



# Hedging Interest Rate Risk Final Report

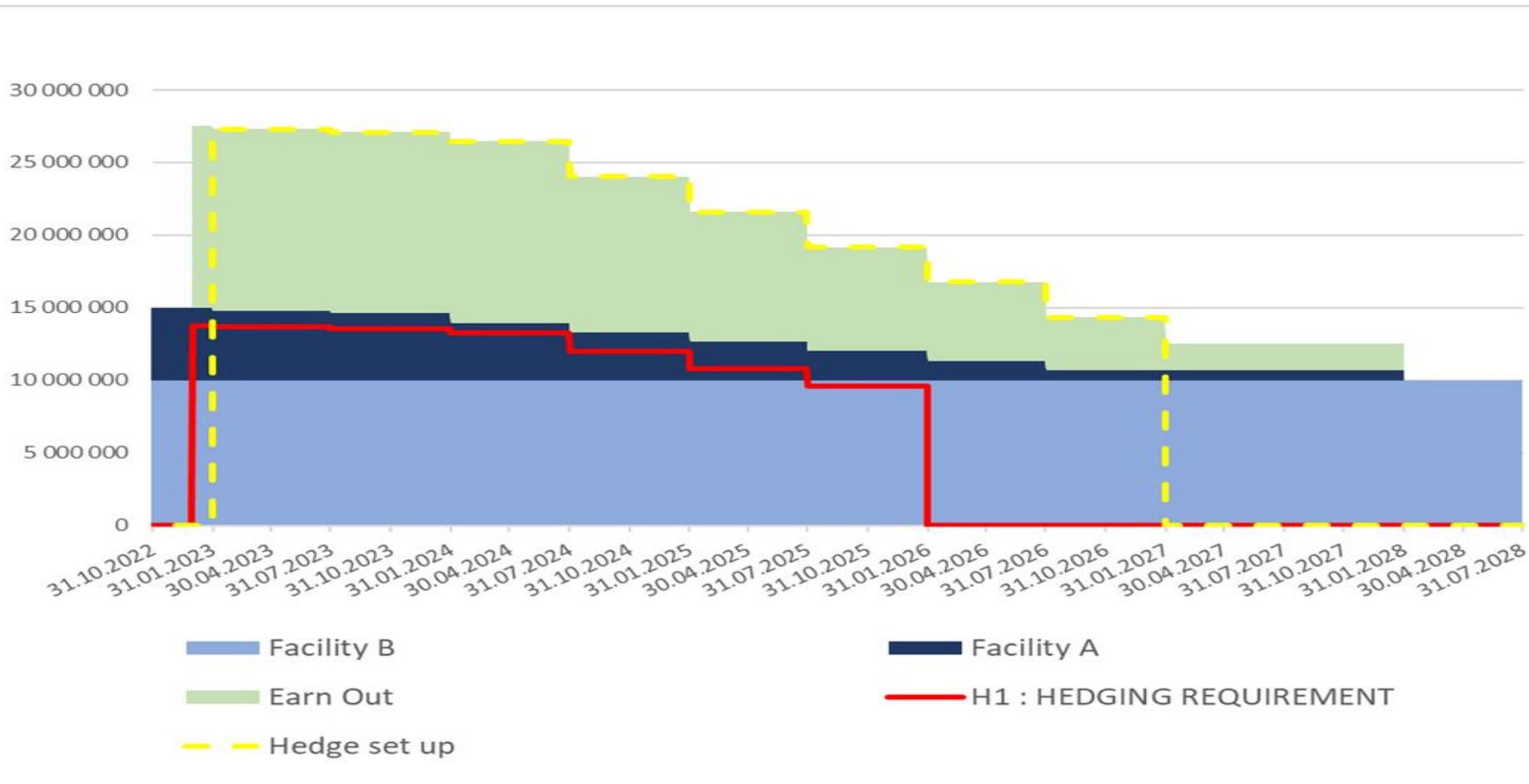
February 6th 2023

*KERIUS Finance SAS*

*Conseiller en Investissements Financiers*

*Membre de l'ANACOFI CIF- Association agréée par l'AMF - ORIAS N° 13000716*

- ❑ New hedge set up on a 4-year horizon to mitigate the sensitivity of the group to interest rates variations, including the impact of negatives rates.
- ❑ A cap with a protection rate (strike) at 5% has been set up to limit the financing rate on the hedged part, with a hedge ratio at 100%. Those products take into account the 0% floor on the debt.



- Hedges set up: Purchased Cap 5% for 4 years.
- Hedge ratio : 4 years at 100%
- Banking split : OLB 50% / RLBOO 50%

Hedging Requirement:

Senior Facility: The company will, **within 90 calendar days after the day on which the 3-month EURIBOR exceeds 0.50% p.a. for a period of more than ten (10) banking days (25/08/2022)**, enter into an interest rate hedge at arm's length terms for **at least 50% of the total amount of the then take out outstanding loans under tranche A, tranche B and the earn-out credit line** with a term of at least the **3rd anniversary of the closing date**, but in **no case longer than the final maturity date of tranche A** (whereby caps, collars, etc . are allowed).

Deadline → **25/11/2022**

Hedging counterparty: Olb, Raiffeisen

Financing: (Olb, Raiffeisen) Senior Facility of **€15'000'000, closing date : 21/09/2022**

- **Facility A: €5'000'000**, amortization semi-annually, maturing 31/01/2028, **floor 0%** on Euribor 3 months + 3,75%.
- **Facility B: €10'000'000**, bullet amortization, maturing 31/07/2028, **floor 0%** on Euribor 3 months + 4,25%.
- **Earn out credit : €12'500'000**, amortization semi-annually, **drawdown anticipated on 31/12/2022**, maturing 31/01/2028, **floor 0%** on Euribor 3 months + 4,25%.

<b>Product</b>	: <b>Cap with Premium</b>
<b>Strike price</b>	: 5,00%
<b>Trade Date</b>	: <b>11/01/2023</b>
<b>Start Date</b>	: 31/01/2023
<b>End date</b>	: 31/01/2027
<b>Index</b>	: Euribor 3 Months
<b>Base</b>	: ACTUAL/360

### OLB Hedge (50%)

**Notional Principal** : € 13,650,000 amortization as set out in the table

**Upfront premium** to pay on 13/01/2023 :€ **74,000.00**

<b>Product</b>	: <b>Cap with Premium</b>
<b>Strike price</b>	: 5,00%
<b>Trade Date</b>	: <b>26/01/2023</b>
<b>Start Date</b>	: 31/01/2023
<b>End date</b>	: 31/01/2027
<b>Index</b>	: Euribor 3 Months
<b>Base</b>	: ACTUAL/360

### RLBOO Hedge (50%)

**Notional Principal** : € 13,650,000 amortization as set out in the table

**Upfront premium** to pay on 31/01/2023 :€ **58,695.00**

Fixing	Start	End	Payment	Notional	Accounting deferral
27.01.2023	31.01.2023	28.04.2023	28.04.2023	13 650 000	5 452
26.04.2023	28.04.2023	31.07.2023	31.07.2023	13 650 000	5 891
27.07.2023	31.07.2023	31.10.2023	31.10.2023	13 550 000	5 723
27.10.2023	31.10.2023	31.01.2024	31.01.2024	13 550 000	5 723
29.01.2024	31.01.2024	30.04.2024	30.04.2024	13 225 000	5 465
26.04.2024	30.04.2024	31.07.2024	31.07.2024	13 225 000	5 586
29.07.2024	31.07.2024	31.10.2024	31.10.2024	12 012 500	5 074
29.10.2024	31.10.2024	31.01.2025	31.01.2025	12 012 500	5 074
29.01.2025	31.01.2025	30.04.2025	30.04.2025	10 800 000	4 413
28.04.2025	30.04.2025	31.07.2025	31.07.2025	10 800 000	4 562
29.07.2025	31.07.2025	31.10.2025	31.10.2025	9 587 500	4 050
29.10.2025	31.10.2025	30.01.2026	30.01.2026	9 587 500	4 006
28.01.2026	30.01.2026	30.04.2026	30.04.2026	8 375 000	3 461
28.04.2026	30.04.2026	31.07.2026	31.07.2026	8 375 000	3 537
29.07.2026	31.07.2026	30.10.2026	30.10.2026	7 162 500	2 992
28.10.2026	30.10.2026	29.01.2027	29.01.2027	7 162 500	2 992

Corresponding annualised premium	0,1651%
----------------------------------	---------

Total	74 000
-------	--------

Fixing	Start	End	Payment	Notional	Accounting deferral
27.01.2023	31.01.2023	28.04.2023	28.04.2023	13 650 000	4 325
26.04.2023	28.04.2023	31.07.2023	31.07.2023	13 650 000	4 672
27.07.2023	31.07.2023	31.10.2023	31.10.2023	13 550 000	4 540
27.10.2023	31.10.2023	31.01.2024	31.01.2024	13 550 000	4 540
29.01.2024	31.01.2024	30.04.2024	30.04.2024	13 225 000	4 334
26.04.2024	30.04.2024	31.07.2024	31.07.2024	13 225 000	4 431
29.07.2024	31.07.2024	31.10.2024	31.10.2024	12 012 500	4 024
29.10.2024	31.10.2024	31.01.2025	31.01.2025	12 012 500	4 024
29.01.2025	31.01.2025	30.04.2025	30.04.2025	10 800 000	3 500
28.04.2025	30.04.2025	31.07.2025	31.07.2025	10 800 000	3 618
29.07.2025	31.07.2025	31.10.2025	31.10.2025	9 587 500	3 212
29.10.2025	31.10.2025	30.01.2026	30.01.2026	9 587 500	3 177
28.01.2026	30.01.2026	30.04.2026	30.04.2026	8 375 000	2 745
28.04.2026	30.04.2026	31.07.2026	31.07.2026	8 375 000	2 806
29.07.2026	31.07.2026	30.10.2026	30.10.2026	7 162 500	2 374
28.10.2026	30.10.2026	29.01.2027	29.01.2027	7 162 500	2 374

Corresponding annualised premium	0,1310%
----------------------------------	---------

Total	58 695
-------	--------

FIXING DATE	STARTING DATE	ENDING DATE	PAYMENT DATE	Facility A		Facility B		Earn Out		TOTAL DEBT
				Amort.	CRD	Amort.	CRD	Amort.	CRD	
19.09.2022	21.09.2022	31.10.2022	31.10.2022	0	5 000 000	0	10 000 000	0	0	15 000 000
27.10.2022	31.10.2022	30.12.2022	30.12.2022	0	5 000 000	0	10 000 000	0	0	15 000 000
28.12.2022	30.12.2022	31.01.2023	31.01.2023	0	5 000 000	0	10 000 000	-12 500 000	12 500 000	27 500 000
27.01.2023	31.01.2023	28.04.2023	28.04.2023	200 000	4 800 000	0	10 000 000	0	12 500 000	27 300 000
26.04.2023	28.04.2023	31.07.2023	31.07.2023	0	4 800 000	0	10 000 000	0	12 500 000	27 300 000
27.07.2023	31.07.2023	31.10.2023	31.10.2023	200 000	4 600 000	0	10 000 000	0	12 500 000	27 100 000
27.10.2023	31.10.2023	31.01.2024	31.01.2024	0	4 600 000	0	10 000 000	0	12 500 000	27 100 000
29.01.2024	31.01.2024	30.04.2024	30.04.2024	650 000	3 950 000	0	10 000 000	0	12 500 000	26 450 000
26.04.2024	30.04.2024	31.07.2024	31.07.2024	0	3 950 000	0	10 000 000	0	12 500 000	26 450 000
29.07.2024	31.07.2024	31.10.2024	31.10.2024	650 000	3 300 000	0	10 000 000	1 775 000	10 725 000	24 025 000
29.10.2024	31.10.2024	31.01.2025	31.01.2025	0	3 300 000	0	10 000 000	0	10 725 000	24 025 000
29.01.2025	31.01.2025	30.04.2025	30.04.2025	650 000	2 650 000	0	10 000 000	1 775 000	8 950 000	21 600 000
28.04.2025	30.04.2025	31.07.2025	31.07.2025	0	2 650 000	0	10 000 000	0	8 950 000	21 600 000
29.07.2025	31.07.2025	31.10.2025	31.10.2025	650 000	2 000 000	0	10 000 000	1 775 000	7 175 000	19 175 000
29.10.2025	31.10.2025	30.01.2026	30.01.2026	0	2 000 000	0	10 000 000	0	7 175 000	19 175 000
28.01.2026	30.01.2026	30.04.2026	30.04.2026	650 000	1 350 000	0	10 000 000	1 775 000	5 400 000	16 750 000
28.04.2026	30.04.2026	31.07.2026	31.07.2026	0	1 350 000	0	10 000 000	0	5 400 000	16 750 000
29.07.2026	31.07.2026	30.10.2026	30.10.2026	650 000	700 000	0	10 000 000	1 775 000	3 625 000	14 325 000
28.10.2026	30.10.2026	29.01.2027	29.01.2027	0	700 000	0	10 000 000	0	3 625 000	14 325 000
27.01.2027	29.01.2027	30.04.2027	30.04.2027	0	700 000	0	10 000 000	1 775 000	1 850 000	12 550 000
28.04.2027	30.04.2027	30.07.2027	30.07.2027	0	700 000	0	10 000 000	0	1 850 000	12 550 000
28.07.2027	30.07.2027	29.10.2027	29.10.2027	0	700 000	0	10 000 000	0	1 850 000	12 550 000
27.10.2027	29.10.2027	31.01.2028	31.01.2028	0	700 000	0	10 000 000	0	1 850 000	12 550 000
27.01.2028	31.01.2028	28.04.2028	28.04.2028	700 000	0	0	10 000 000	1 850 000	0	10 000 000
26.04.2028	28.04.2028	31.07.2028	31.07.2028	0	0	0	10 000 000	0	0	10 000 000
27.07.2028	31.07.2028	31.10.2028	31.10.2028	0	0	10 000 000	0	0	0	0

Broken Period

FIXING DATE	STARTING DATE	ENDING DATE	PAYMENT DATE	H1 : HEDGING REQUIREMENT	OLB	RLBOO	Sum of hedges
19.09.2022	21.09.2022	31.10.2022	31.10.2022	0	0	0	0
27.10.2022	31.10.2022	30.12.2022	30.12.2022	0	0	0	0
28.12.2022	30.12.2022	31.01.2023	31.01.2023	13 750 000	0	0	0
27.01.2023	31.01.2023	28.04.2023	28.04.2023	13 650 000	13 650 000	13 650 000	27 300 000
26.04.2023	28.04.2023	31.07.2023	31.07.2023	13 650 000	13 650 000	13 650 000	27 300 000
27.07.2023	31.07.2023	31.10.2023	31.10.2023	13 550 000	13 550 000	13 550 000	27 100 000
27.10.2023	31.10.2023	31.01.2024	31.01.2024	13 550 000	13 550 000	13 550 000	27 100 000
29.01.2024	31.01.2024	30.04.2024	30.04.2024	13 225 000	13 225 000	13 225 000	26 450 000
26.04.2024	30.04.2024	31.07.2024	31.07.2024	13 225 000	13 225 000	13 225 000	26 450 000
29.07.2024	31.07.2024	31.10.2024	31.10.2024	12 012 500	12 012 500	12 012 500	24 025 000
29.10.2024	31.10.2024	31.01.2025	31.01.2025	12 012 500	12 012 500	12 012 500	24 025 000
29.01.2025	31.01.2025	30.04.2025	30.04.2025	10 800 000	10 800 000	10 800 000	21 600 000
28.04.2025	30.04.2025	31.07.2025	31.07.2025	10 800 000	10 800 000	10 800 000	21 600 000
29.07.2025	31.07.2025	31.10.2025	31.10.2025	9 587 500	9 587 500	9 587 500	19 175 000
29.10.2025	31.10.2025	30.01.2026	30.01.2026	9 587 500	9 587 500	9 587 500	19 175 000
28.01.2026	30.01.2026	30.04.2026	30.04.2026	0	8 375 000	8 375 000	16 750 000
28.04.2026	30.04.2026	31.07.2026	31.07.2026	0	8 375 000	8 375 000	16 750 000
29.07.2026	31.07.2026	30.10.2026	30.10.2026	0	7 162 500	7 162 500	14 325 000
28.10.2026	30.10.2026	29.01.2027	29.01.2027	0	7 162 500	7 162 500	14 325 000
27.01.2027	29.01.2027	30.04.2027	30.04.2027	0	0	0	0
28.04.2027	30.04.2027	30.07.2027	30.07.2027	0	0	0	0
28.07.2027	30.07.2027	29.10.2027	29.10.2027	0	0	0	0
27.10.2027	29.10.2027	31.01.2028	31.01.2028	0	0	0	0
27.01.2028	31.01.2028	28.04.2028	28.04.2028	0	0	0	0
26.04.2028	28.04.2028	31.07.2028	31.07.2028	0	0	0	0
27.07.2028	31.07.2028	31.10.2028	31.10.2028	0	0	0	0

Broken Period

In addition to the qualitative aspects (analysis and choice of the most appropriate strategy) and the time saved during the process, the KERIUS Finance service generated the following savings:

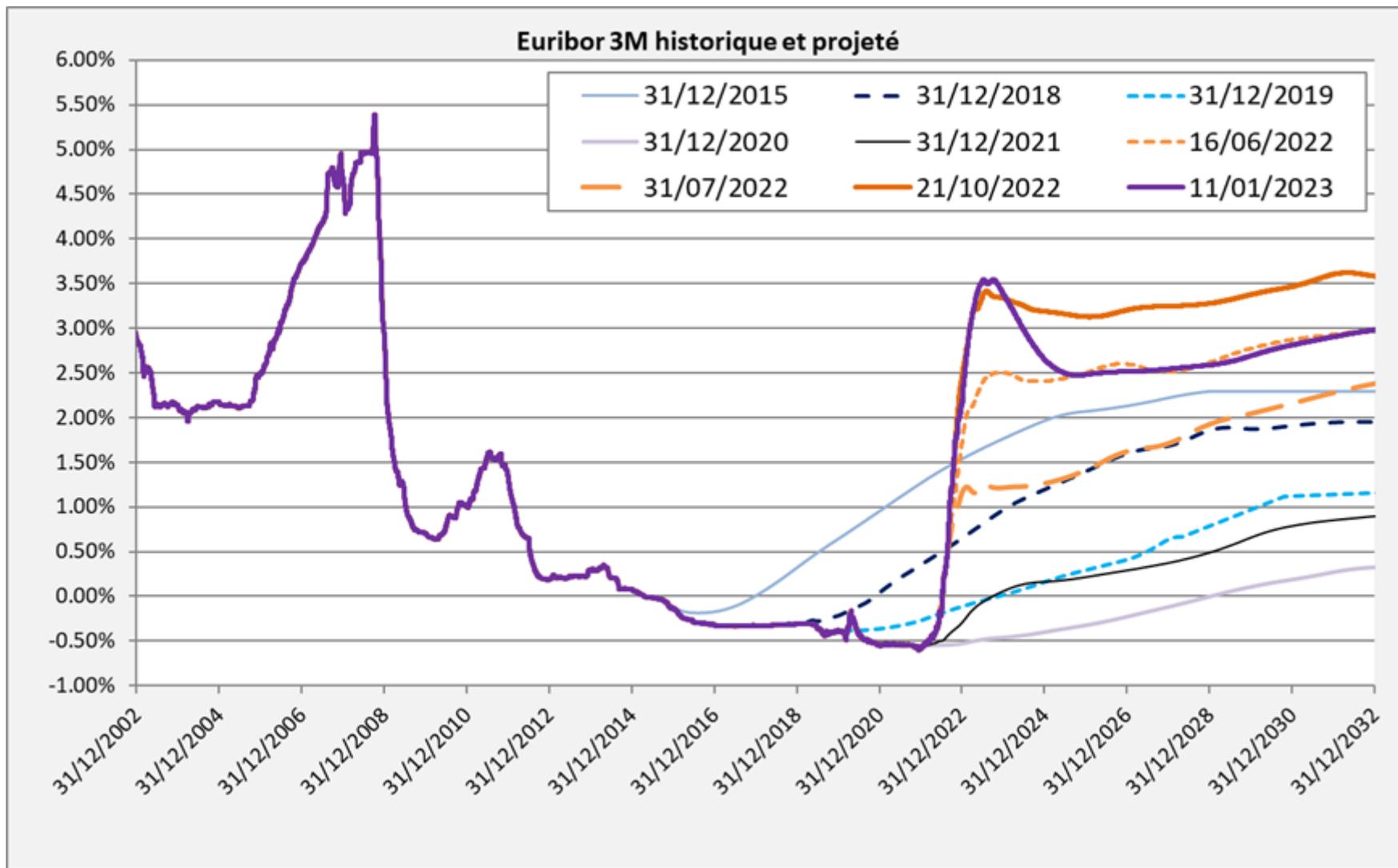
	Value of 1 BP	4 482	4 482	
		OLB	RLBOO	Total
<b>Total savings</b>		61 266	64 115	<b>125 381</b>
Market price without bank margin		45 626	33 170	<b>78 796</b>
Price with standard bank margin *		135 266	122 810	<b>258 076</b>
Standard bank margin (20 basis points) *		89 640	89 640	<b>179 280</b>
Final price		74 000	58 695	<b>132 695</b>
Final margin		28 374	25 525	<b>53 899</b>

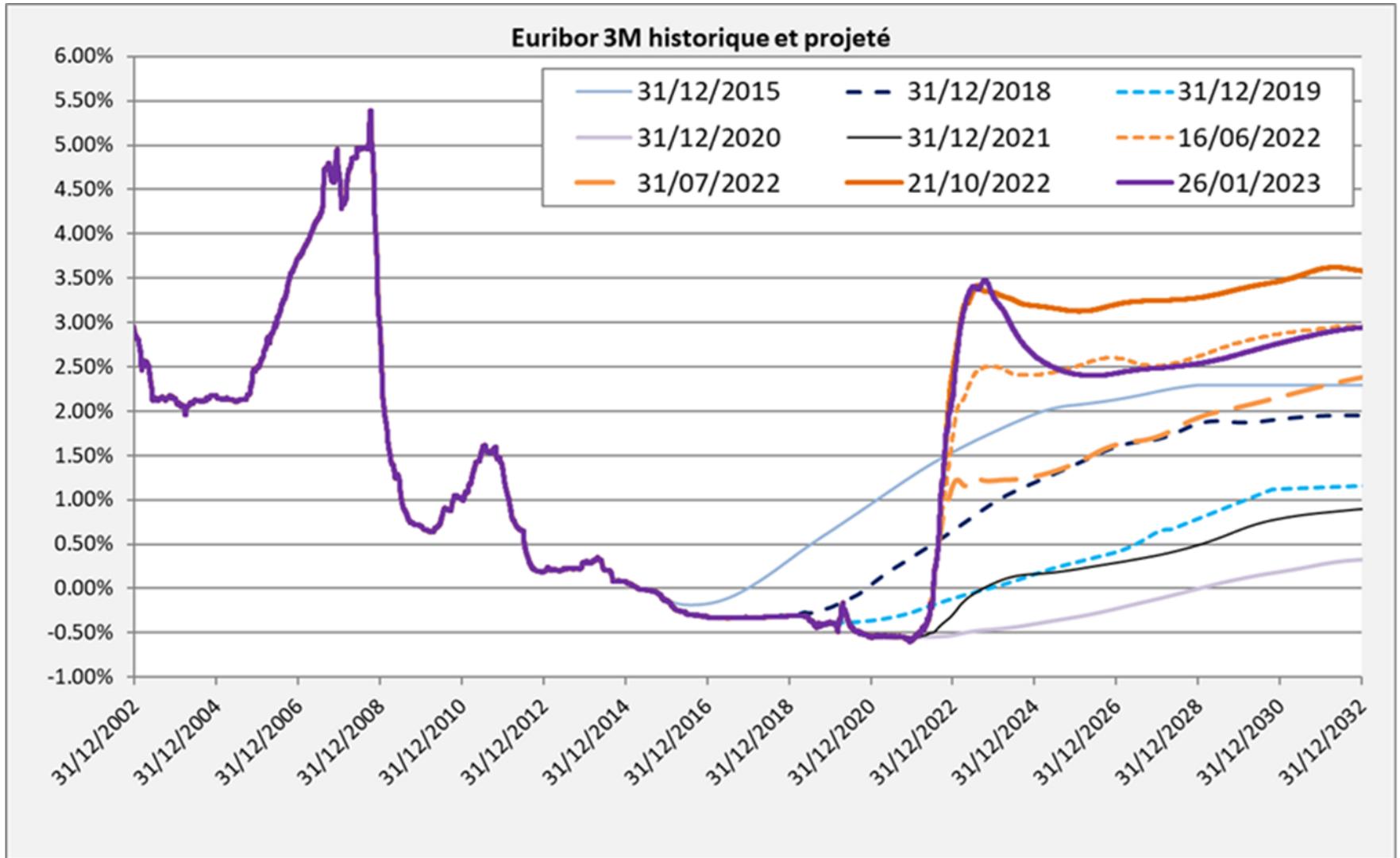
\* The standard margin taken by banks in this context is 20 to 25 basis points over the fixed rate or running premium compared to the rate / price without margin used above. A margin of 20 basis points is used for this comparison.

**The total savings are made in three stages in a "cooperative" way with the bank:**

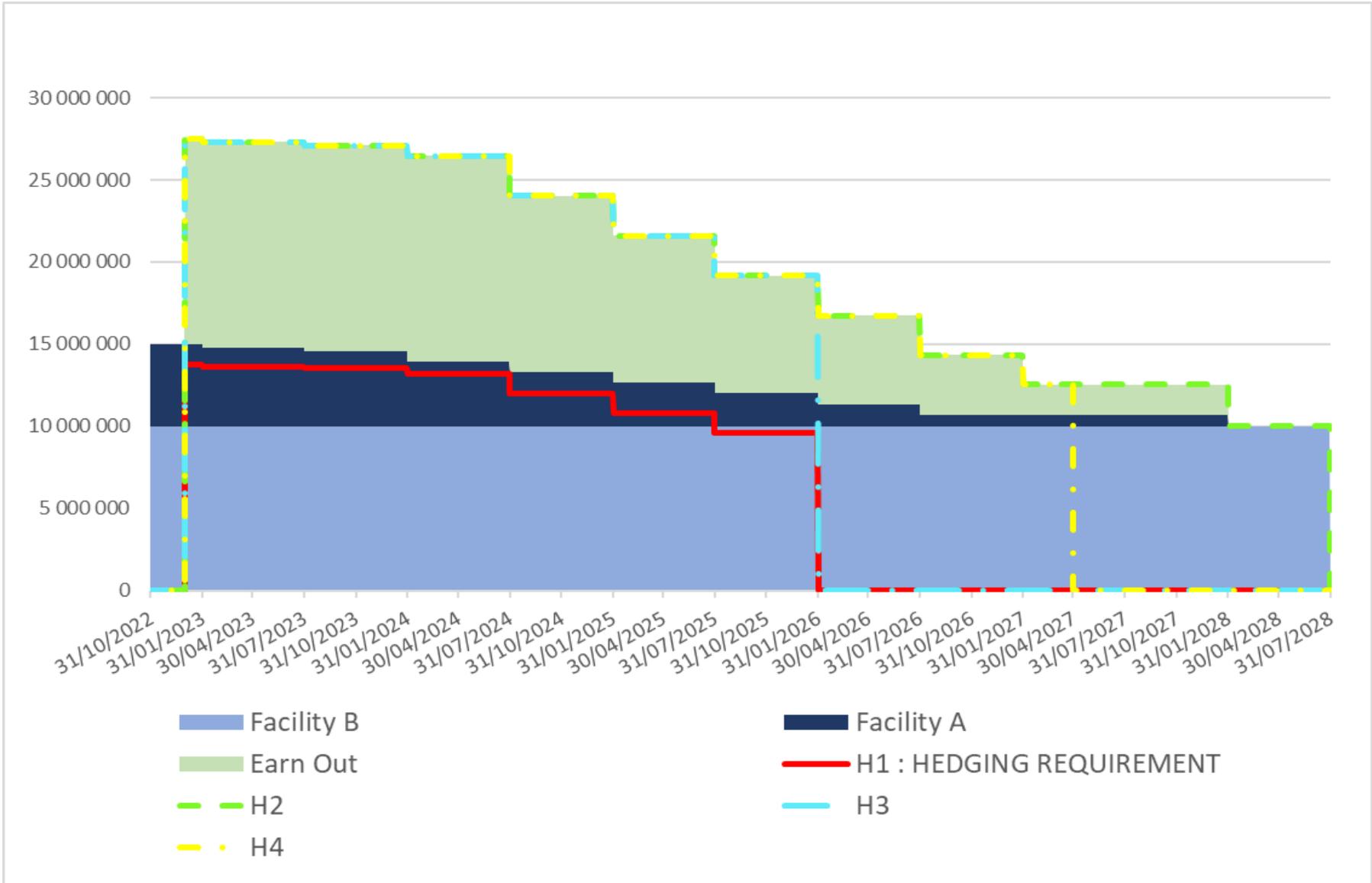
- Choosing the optimal product: similar or identical products are often "priced" differently
- Preliminary negotiations before quotes tender (explanation of KERIUS method and target margin to be selected)
- Final negotiation at the end of the process

- Market Data : Historic and projected Euribor
- Recall: Situation before new hedges
- Recall : Financial expenses simulation
- Financing terms
- Recall : impact of negative rates on swaps
- Recall : Profiles at maturity of different types of hedge

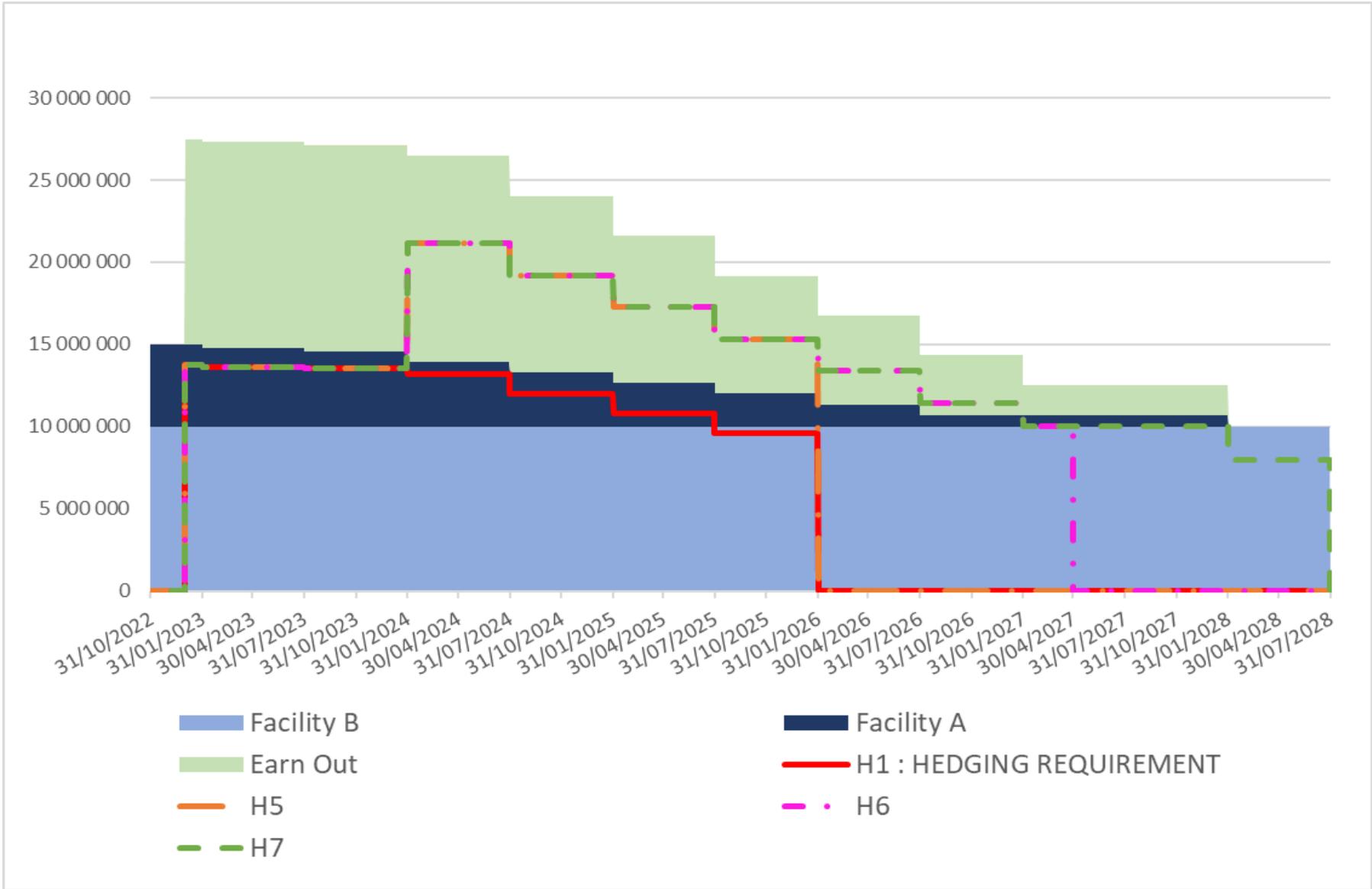




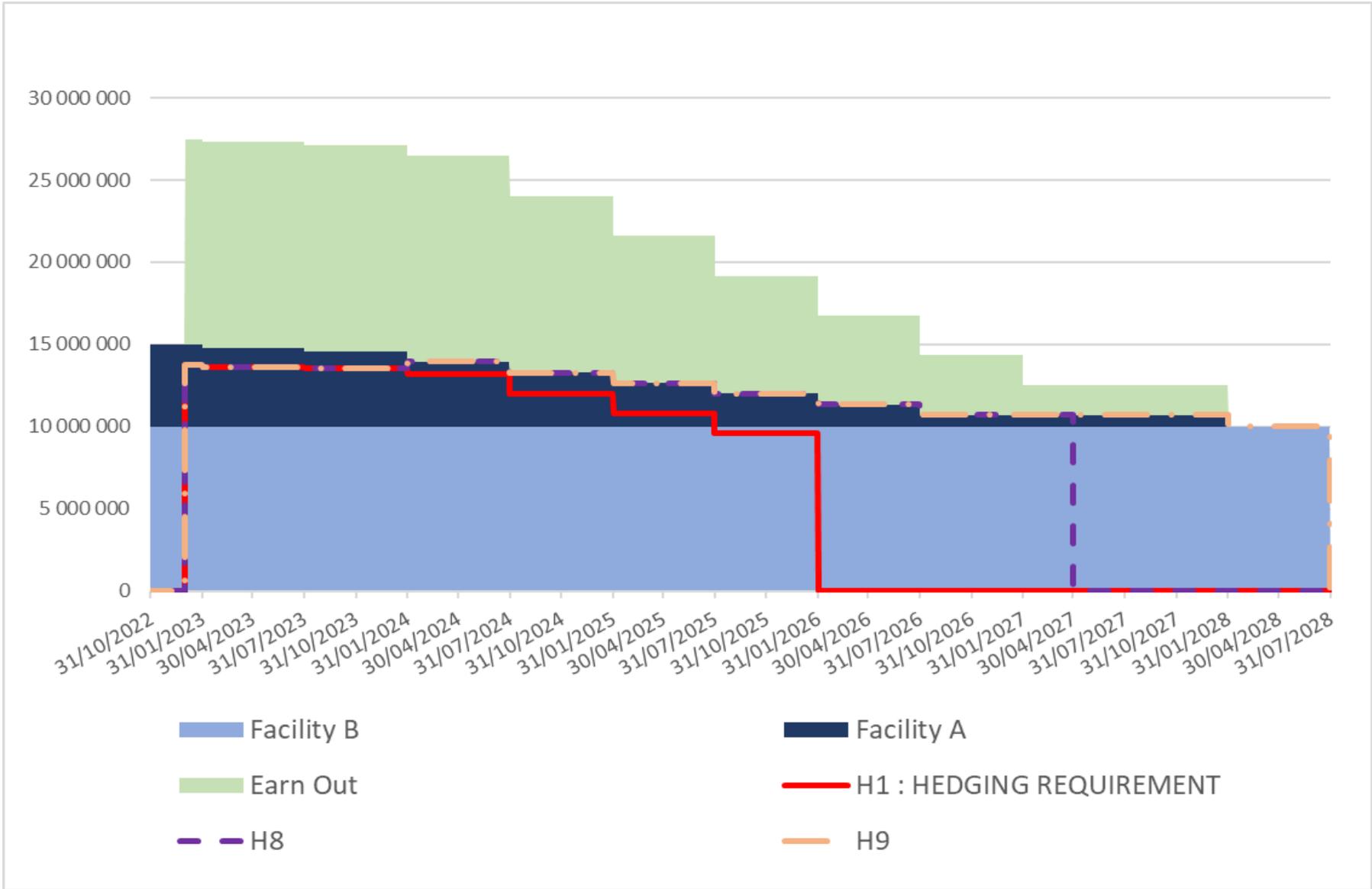
# New hedges: Various amounts and maturities possible



# New hedges: Various amounts and maturities possible



# New hedges: Various amounts and maturities possible



## Indicatives quotations



Hedging	H1	H2	H3	H4	H5	H6	H7	H8	H9
Duration	2,75 years	5,5 years	3 years	4,25 years	3 years	4,25 years	5,5 years	4,25 years	5,5 years
Index	Euribor 3M								
Starting Notional Amount	13 750 000	27 500 000	27 500 000	27 500 000	13 750 000	13 750 000	13 750 000	13 750 000	13 750 000
Start of Period	31/12/2022	31/12/2022	31/12/2022	31/12/2022	31/12/2022	31/12/2022	31/12/2022	31/12/2022	31/12/2022
End of Period	31/10/2025	31/07/2028	31/01/2026	30/04/2027	31/01/2026	30/04/2027	31/07/2028	30/04/2027	31/07/2028
Value of 1bp in EUR	3 813	10 978	7 626	9 510	5 202	6 710	7 884	5 514	6 840

## Annualised Premium

Cap 0% annualised	3,13%	3,15%	3,13%	3,11%	3,11%	3,13%	3,14%	3,12%	3,13%
Max Financing Rate	3,13%	3,15%	3,13%	3,11%	3,11%	3,13%	3,14%	3,12%	3,13%

Cap 1,5% annualised	1,74%	1,82%	1,74%	1,75%	1,73%	1,79%	1,82%	1,78%	1,82%
Max Financing Rate	3,24%	3,32%	3,24%	3,25%	3,23%	3,29%	3,32%	3,28%	3,32%

Cap 2,0% annualised	1.30%	1.41%	1.31%	1.36%	1.34%	1.39%	1.44%	1.38%	1.45%
Max Financing Rate	3.30%	3.41%	3.31%	3.36%	3.34%	3.39%	3.44%	3.38%	3.45%

Cap 2,5% annualised	0,97%	1,09%	0,97%	1,02%	0,99%	1,07%	1,12%	1,05%	1,12%
Max Financing Rate	3,47%	3,59%	3,47%	3,52%	3,49%	3,57%	3,62%	3,55%	3,62%

Cap 3,5% annualised	0,51%	0,64%	0,51%	0,57%	0,54%	0,62%	0,67%	0,61%	0,68%
Max Financing Rate	4,01%	4,14%	4,01%	4,07%	4,04%	4,12%	4,17%	4,11%	4,18%

## Premium in EUR

Cap 0%	1 140 400	3 230 700	2 277 900	2 795 500	1 535 900	1 969 000	2 296 800	1 617 200	1 981 400
Cap 1,5%	632 900	1 859 100	1 263 200	1 576 500	857 400	1 123 800	1 331 900	920 100	1 150 900
Cap 2%	475,900	1,441,900	951,900	1,220,600	660,700	875,700	1,052,800	715,500	915,600
Cap 2,5%	352 600	1 118 300	703 100	915 700	489 100	671 300	819 000	545 300	709 500
Cap 3,5%	185 100	655 200	368 800	512 800	264 800	388 300	493 000	314 000	430 900

Estimated Bank Margin in Basis Points (BP) included in the prices	7
---	---

Example of annualized premium payments:  
H2 Cap 1,5%

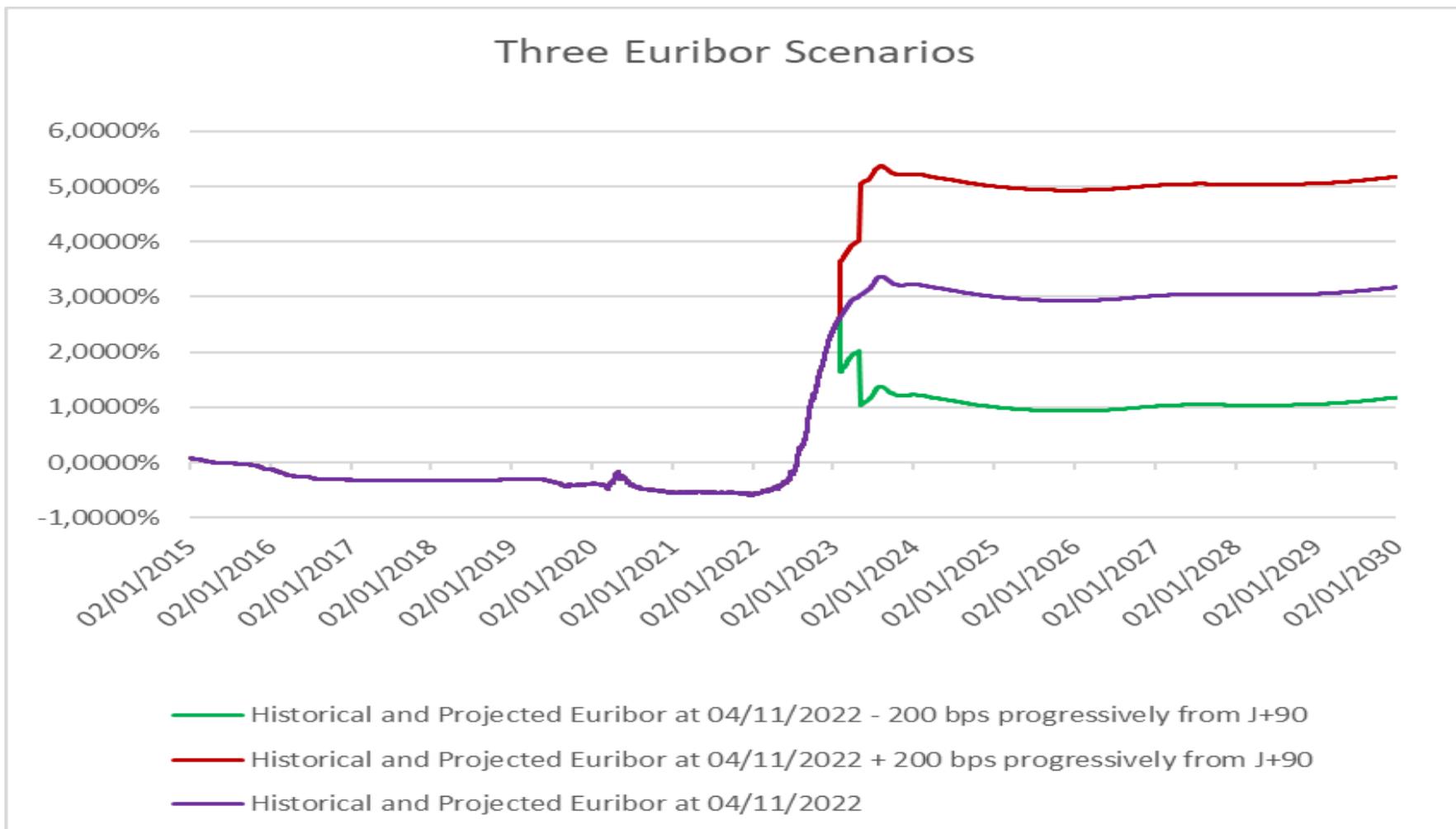


Fixing	Start	End	Payment	Notional	Premium to be paid	Remaining to be paid in case of settlement
28/12/2022	30/12/2022	31/01/2023	31/01/2023	27 500 000	41 374	-1 817 726
27/01/2023	31/01/2023	28/04/2023	28/04/2023	27 300 000	111 666	-1 706 060
26/04/2023	28/04/2023	31/07/2023	31/07/2023	27 300 000	120 651	-1 585 409
27/07/2023	31/07/2023	31/10/2023	31/10/2023	27 100 000	117 219	-1 468 190
27/10/2023	31/10/2023	31/01/2024	31/01/2024	27 100 000	117 219	-1 350 971
29/01/2024	31/01/2024	30/04/2024	30/04/2024	26 450 000	111 920	-1 239 051
26/04/2024	30/04/2024	31/07/2024	31/07/2024	26 450 000	114 407	-1 124 644
29/07/2024	31/07/2024	31/10/2024	31/10/2024	24 025 000	103 918	-1 020 725
29/10/2024	31/10/2024	31/01/2025	31/01/2025	24 025 000	103 918	-916 807
29/01/2025	31/01/2025	30/04/2025	30/04/2025	21 600 000	90 382	-826 425
28/04/2025	30/04/2025	31/07/2025	31/07/2025	21 600 000	93 429	-732 995
29/07/2025	31/07/2025	31/10/2025	31/10/2025	19 175 000	82 940	-650 056
29/10/2025	31/10/2025	30/01/2026	30/01/2026	19 175 000	82 038	-568 017
28/01/2026	30/01/2026	30/04/2026	30/04/2026	16 750 000	70 876	-497 141
28/04/2026	30/04/2026	31/07/2026	31/07/2026	16 750 000	72 451	-424 691
29/07/2026	31/07/2026	30/10/2026	30/10/2026	14 325 000	61 288	-363 402
28/10/2026	30/10/2026	29/01/2027	29/01/2027	14 325 000	61 288	-302 114
27/01/2027	29/01/2027	30/04/2027	30/04/2027	12 550 000	53 694	-248 420
28/04/2027	30/04/2027	30/07/2027	30/07/2027	12 550 000	53 694	-194 726
28/07/2027	30/07/2027	29/10/2027	29/10/2027	12 550 000	53 694	-141 032
27/10/2027	29/10/2027	31/01/2028	31/01/2028	12 550 000	55 464	-85 568
27/01/2028	31/01/2028	28/04/2028	28/04/2028	10 000 000	41 374	-44 195
26/04/2028	28/04/2028	31/07/2028	31/07/2028	10 000 000	44 195	0

Running Premium 1,82%

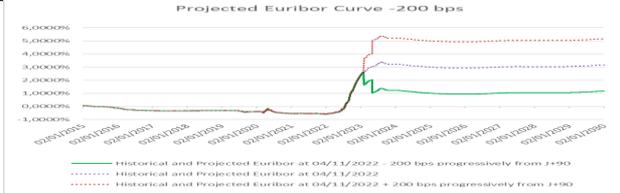
Total 1 859 100

# Simulation of financial expenses with three Euribor evolution scenarios

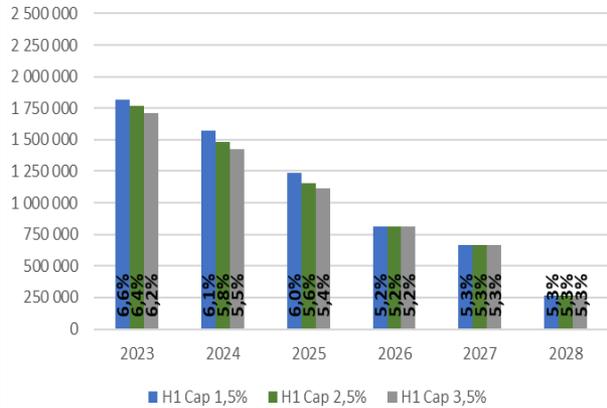


All financial expenses simulations start in 2023. This include the credit margin **3,75%** (Facility A), **4,25%** (Facility B + Earn Out), Euribor3m variations' impact and the cost of setting up the new hedge.

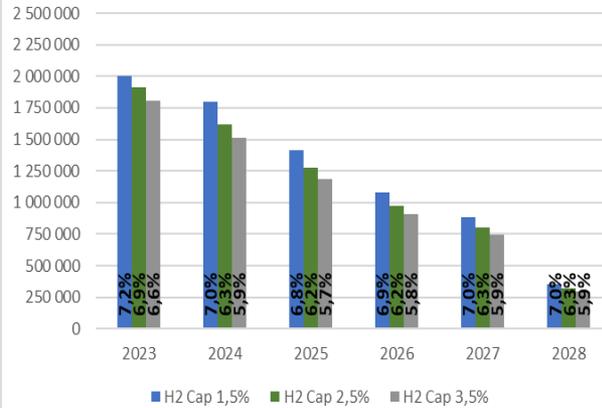
# Extract from past reports Financial expenses simulation in expected Euribor – 2% Scenario



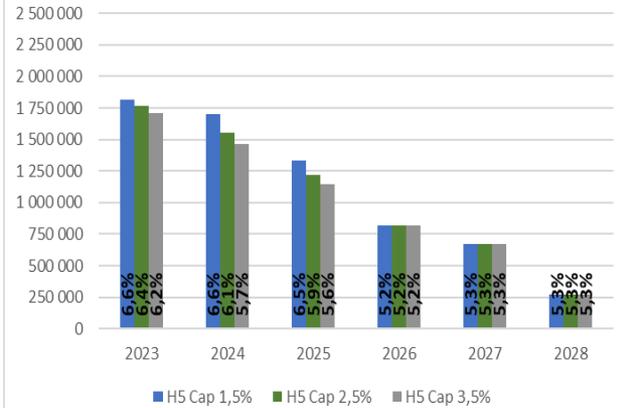
### STRATEGY H1



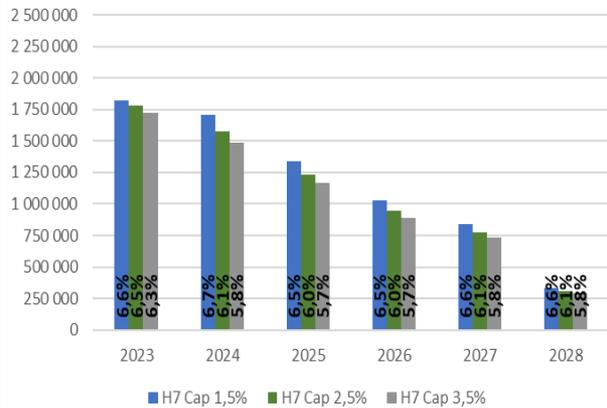
### STRATEGY H2



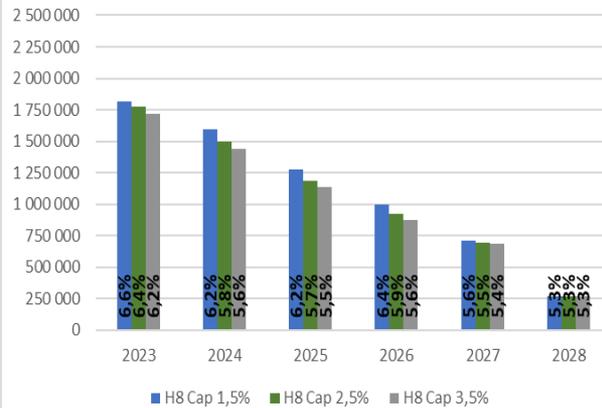
### STRATEGIE H5



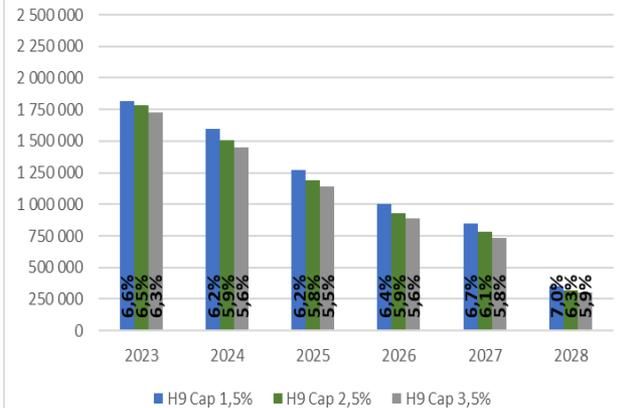
### STRATEGY H7



### STRATEGY H8



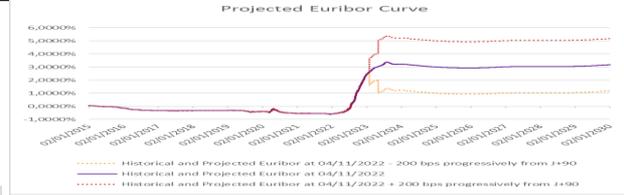
### STRATEGY H9



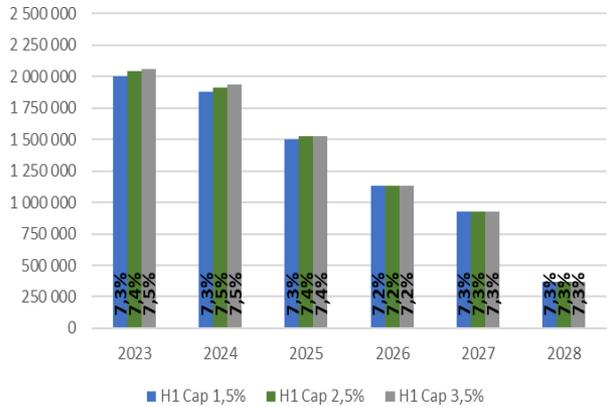
# Extract from past reports

## Financial expenses

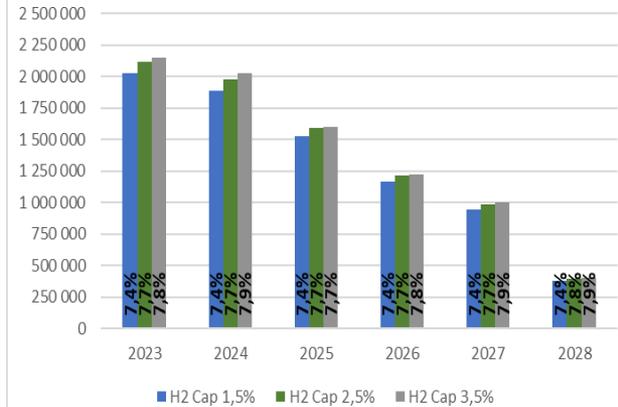
### simulation in expected Euribor Scenario



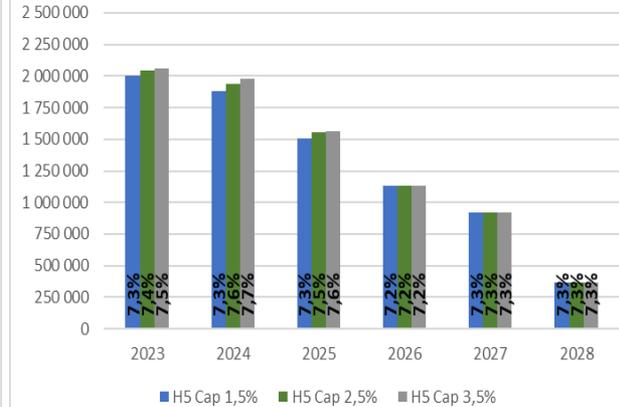
### STRATEGY H1



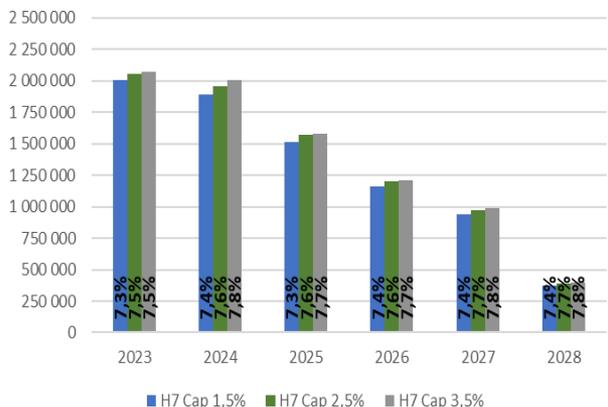
### STRATEGY H2



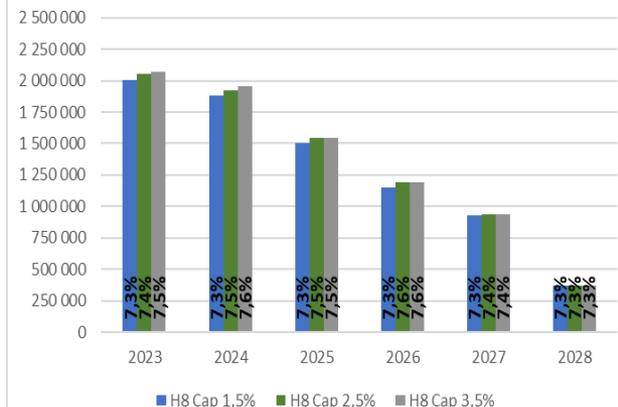
### STRATEGIE H5



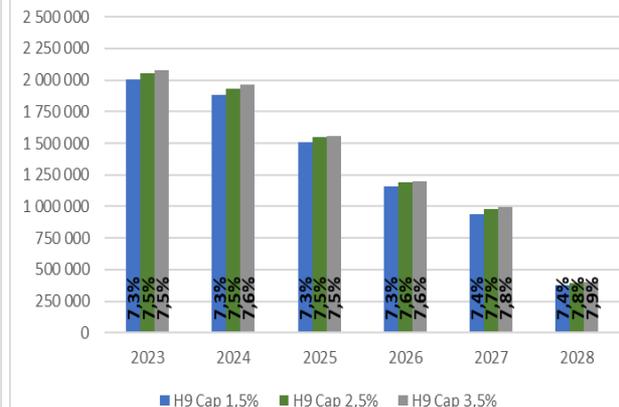
### STRATEGIE H7



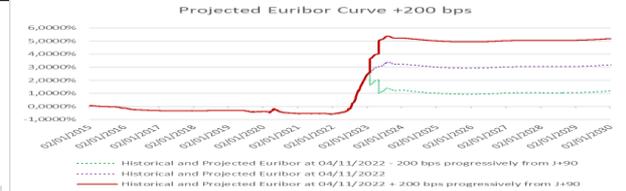
### STRATEGIE H8



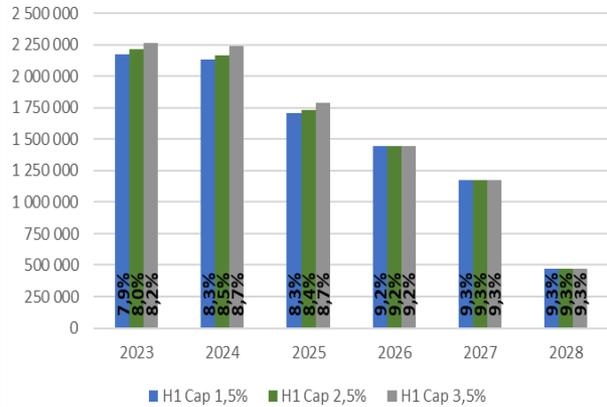
### STRATEGIE H9



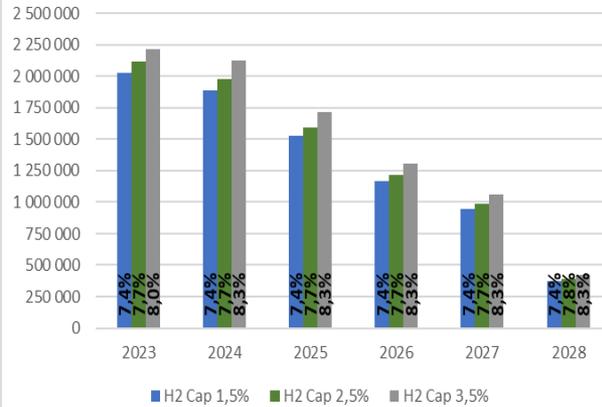
# Extract from past reports Financial expenses simulation in expected Euribor + 2% Scenario



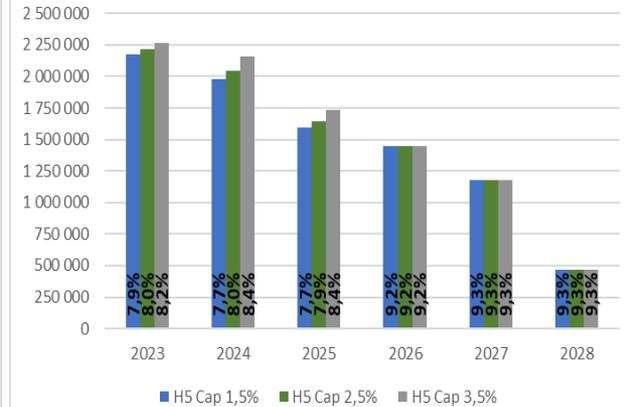
### STRATEGY H1



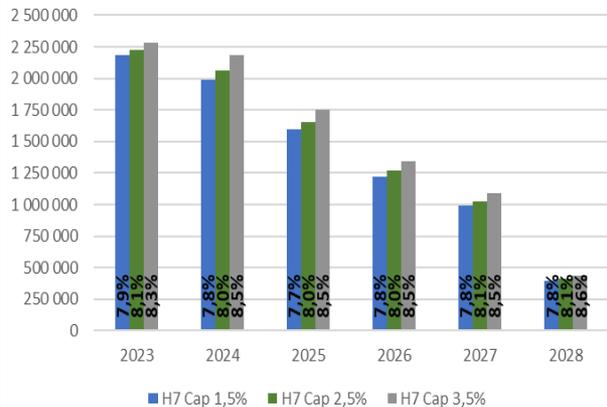
### STRATEGY H2



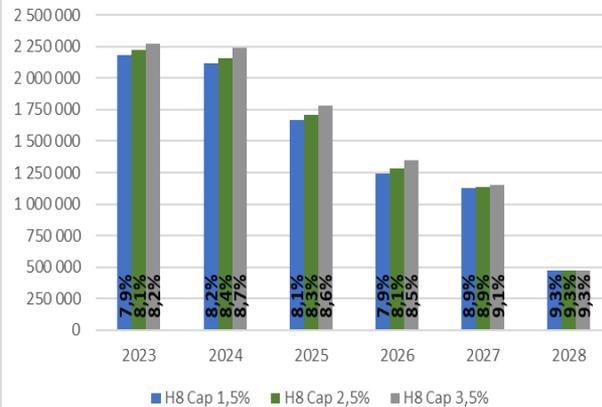
### STRATEGIE H5



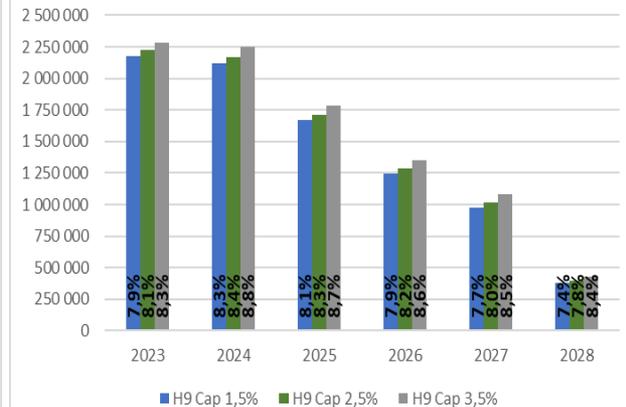
### STRATEGY H7

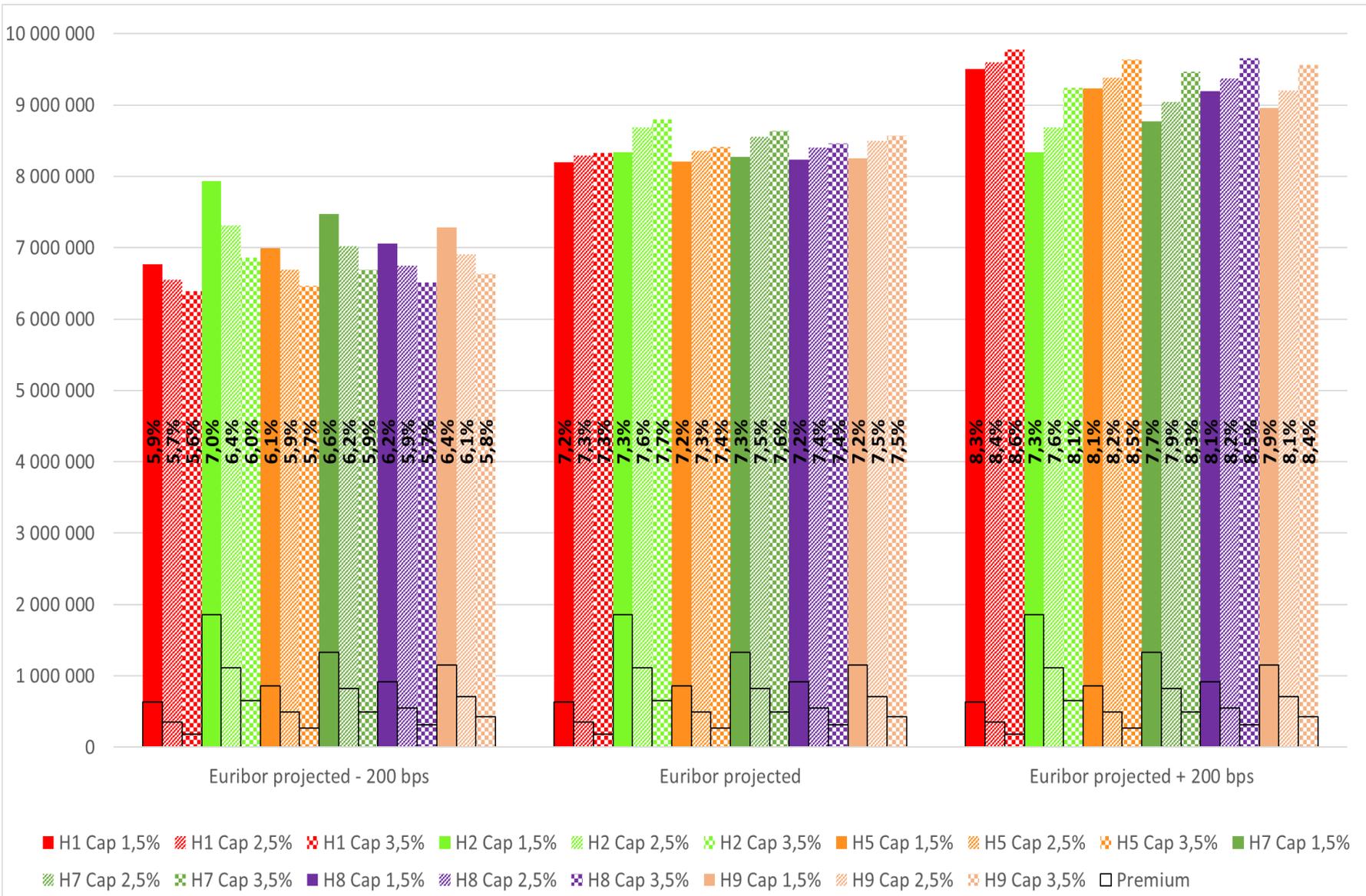


### STRATEGY H8



### STRATEGY H9





	STRATEGY H1			STRATEGY H2			STRATEGY H5		
	H1 Cap 1,5%	H1 Cap 2,5%	H1 Cap 3,5%	H2 Cap 1,5%	H2 Cap 2,5%	H2 Cap 3,5%	H5 Cap 1,5%	H5 Cap 2,5%	H5 Cap 3,5%
Euribor projected - 200 bps	6 768 821	6 550 447	6 386 208	7 929 833	7 312 885	6 856 308	6 993 321	6 686 947	6 465 908
Euribor projected	8 194 412	8 293 916	8 329 697	8 334 494	8 688 533	8 799 797	8 203 313	8 353 753	8 409 397
Euribor projected + 200 bps	9 501 387	9 600 891	9 772 351	8 334 494	8 688 533	9 238 584	9 232 417	9 382 857	9 636 453

	STRATEGY H7			STRATEGY H8			STRATEGY H9		
	H7 Cap 1,5%	H7 Cap 2,5%	H7 Cap 3,5%	H8 Cap 1,5%	H8 Cap 2,5%	H8 Cap 3,5%	H9 Cap 1,5%	H9 Cap 2,5%	H9 Cap 3,5%
Euribor projected - 200 bps	7 467 821	7 016 847	6 694 108	7 056 021	6 743 147	6 515 108	7 286 821	6 907 347	6 632 008
Euribor projected	8 275 387	8 549 412	8 637 597	8 230 312	8 405 401	8 458 597	8 256 788	8 497 866	8 575 497
Euribor projected + 200 bps	8 768 122	9 042 146	9 462 227	9 197 118	9 372 206	9 649 951	8 958 416	9 199 494	9 562 528

## Amortization table



FIXING DATE	STARTING DATE	ENDING DATE	PAYMENT DATE	Facility A		Facility B		Earn Out		TOTAL DEBT
				Amort.	CRD	Amort.	CRD	Amort.	CRD	
19/09/2022	21/09/2022	31/10/2022	31/10/2022	0	5 000 000	0	10 000 000	0	0	15 000 000
27/10/2022	31/10/2022	30/12/2022	30/12/2022	0	5 000 000	0	10 000 000	0	0	15 000 000
28/12/2022	30/12/2022	31/01/2023	31/01/2023	0	5 000 000	0	10 000 000	-12 500 000	12 500 000	27 500 000
27/01/2023	31/01/2023	28/04/2023	28/04/2023	200 000	4 800 000	0	10 000 000	0	12 500 000	27 300 000
26/04/2023	28/04/2023	31/07/2023	31/07/2023	0	4 800 000	0	10 000 000	0	12 500 000	27 300 000
27/07/2023	31/07/2023	31/10/2023	31/10/2023	200 000	4 600 000	0	10 000 000	0	12 500 000	27 100 000
27/10/2023	31/10/2023	31/01/2024	31/01/2024	0	4 600 000	0	10 000 000	0	12 500 000	27 100 000
29/01/2024	31/01/2024	30/04/2024	30/04/2024	650 000	3 950 000	0	10 000 000	0	12 500 000	26 450 000
26/04/2024	30/04/2024	31/07/2024	31/07/2024	0	3 950 000	0	10 000 000	0	12 500 000	26 450 000
29/07/2024	31/07/2024	31/10/2024	31/10/2024	650 000	3 300 000	0	10 000 000	1 775 000	10 725 000	24 025 000
29/10/2024	31/10/2024	31/01/2025	31/01/2025	0	3 300 000	0	10 000 000	0	10 725 000	24 025 000
29/01/2025	31/01/2025	30/04/2025	30/04/2025	650 000	2 650 000	0	10 000 000	1 775 000	8 950 000	21 600 000
28/04/2025	30/04/2025	31/07/2025	31/07/2025	0	2 650 000	0	10 000 000	0	8 950 000	21 600 000
29/07/2025	31/07/2025	31/10/2025	31/10/2025	650 000	2 000 000	0	10 000 000	1 775 000	7 175 000	19 175 000
29/10/2025	31/10/2025	30/01/2026	30/01/2026	0	2 000 000	0	10 000 000	0	7 175 000	19 175 000
28/01/2026	30/01/2026	30/04/2026	30/04/2026	650 000	1 350 000	0	10 000 000	1 775 000	5 400 000	16 750 000
28/04/2026	30/04/2026	31/07/2026	31/07/2026	0	1 350 000	0	10 000 000	0	5 400 000	16 750 000
29/07/2026	31/07/2026	30/10/2026	30/10/2026	650 000	700 000	0	10 000 000	1 775 000	3 625 000	14 325 000
28/10/2026	30/10/2026	29/01/2027	29/01/2027	0	700 000	0	10 000 000	0	3 625 000	14 325 000
27/01/2027	29/01/2027	30/04/2027	30/04/2027	0	700 000	0	10 000 000	1 775 000	1 850 000	12 550 000
28/04/2027	30/04/2027	30/07/2027	30/07/2027	0	700 000	0	10 000 000	0	1 850 000	12 550 000
28/07/2027	30/07/2027	29/10/2027	29/10/2027	0	700 000	0	10 000 000	0	1 850 000	12 550 000
27/10/2027	29/10/2027	31/01/2028	31/01/2028	0	700 000	0	10 000 000	0	1 850 000	12 550 000
27/01/2028	31/01/2028	28/04/2028	28/04/2028	700 000	0	0	10 000 000	1 850 000	0	10 000 000
26/04/2028	28/04/2028	31/07/2028	31/07/2028	0	0	0	10 000 000	0	0	10 000 000
27/07/2028	31/07/2028	31/10/2028	31/10/2028	0	0	10 000 000	0	0	0	0

Broken Period

# Amortization table



FIXING DATE	STARTING DATE	ENDING DATE	PAYMENT DATE	H1 : HEDGING REQUIREMENT	H2	H3	H4	H5	H6	H7	H8	H9
19/09/2022	21/09/2022	31/10/2022	31/10/2022	0	0	0	0	0	0	0	0	0
27/10/2022	31/10/2022	30/12/2022	30/12/2022	0	0	0	0	0	0	0	0	0
28/12/2022	30/12/2022	31/01/2023	31/01/2023	13 750 000	27 500 000	27 500 000	27 500 000	13 750 000	13 750 000	13 750 000	13 750 000	13 750 000
27/01/2023	31/01/2023	28/04/2023	28/04/2023	13 650 000	27 300 000	27 300 000	27 300 000	13 650 000	13 650 000	13 650 000	13 650 000	13 650 000
26/04/2023	28/04/2023	31/07/2023	31/07/2023	13 650 000	27 300 000	27 300 000	27 300 000	13 650 000	13 650 000	13 650 000	13 650 000	13 650 000
27/07/2023	31/07/2023	31/10/2023	31/10/2023	13 550 000	27 100 000	27 100 000	27 100 000	13 550 000	13 550 000	13 550 000	13 550 000	13 550 000
27/10/2023	31/10/2023	31/01/2024	31/01/2024	13 550 000	27 100 000	27 100 000	27 100 000	13 550 000	13 550 000	13 550 000	13 550 000	13 550 000
29/01/2024	31/01/2024	30/04/2024	30/04/2024	13 225 000	26 450 000	26 450 000	26 450 000	21 160 000	21 160 000	21 160 000	13 950 000	13 950 000
26/04/2024	30/04/2024	31/07/2024	31/07/2024	13 225 000	26 450 000	26 450 000	26 450 000	21 160 000	21 160 000	21 160 000	13 950 000	13 950 000
29/07/2024	31/07/2024	31/10/2024	31/10/2024	12 012 500	24 025 000	24 025 000	24 025 000	19 220 000	19 220 000	19 220 000	13 300 000	13 300 000
29/10/2024	31/10/2024	31/01/2025	31/01/2025	12 012 500	24 025 000	24 025 000	24 025 000	19 220 000	19 220 000	19 220 000	13 300 000	13 300 000
29/01/2025	31/01/2025	30/04/2025	30/04/2025	10 800 000	21 600 000	21 600 000	21 600 000	17 280 000	17 280 000	17 280 000	12 650 000	12 650 000
28/04/2025	30/04/2025	31/07/2025	31/07/2025	10 800 000	21 600 000	21 600 000	21 600 000	17 280 000	17 280 000	17 280 000	12 650 000	12 650 000
29/07/2025	31/07/2025	31/10/2025	31/10/2025	9 587 500	19 175 000	19 175 000	19 175 000	15 340 000	15 340 000	15 340 000	12 000 000	12 000 000
29/10/2025	31/10/2025	30/01/2026	30/01/2026	9 587 500	19 175 000	19 175 000	19 175 000	15 340 000	15 340 000	15 340 000	12 000 000	12 000 000
28/01/2026	30/01/2026	30/04/2026	30/04/2026	0	16 750 000	0	16 750 000	0	13 400 000	13 400 000	11 350 000	11 350 000
28/04/2026	30/04/2026	31/07/2026	31/07/2026	0	16 750 000	0	16 750 000	0	13 400 000	13 400 000	11 350 000	11 350 000
29/07/2026	31/07/2026	30/10/2026	30/10/2026	0	14 325 000	0	14 325 000	0	11 460 000	11 460 000	10 700 000	10 700 000
28/10/2026	30/10/2026	29/01/2027	29/01/2027	0	14 325 000	0	14 325 000	0	11 460 000	11 460 000	10 700 000	10 700 000
27/01/2027	29/01/2027	30/04/2027	30/04/2027	0	12 550 000	0	12 550 000	0	10 040 000	10 040 000	10 700 000	10 700 000
28/04/2027	30/04/2027	30/07/2027	30/07/2027	0	12 550 000	0	0	0	0	10 040 000	0	10 700 000
28/07/2027	30/07/2027	29/10/2027	29/10/2027	0	12 550 000	0	0	0	0	10 040 000	0	10 700 000
27/10/2027	29/10/2027	31/01/2028	31/01/2028	0	12 550 000	0	0	0	0	10 040 000	0	10 700 000
27/01/2028	31/01/2028	28/04/2028	28/04/2028	0	10 000 000	0	0	0	0	8 000 000	0	10 000 000
26/04/2028	28/04/2028	31/07/2028	31/07/2028	0	10 000 000	0	0	0	0	8 000 000	0	10 000 000
27/07/2028	31/07/2028	31/10/2028	31/10/2028	0	0	0	0	0	0	0	0	0

Broken Period

## Next steps



- Finalize a choice of strategy
- Initiate discussions with banks to ensure they are prepared to address the type of strategy being considered and finalize regulatory documentation.
- Ask them for indicative quotations
- Organize the transaction

# Appendices



- 
- Constraints related to negative rates
  - Financing terms
  - Profiles at maturity of different types of hedge

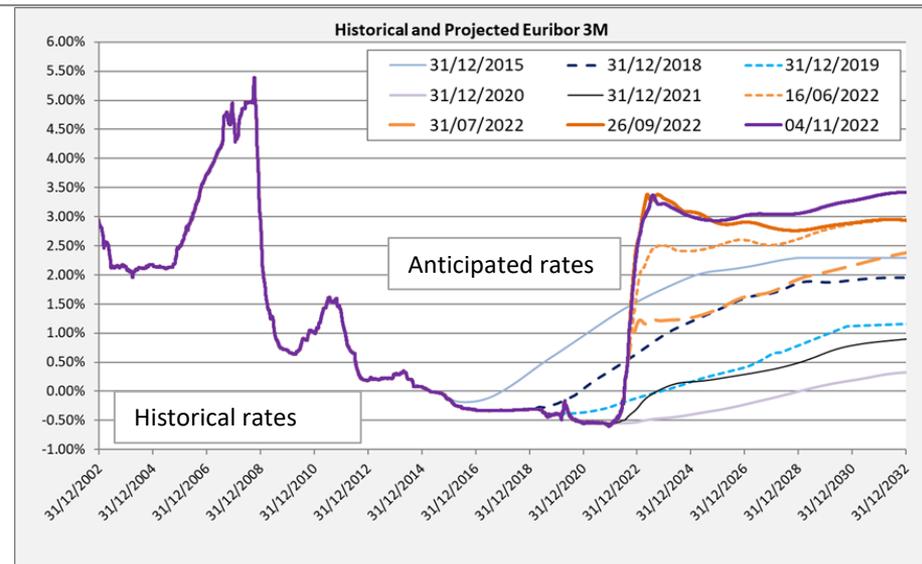
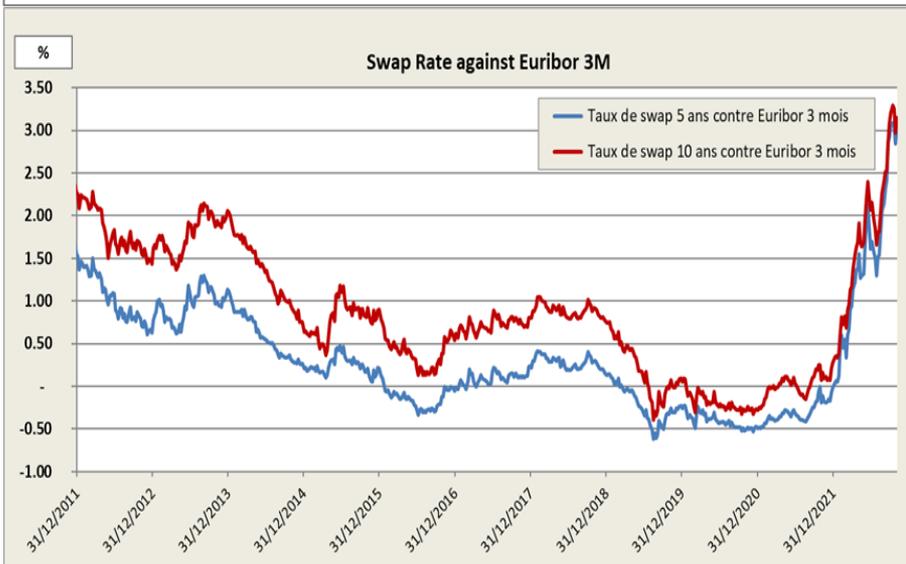
**Short and medium term euro rates are at historic lows** due to continued weak growth and "quantitative" actions of many central banks, including the ECB, to try to boost inflation: negative money rates, massive bond buybacks to lower supply and demand rates and liquidity injections to encourage lending.

As a result:

- Euribor 3 months rate is positive
- Swap rates are positives now

Faced with these negative rates, which normally have to be passed on to the borrowers' loans, which should receive interest on the amounts borrowed, **banks have set up a floor on the remuneration of their financing.**

As a consequence, these **floors offset the effectiveness of swaps (and tunnels/collars)** that are not expected to replicate this situation with **negative variable rates.**



## Ineffectiveness of simple swaps ( and tunnels/collars) in case of a floor in the financing



A video detailing this concern is visible on the blog of KERIUS Finance [by clicking here](#).

The financing contract provides that the Libor cannot be negative, therefore the bank will not pay interest to the borrower.

An Interest Rate swap which allows to fix the rate of a debt is a contract by which the company undertakes to:

- Receive a floating rate on the amount of the hedged debt (to cancel the floating rate of the financing contract)
- Pay a fixed rate on the same amount.

A conventional swap, which does not replicate this floor, that is to say whose variable "leg" does not also include a floor, has two disadvantages when the index (Libor/Euribor) is negative :

- No cap on the overall financing rate: the negative Libor rate is added to the fixed rate to be paid by the company.
- Potential problem with hedge accounting: if hedges are no longer considered as effective by the Auditors as a result of this issue, all mark-to-market swap fluctuations will be recorded In financial result (i.e. not deferred in time).

A similar problem arises with the collar: the floor of the collar doubles the floor of the financing. In the event of negative rates, it induces a loss which increases the financial expenses beyond the threshold rate (cap).

### **Technical solutions:**

- Include in the swap a floor replicating that of the financing, but this has a cost. See simulations.
- Opt for a hedging with a **Cap**, which cannot generate negative valuation in the event of negative rates.

### Interest rate swap (example: fixed interest swap vs Euribor 3 months):

Definition: exchange of a stream of fixed interest payments against a stream of floating interest payments (denominated in a particular currency). The objective is to fix a charge of interests linked to a debt facility.

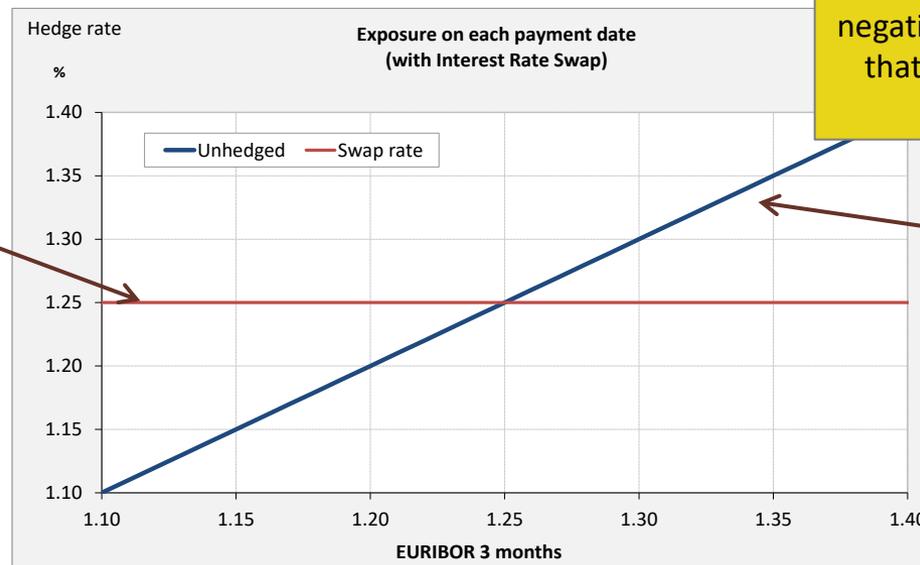
Advantages:

- No premium to pay at inception (the value of the swap is nil on the trade date)
- Simplicity to trade
- Financial charge is known in advance

**Swaps must be kept for the part of the exposure that cannot be reduced (risk of unlimited loss).**

Disadvantages:

- Cost of opportunity if the rates move in a favorable direction after inception of the hedge;
  - Potential unlimited loss (mark to market)
- Simple but risky product in case of unanticipated reduction of the underlying exposure (debt repayment for example) after inception of the hedge in case of negative mark to market valuation.



Product that does not guarantee a financing rate in a context of negative rates for financing facilities that include a floor on the index (Euribor or else).

Rate fixed by the swap

Floating rate of unhedged underlying

Illustrative graph:  
non-updated data

**Interest rate Cap:** Hedge in which the buyer of the cap receives payments from the bank at the end of each period (fixing date) if the market rate (Euribor or Libor for instance) exceeds the exercise rate of the cap (i.e. strike).

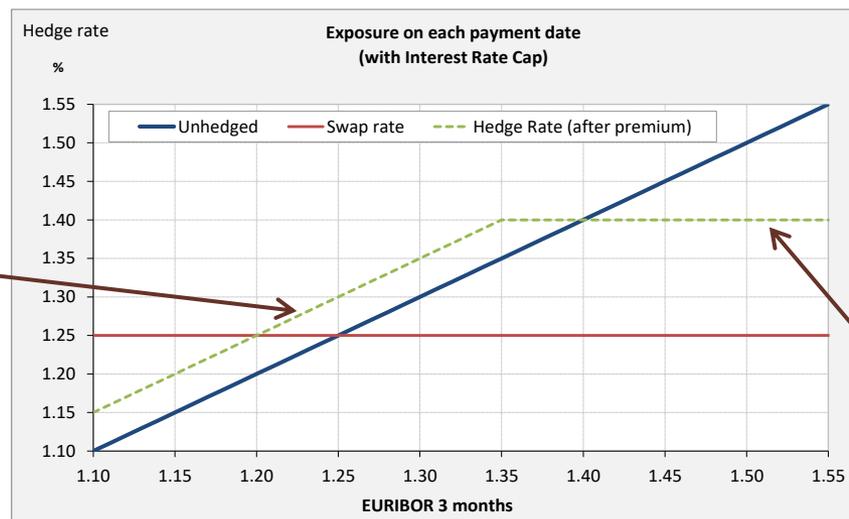
=> The “strike” is the protection rate of the cap.

#### Advantages:

- Fully flexible to modify or cancel the hedge in case of modification of the exposure;
- Opportunity to benefit from favorable fluctuations of market rates;
- Risk of loss limited to the premium paid initially, in case of hedge modification before expiry

#### Disadvantages:

- Premium to pay at inception. The premium can be paid upfront to the bank or spread over the life of the hedge if the bank authorized this credit. The premium is then called “running premium” or “running margin”.



The cap option captures favorable variations of the underlying

Maximum hedge rate provided by the cap (protection = strike)

Illustrative graph:  
non-updated data

**Collars (combinations of options purchased and sold):**

Simultaneous purchase of an interest rate cap and sale of an interest rate floor. The buyer's effective interest rate paid fluctuates between the two agreed exercise rates (strikes) of the options, depending on the underlying index. A collar profile is a mix of option profile and swap profile.

Advantages:

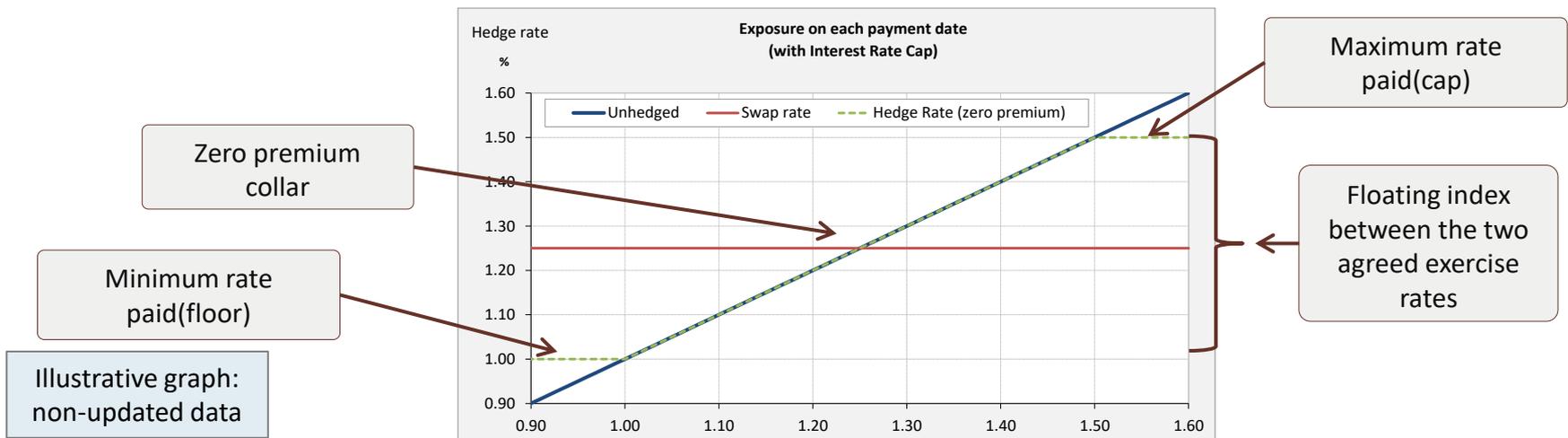
- Flexibility as long as the market rate fluctuates between the exercise rates (strikes)
- Protection if the market rate rises above the exercise rate (strike) at maturity of each period
- Opportunity to offset the cost of the cap with the option sold (floor)

**Collars must be kept for the part of the exposure that cannot be reduced.**

Disadvantages:

- Cost of opportunity if the rates move in a favorable direction after inception of the hedge

➤ Potential unlimited gain or loss (mark to market) in case of unanticipated reduction of the underlying exposure (debt repayment for example) after inception of the hedge or reduction/cancellation of the hedge.



Ineffective product in current market conditions (negative rates) because the floor is too close from the cap. And the cap is no more guaranteed if the financing contract is floored.

KERIUS Finance SAS  
17 rue Dupin,  
75006 Paris, France

Tel: +33 1 83 62 27 61

*RC Paris: 520 300 948*

Immatriculé au Registre Unique des Intermédiaires en Assurance, Banque et Finance (ORIAS) sous le n°13000716 au titre des activités de **Conseiller en Investissements Financiers**, enregistré auprès de l'Association Nationale des Conseils Financiers-CIF, association agréée par l'Autorité des Marchés Financiers .

KERIUS Finance Suisse SARL  
Chemin de Blandonnet 2,  
1214 Vernier - Genève, Suisse

Tel : + 41 22 566 40 52

*RC Genève, numéro fédéral: CH-660-2330011-1*

[www.kerius-finance.com](http://www.kerius-finance.com)

Sébastien Rouzaire  
[s.rouzaire@kerius-finance.com](mailto:s.rouzaire@kerius-finance.com)

**Ce document a été préparé à l'usage des services financiers du Client. Ce document ou son contenu ne doivent pas être communiqués ou diffusés en externe sans l'accord préalable écrit de KERIUS FINANCE .**

Pour ce document, KERIUS FINANCE a été amenée à utiliser des informations et données chiffrées fournies par le Client. KERIUS FINANCE a pris ces données en compte sans réaliser de procédure d'audit et n'émettra en conséquence aucune opinion sur leur fiabilité. Ce document ne constitue pas une documentation contractuelle des transactions éventuellement décrites, ni une recommandation ou une sollicitation de mettre en place les transactions décrites. Tout Client intéressé par ce type de transactions ou procédure doit mener ses propres analyses pour vérifier l'adéquation à ses besoins, ainsi que les conséquences, notamment fiscales et comptables. Il lui appartient également de prendre les dispositions nécessaires à la mise en œuvre des décisions qu'il aura prises.

Ni KERIUS FINANCE ou ses administrateurs ou employés ne pourront être tenus responsables des conséquences de l'utilisation de ce document ou de la mise en place, totale ou partielle, par le client, des idées ou opérations décrites.

**This document has been prepared for the Finance department of the Client. It must not be communicated or published externally without prior written consent of KERIUS FINANCE**

For this document, KERIUS FINANCE used information and data provided by the Client. The Client agrees that KERIUS FINANCE took this information into account without auditing them or checking their accuracy and, as a consequence, without producing any opinion on their reliability. Please note that this document does not constitute a contractual documentation of the transactions or processes that may be described, nor a recommendation or solicitation to enter into the transactions or processes described herein. If the Client is interested in setting up this type of transactions or processes, the Client should conduct his own analysis of the suitability to his needs. The Client must also verify the consequences of his decisions, including accounting and fiscal aspects. The Client is also responsible for the implementation of his decisions.

Neither KERIUS FINANCE nor its directors and employees accept liability for any loss or damage resulting from the use of this document and expressly excludes all liability in respect of any implication of the described ideas or transactions on the Client's own specific particulars.