margin</b>	€ 1 262 000	=P95*P94+P105*P104	
<b>Total Trade Size</b>	€ 20 500 000	=P94*P96+P104*P106	
<b>ROI (Total Trade Size)</b>	1,18%	=S115/P113	
<b>ROE (Total Margin)</b>	19,25%	=S115/P112	€ 242 925,00



### Scenario 3 - Stop Loss Explanation

1 Leg: Bund	Date	Price	Yield	PnL
Sell	23.01.2025	€ 131,50	2,55%	-€ 200 000,00
Buy	31.12.2025	€ 133,50	2,22%	
		-€ 2,00	-0,33	32-bps less risk premia
<b>Contracts</b>	100	-€ 2 000,00	PnL per Contract	=(K127/0,01)*J131
<b>Margin</b>	€ 2 120		-94% PnL on Equity	=K128/J129
<b>Contact Size</b>	€ 100 000		-2% PnL on Investment	=K128/J130
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

2 Leg: Swapnote	Date	Price	Swaprate	PnL
Buy	23.01.2025	€ 131,08	2,49%	-€ 68 775,00
Sell	31.12.2025	€ 130,43	2,52%	
		-€ 0,66	0,02	No additional cuts
<b>Contracts</b>	105	-€ 655,00	PnL per Contract	=(K137/0,01)*J141
<b>Margin</b>	€ 10 000		-7% PnL on Equity	=K138/J139
<b>Contact Size</b>	€ 100 000		-1% PnL on Investment	=K138/J140
<b>Tick Size</b>	€ 10			
<b>Value of 1pt</b>	€ 1 000			

### Scenario PnL

<b>Contracts</b>	205		=J128+J138	
<b>Total Margin</b>	€ 1 262 000		=J129*J128+J139*J138	
<b>Total Trade Size</b>	€ 20 500 000		=J130*J128+J140*J138	
<b>Risk Return Ratio</b>	93%		=(M149/M115)*-1	
<b>ROE (Total Margin)</b>	-21,30%		=M149/J146	-€ 268 775,00

$$BPV_{DE10Y} (PV01) = BPV_{CTD} / CF_{CTD}$$

$$BPV_{DE10Y} (PV01) = 0.07907 / 0.742877 = 0,01064$$

$$BPV_{Swapnote} (PV01) = \text{Modified Duration} \times \text{Dirty Price} \times 0.0001$$

$$\text{Modified Duration}_{Swapnote} = 7.72 \text{ (Excel Calculation)}$$

$$BPV_{Swapnote} (PV01) = 7.72 * 131.08 * 0.0001 = 0.1011673$$

$$\text{Spread Ratio} = BPV_{DE10Y} / BPV_{Swapnote}$$

$$\text{Spread Ratio} = 0.01064 / 0.1011673 = 1.05$$

### Modified Duration Calculation

<b>Modified Duration</b>	<b>7,72</b>	= (MDURATION(P142;P143;P144;P146;1;4))
Purchase Date (Settlement)	20.01.2025	
Maturity Date	17.03.2035	
Coupon Rate (%)	6%	
Number of Coupon Payments	1	(1 for annual)
Yield to Maturity (%)	2,50%	
Day Count Basis	4	
BPV	0,101167269	=P141*131,08*0,0001

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