

Structured Gold Forward Pricing Analysis

Zeus Gold Group AG & Alphabank S.A. - Product Valuation Update

Analysis Date: February 1, 2026 | GAAIF Challenge Submission

Executive Summary

The structured gold forward contract has experienced a **dramatic valuation reversal** due to significant market movements. Gold prices have surged to \$4,900/oz while EUR/USD has strengthened to 1.19, fundamentally changing the product economics from a EUR 192M liability to a EUR 46M asset for Z Group.

Z GROUP PRESENT
VALUE

EUR +46.3M

A BANK PRESENT VALUE

EUR -46.3M

KNOCKOUT
PROBABILITY

94.8%

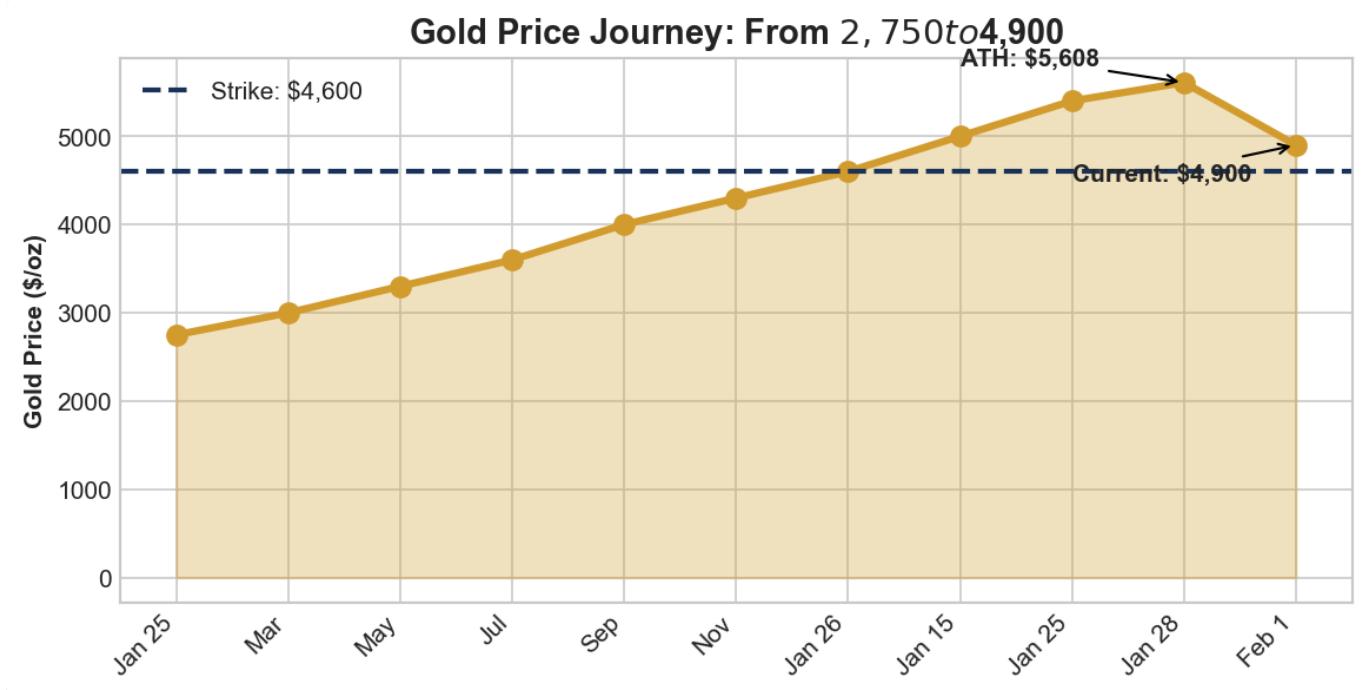
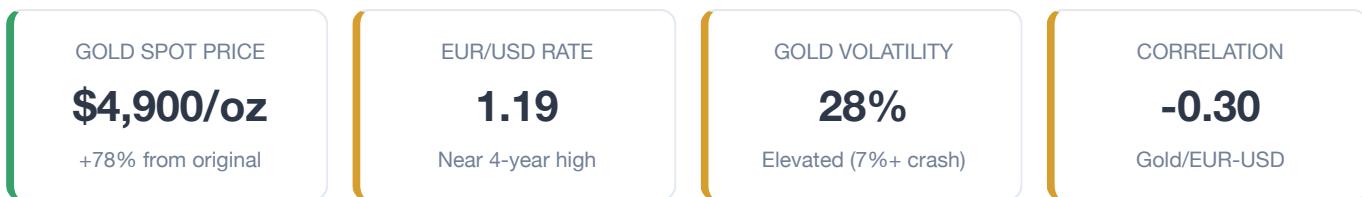
AVG. KNOCKOUT TIME

0.61 years

Critical Market Alert: EUR/USD at 1.19 is only **5%** below the upper knockout barrier (1.25). Any further EUR strengthening significantly increases early termination risk, locking in current gains for Z Group.

Valuation Swing: The product has shifted from a ~EUR 192M liability for Z Group to a ~EUR 46M asset - a total swing of approximately **EUR 238 million** in present value.

1. Current Market Conditions



2. Product Structure

Contract Terms

Parameter	Value
Notional Principal	EUR 500 Million
Strike Price (K)	\$4,600/oz
Tenor	2 years (Mar 2026 - Feb 2028)
Lower Barrier	EUR/USD 1.05 (Knock-Out)
Upper Barrier	EUR/USD 1.25 (Knock-Out)

Settlement Formulas

Z Group Payoff:
 $\text{Payoff} = N \times (P - K) / K$

A Bank Payoff:
 $\text{Payoff} = N \times (K - P) / K$

N = EUR 500M, K = \$4,600/oz, P = Gold spot at settlement



3. Pricing Model Framework

The product is priced using Monte Carlo simulation with two correlated geometric Brownian motion processes under the risk-neutral measure:

Gold Price Dynamics:

$$dS/S = (r_{USD} - q) dt + \sigma_S dW^S$$

EUR/USD Dynamics:

$$dX/X = (r_{EUR} - r_{USD}) dt + \sigma_X dW^X$$

Model Parameters

Parameter	Symbol	Value	Source
Gold Spot	S_0	\$4,900/oz	LBMA, Feb 1, 2026
EUR/USD Spot	X_0	1.19	ECB Reference
EUR Risk-Free Rate	r_{EUR}	2.5%	ECB Deposit Facility
USD Risk-Free Rate	r_{USD}	4.25%	Fed Funds Target
Gold Volatility	σ_S	28%	Elevated (recent crash)
EUR/USD Volatility	σ_X	10%	1Y implied vol
Correlation	ρ	-0.30	Historical estimate

4. Monte Carlo Simulation Results

Z GROUP PRESENT VALUE

EUR +46.3M

95% CI: [45.5M, 47.1M]

A BANK PRESENT VALUE

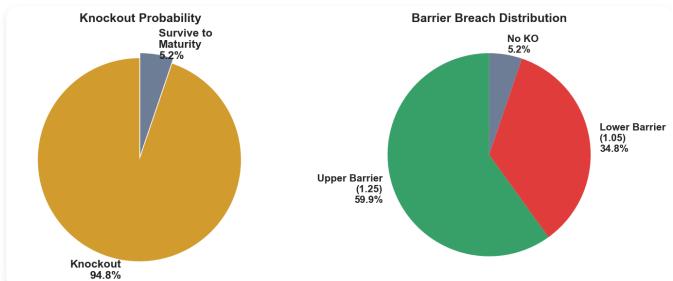
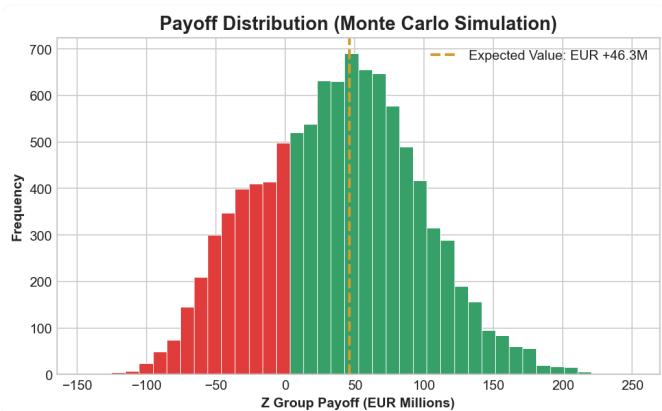
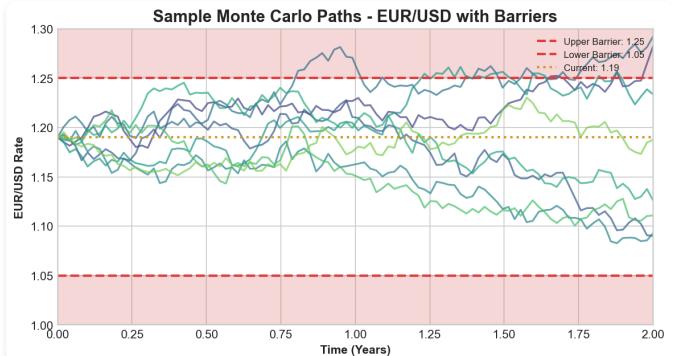
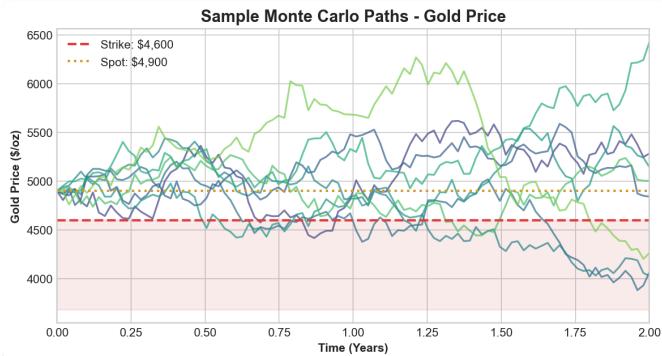
EUR -46.3M

Mirror position

SIMULATION PATHS

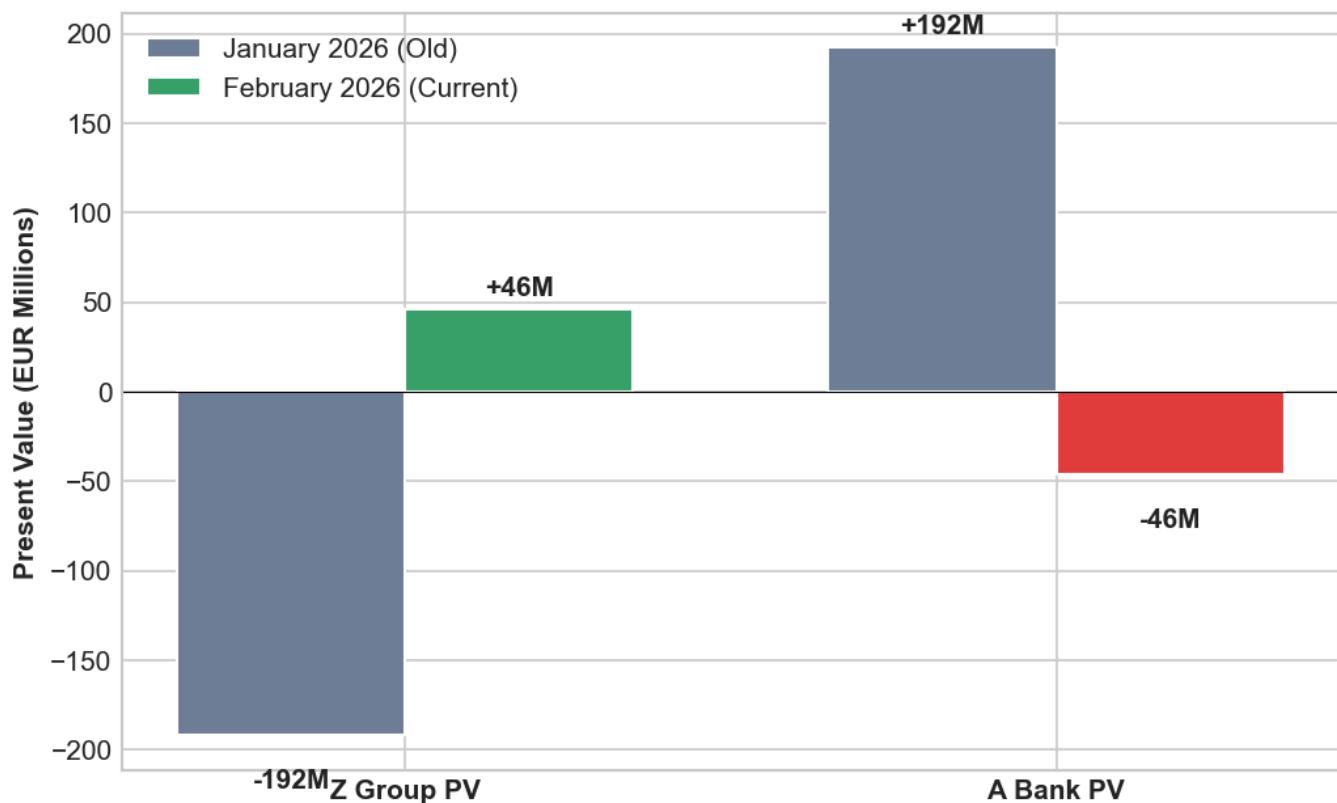
100,000

504 time steps



5. Valuation Change Analysis

Valuation Reversal: Old vs Current Assessment

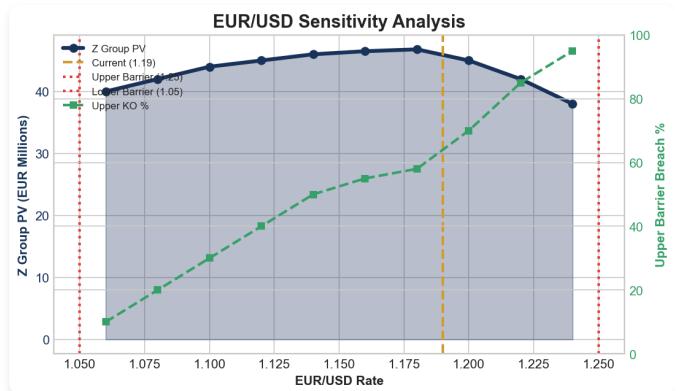
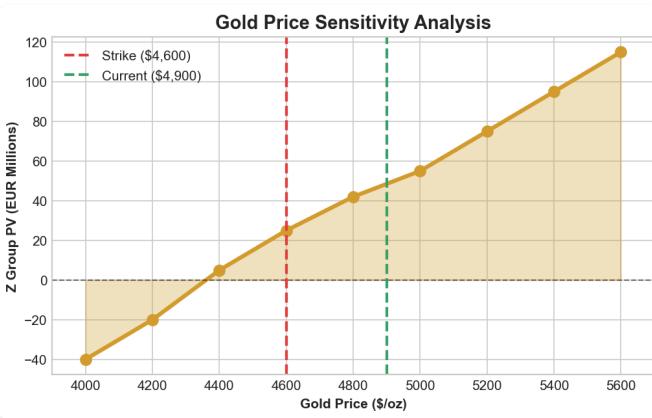
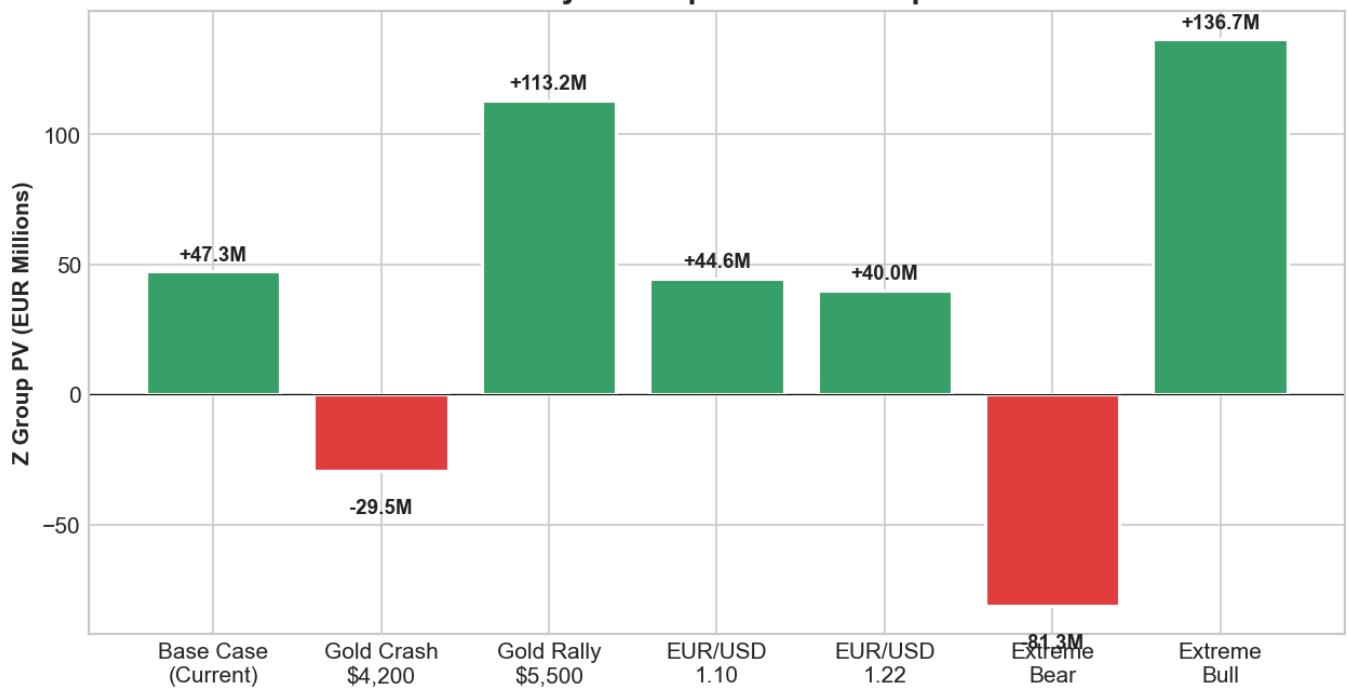


Metric	January 2026 (Old)	February 2026 (Current)	Change
Gold Spot	\$2,750/oz	\$4,900/oz	+78%
EUR/USD	1.08	1.19	+10%
Z Group PV	EUR -192M	EUR +46M	+EUR 238M
Upper Barrier Breach	6.9%	59.9%	+53pp
Lower Barrier Breach	85.7%	34.8%	-51pp

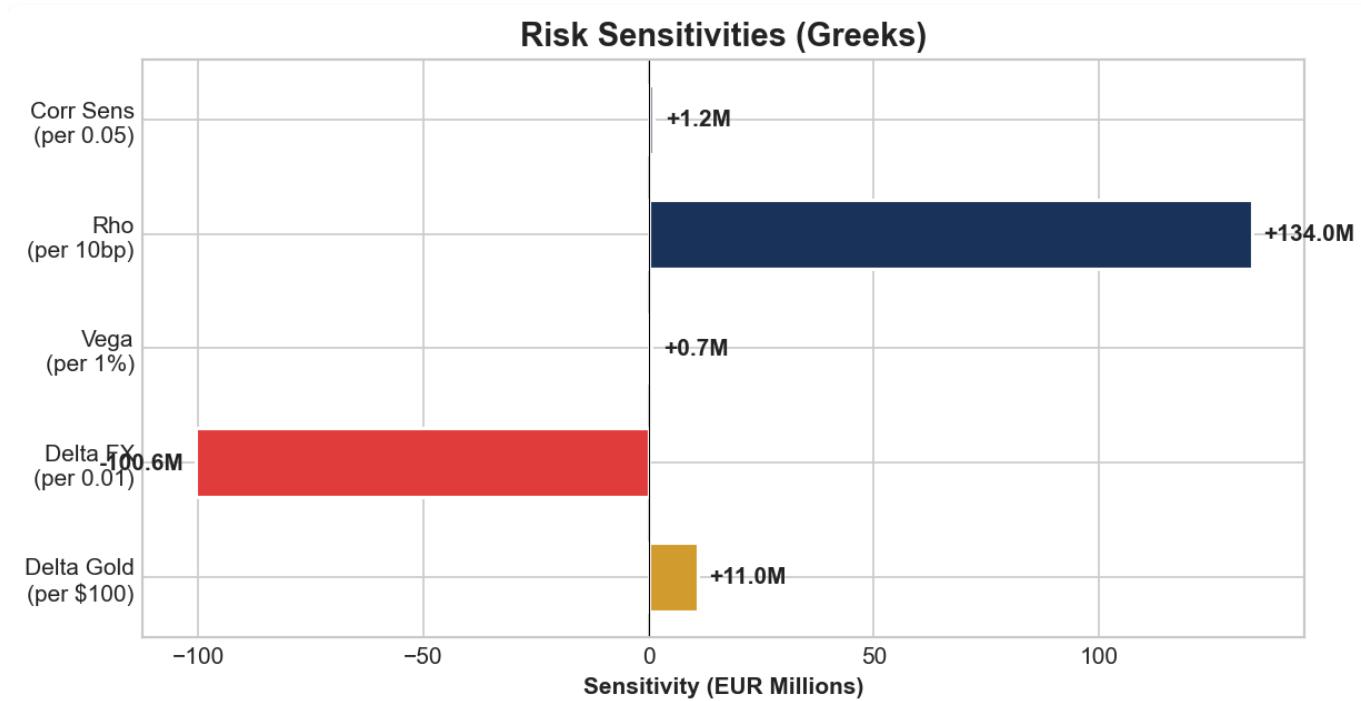
Total Valuation Swing: Approximately **EUR 238 million** in favor of Z Group. The contract has transformed from a significant liability to a valuable asset.

6. Scenario Analysis

Scenario Analysis - Impact on Z Group Valuation



7. Risk Sensitivities (Greeks)



Greek	Value	Interpretation
Delta (Gold)	EUR 109,827 per \$1	\$100 gold move = ~EUR 11M PV change
Gamma (Gold)	EUR 172.50	Convexity exposure to gold
Delta (FX)	EUR -100.6M per 0.01	CRITICAL - Extremely sensitive to EUR/USD
Vega (Gold)	EUR +698K per 1%	Higher vol = more knockouts
Rho (EUR)	EUR +134M per 1bp	Sensitive to EUR rate changes
Correlation	EUR +1.2M per 0.05	Modest correlation sensitivity

FX Delta Dominates: The EUR -100M per 0.01 FX move is the largest risk factor. With EUR/USD only 5% from the upper barrier, small FX moves have outsized impact on valuation.

8. Conclusions & Recommendations

Z Group Perspective

- Product has become a **EUR 46M asset** from EUR 192M liability
- Gold well above strike provides intrinsic value protection
- EUR/USD strength toward 1.25 would trigger knockout and lock in gains
- *Risk: Severe gold crash + EUR weakness could still cause losses*

A Bank Perspective

- Facing **EUR 46M mark-to-market loss**
- ~95% probability of early knockout limits recovery potential
- Recent 7% gold correction helped, but insufficient
- *Options: Consider early termination negotiation*

Final Assessment: The structured gold forward has experienced a fundamental shift in economics. With ~95% knockout probability and average knockout time of 0.61 years, early termination is highly likely. The key risk factor is EUR/USD barrier proximity - any continuation of EUR strength would trigger termination and crystallize Z Group's gains.

GAAIF Challenge 2026 - Structured Gold Forward Pricing Analysis
Monte Carlo Simulation: 100,000 paths | Market Data: February 1, 2026