

The secondary curve, read four ways

Chapters 1 to 3. No bond trades at the new maturity, so its fair value is interpolated, and interpolation is a choice. Fill this in before the mandate is signed, not on the pricing call.

Issuer		Prepared by	
Transaction		Date	

Comparable bond	Maturity, years	Spread over mid-swaps, bp	Your bond	Maturity	Spread
2.500% March 2028	1.58	62			
3.250% September 2030	4.12	88			
1.875% January 2036	9.24	141			
Target maturity of the new bond	7				

Convention	Ardennes: fair value, bp	Concession, bp	Present value, EUR	Yours: fair value	Concession
Linear in maturity (the syndicate's)	117.81	4.19	1,241,953		
Least squares on three points	117.84	4.16	1,232,589		
Linear in the square root of time	120.32	1.68	496,881		
Linear in the logarithm of maturity	122.78	-0.78	-231,927		
Span of the four	4.97	4.97	1,473,880		

Question before the call	Ardennes	Yours
Which convention does the syndicate propose, and is it the one giving the lowest fair value?	Linear; yes, 117.81	
Do the four readings straddle the reoffer spread?	Yes: 117.81 to 122.78 against 122	
The span in euros at your size, and as a share of the commission	1,473,880; 84 per cent	

Reoffer spread 122 bp; present value of one basis point EUR 296,586. The sign of a concession is a property of the line drawn, not of the transaction.

The pricing note header: one basis point in euros

Chapters 4 and 7. Print this at the top of the pricing note. Every level spoken on the call is denominated in the last line of the first table.

Issuer		Prepared by	
Transaction		Date	

Figure	How it is computed	Ardennes	Your issue
Mid-swap at the tenor	screen, at pricing	3.10%	
Reoffer spread	agreed on the call	122 bp	
Reoffer yield	mid-swap + spread	4.32%	
Coupon	set at pricing	4.25%	
Reoffer price, per 100	cash flows at the yield	99.585	
Annuity factor over the tenor	$(1 - (1+y)^{-n}) / y$	5.93171	
Modified duration, years	$\text{Macaulay} / (1+y)$	5.94113	
Present value of one basis point	size / 10,000 x annuity	EUR 296,586	

Reading of the same concession	Ardennes, EUR	Difference, EUR	Your issue
Coupon supplement, a year	209,375		
Added up over the tenor	1,465,625	223,672	
Discounted at the annuity factor (the book's)	1,241,953	nil	
Discounted at modified duration	1,243,925	1,972	

Whether the concession is added up or discounted is worth 223,672 on this bond; which discount factor is used, once that is settled, 1,972.

The bond's bill, in three lines

Chapter 7. Two lines arrive on paper and one does not. Write all three, in euros and in basis points of the amount raised, on one page.

Issuer		Prepared by	
Transaction		Date	

Line	Who sends it	Ardennes, EUR	bp	Yours, EUR	bp
Underwriting commission	Deducted at settlement, fee letter	1,750,000	35.00		
Legal fees	Law firms	285,000	5.70		
Rating agency fees	Rating agency	195,000	3.90		
Listing and paying agent	Listing venue, agent	65,000	1.30		
Roadshow	Suppliers	75,000	1.50		
Concession, present value	Nobody: seven years of coupon	1,241,953	24.84		
Total		3,611,953	72.24		

Ratio	Ardennes	Yours
Invoiced cost, commission and expenses	2,370,000 (47.40 bp)	
Uninvoiced share of the total	34.38 per cent	
Concession as a multiple of the commission	0.71	
Cost per euro raised	0.722 per cent	
Uninvoiced share under the softest convention	minus 10.85 per cent	

At 2026 spread levels the invoiced commission is the larger number on this bond. The convention sits in the numerator and the denominator of the uninvoiced share at once.

The two thresholds, and the regime

Chapter 7. Divide what is invoiced by the present value of a basis point. The answer says where the claim that most of a bond's cost is uninvoiced becomes true.

Issuer		Prepared by	
Transaction		Date	

Figure	Ardennes	Your issue
Present value of one basis point, EUR	296,586	
Underwriting commission, EUR	1,750,000	
Commission and expenses, EUR	2,370,000	
Concession at which the uninvoiced cost equals the fee, bp	5.90	
Concession at which it equals fee and expenses, bp	7.99	
This bond's concession, bp	4.19	

Concession, bp	Present value, EUR	Multiple of the commission	Uninvoiced share	Yours: PV	Share
4.19 (this bond)	1,241,953	0.71	34.38%		
8 (bottom of 2022 to 2023)	2,372,686	1.36	50.03%		
12 (top of the range)	3,559,028	2.03	60.03%		

Both thresholds sit below eight basis points, not inside the 2022 to 2023 range: the second by less than one hundredth of a basis point.

The first day

Chapter 4. What investors made on the first close, measured two ways, and how much of the concession it gave back.

Issuer		Prepared by	
Transaction		Date	

Figure	Ardennes	Your issue
Reoffer spread, bp	122	
Spread at the close of the first day, bp	118.5	
Tightening, bp	3.5	
Investors' gain, duration approximation, EUR	1,035,381	
Investors' gain, exact repricing, EUR	1,036,714	
Of which convexity, EUR	1,333	
Share of the syndicate's concession given back	83.58 per cent	

Question	Answer on this deal
Which reading of the curve was the tightening measured against?	
Who held the paper at the close, by category?	
Was the first-day gain reported as evidence of a concession, and on which convention?	

The repricing method is the smallest row of the register, 1,333. The share given back depends on the convention: against the logarithmic reading there was no concession to give back.

The funding comparison across currencies

Chapter 5. Bring each coupon back to its own swap curve before comparing, then apply the basis. Never set a dollar coupon against a euro yield.

Issuer		Prepared by	
Transaction		Date	

Step	Ardennes	Your comparison
Dollar coupon indicated	5.18%	
Dollar mid-swap at the tenor	4.10%	
Dollar spread over its own curve, bp	108	
Cross-currency basis on the euro leg, bp	-18	
Dollar spread after the swap, bp	90	
Euro reoffer spread, bp	122	
Comparison after the basis, bp	-32 (the dollar is cheaper)	
Naive comparison, dollar coupon against euro yield, bp	+86	
Reversal, bp	118	
Of which the gap between the two swap curves	100 (85 per cent)	
Of which the basis	18 (15 per cent)	

Consequence	Ardennes	Yours
Annual saving on the dollar amount	USD 960,000	
Present value of the saving: what the base choice is worth	5,694,445	
Shortfall in the amount raised	200,000,000	

The basis does not reverse the comparison. It widens a gap that was already reversed. At a basis of zero the dollar is already 14 bp cheaper.

The allocation record

Chapter 9. Allocation is a price set after the price. Record the book, the service rate given to each category and the retention assumed, with its source.

Issuer		Prepared by	
Transaction		Date	

Account	Demand, EUR	Service rate	Directed, EUR	Pro rata, EUR	Retained at 30 days	Source of that rate
Long-only asset managers	1,420,000,000	100%	308,026,030	249,122,807	94% (assumed)	
Insurers and pension funds	610,000,000	100%	132,321,041	107,017,544	97% (assumed)	
Bank treasuries	380,000,000	55%	45,336,226	66,666,667	88% (assumed)	
Hedge funds	440,000,000	15%	14,316,703	77,192,982	21% (assumed)	
Total	2,850,000,000		500,000,000	500,000,000		

Result	Ardennes	Yours
Resold within thirty days, directed / pro rata	7.84% / 17.43%	
The gap, in points and in euros of paper	9.59; 47,938,616	
First-day gain moved to the two long-term categories	174,597	
Hedge fund retention at which the gap closes (case one)	97.24 per cent	

No published data breaks retention down by investor type. The whole gap rests on the four rates; write down where each came from, or that it came from nowhere.

The execution log, and what the book can say

Chapter 18. Log each stage of the book with its spread and its size. Then state what can be inferred, which is one-sided.

Issuer		Prepared by	
Transaction		Date	

Stage	Time	Spread, bp	Order book, EUR	Change in book	Yours: spread	Book
Initial price thoughts		145	1,750,000,000			
Price guidance		128	3,600,000,000	+1,850,000,000		
Launch		122	2,950,000,000	-650,000,000		
Reoffer		122	2,850,000,000	-100,000,000		

Inference	Ardennes	Yours
Apparent sensitivity, guidance to launch, EUR a bp	108,333,333	
Attrition with no change in spread, launch to reoffer	100,000,000	
Upper bound on the real sensitivity, EUR a bp	91,666,667	
The other leg fitted the same way, EUR a bp	108,823,529	
Saving an extrapolation would claim, never available	6,433,628 (21.69 bp)	

Between launch and reoffer the spread did not move and the book still lost 100,000,000. Book elasticity has no defensible second value: it is an absence, not a convention.

The announcement: four references, one discount

Chapter 13. The press release will quote one reference. Write all four beside it, with the discount each would have let it say.

Issuer		Prepared by	
Transaction		Date	

Reference	Level, EUR	Discount	Discount in EUR	Quoted?	Yours: level	Discount
Thirty-day volume weighted average	41.80	2.99%	11,875,000			
Last close	42.60	4.81%	19,475,000	yes		
Five-day volume weighted average	43.12	5.96%	24,415,000			
Close before the wall-crossing	43.45	6.67%	27,550,000			

Figure	Ardennes	Yours
Placement price, EUR; shares placed	40.55; 9,500,000	
Span of the four discounts, points	3.68	
What the choice of reference is worth, EUR	15,675,000	
As a multiple of the commission	3.70	
Who chose the reference, and when	Issuer, on the bookrunner's advice	

All four references are levels at which the share traded. The choice moves the magnitude and cannot turn a cost into a rebate.

The wall-crossing log and the pre-sounding close

Chapter 12. Write the closing price down before the soundings begin, and have it initialled. The fall in the reference is the share of the issue the leak costs.

Issuer		Prepared by	
Transaction		Date	

Before the soundings	Ardennes	Your placement
Close before the wall-crossing, EUR	43.45	
Initialled by, date and time		
Reference at launch, EUR	42.60	
Fall in the reference, EUR and per cent	0.85; 1.96%	

Account crossed	Crossed by	Date and time	Cleansed on	Traded in the window?

The leak, priced	Ardennes	Yours
Price the same discount would have struck off the pre-sounding close	41.3591	
Cost at a constant discount (defensible)	7,686,414	
Cost at a constant share count (the common error)	8,075,000	
Extra shares issued because of the leak	185,846 (1.96% of the issue)	

The leak is the only one of the placement's three costs that could in principle have been zero. It answers to procedure.

The placement's bill, in three lines

Chapter 14. Present the bill in three lines, always, each naming the reference it was measured against. Report the fee as a share of the bill, not only as a rate.

Issuer		Prepared by	
Transaction		Date	

Line	Measured against	Ardennes, EUR	Of proceeds	Of the bill	Yours, EUR
Commission	1.10% of gross proceeds	4,237,475	1.100%	13.50%	
Placement discount	the last close, 42.60	19,475,000	5.055%	62.02%	
Cost of the wall-crossing leak	the pre-sounding close, 43.45	7,686,414	1.995%	24.48%	
Total		31,398,889	8.151%	100%	

Figure	Ardennes	Yours
Gross proceeds	385,225,000	
Uninvoiced share of the bill	86.50 per cent	
Discount and leak as a multiple of the commission	6.41	
Dilution, as executed / without the leak	7.4510% / 7.3159%	
The commission range of the 2016 study, in euros (case three)	2,118,738	

The commission is the line anybody argues about and the smallest of the three. The other two are borne by existing holders as shares, not by the company as cash.

Cost per euro raised, with its conventions stated

Chapter 15. A ratio of two costs inherits the conventions of both. Publish it with them, or as a range, never as a bare point.

Issuer			Prepared by	
Transaction			Date	

Transaction	Cost, EUR	Raised, EUR	Cost per euro	Conventions it rests on
Bond	3,611,953	500,000,000	0.722%	linear interpolation; annuity factor
Placement	31,398,889	385,225,000	8.151%	last close; constant-discount leak
Ratio			11.28	both of the above

Bond convention	Thirty-day VWAP	Last close	Five-day VWAP	Pre-crossing close
Linear in maturity	8.55	11.28	13.06	14.18
Least squares	8.57	11.31	13.09	14.22
Square root of time	10.77	14.22	16.45	17.87
Logarithm of maturity	14.45	19.06	22.06	23.96

Your ratio	Lowest	Highest	Conventions of the published figure

The bond's convention, worth 1,473,880, moves the ratio more than the placement's, worth 15,675,000: a span of 7.78 against 5.63 (case two).

The register

Chapter 16. One row per place where a convention, not a measurement, decides a published number. The rows are not additive: there is no total. The last column is yours.

Issuer		Prepared by	
Transaction		Date	

The choice	Made by	Worth, EUR	Above the fee?	How it was actually chosen, by whom, and when
Reference for the placement discount	Issuer, on advice	15,675,000	yes	
Curve against which each currency is measured	Treasury	5,694,445	yes	
Functional form of the interpolation	Bookrunner	1,473,880	no	
Counterfactual for the leak	Bookrunner or adviser	388,586	no	
Concession discounted, and over what horizon	Issuer	223,672	no	
Allocation: directed or pro rata	Bookrunner	174,597	no	
Comparable set: two bonds or three	Bookrunner	9,364	no	
Annuity factor or modified duration	Issuer	1,972	no	
Duration approximation or exact repricing	Bookrunner	1,333	no	
Off the register: book elasticity	nobody	a bound only		an absence, declared
Off the register: retention by investor type	nobody	an assumption		an absence, declared

Escalation rule	Ardennes	Yours
Bond commission; placement commission	1,750,000; 4,237,475	
Rows worth more than their own fee	2	
Escalated to whoever approves the fee, in the same paper?		

A choice worth more than the fee that nobody can attribute to a person or a moment has not been delegated; it has been abandoned.