

14 November 2024

Rates Strategy

EUR/USD Cross Currency Swap

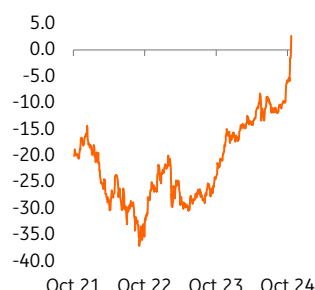
And of whole host of other global currencies

5yr Spread EUR to USD (bp)



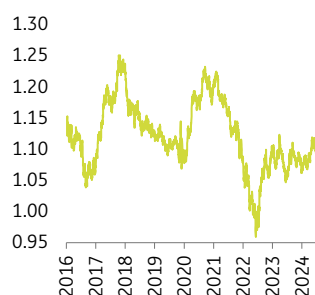
Source: Macrobond, ING estimates

5yr EUR/USD CCS basis (bp)



Source: Macrobond, ING estimates

EUR/USD FX rate



Source: Macrobond, ING estimates

- The EUR basis discount has evaporated, in part as spreads have shot wider
- We identify a positive carry opportunity where USD strength adds to performance
- We also provide a numerical update on a whole host of alternatives globally

There's been some significant movers in the drivers of the EUR basis in the past number of weeks, and the prognosis ahead presents opportunity in the guise of arbitrage between absolute spreads and the FX component, even if the basis is practically zero.

First, the EUR basis has dramatically disappeared, and in fact is now tending to edge positive (a EUR premium). Apart from varying liquidity conditions, part of the issue here is the tension between the FX forward discount for material EUR appreciation and the latest prognosis for actual EUR weakness versus the USD post the US election outcome. That FX forward profile generates an implied spread profile that is pressured narrower versus the actual spread, in turn now generating a mild positive EUR basis.

At this juncture there is no mechanism to reverse this, at least not for now. Other factors in fact tend to argue for a EUR basis discount. The Eurozone continues to run a current account surplus, which manifests in liquidity through build of reserves. And the Eurozone has more excess liquidity than the US does. At the same time, there has been a material build in cash conditions on the US side, which does act to reduce the USD premium.

One of the key drivers of USD strength versus the EUR is in fact an implication of the widening in ESTR vs SOFR spreads, which gained momentum post the US elections.

EUR/USD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	215	209	200	194	186	177
XCCY basis	1	2	3	3	3	3
All-in Spread	214	206	198	192	183	174
FX RATE						
Spot						
FX forward profile	1.05	1.10	1.12	1.14	1.16	1.19
Implied cost per annum	212	204	195	189	176	170
Implied spread vs XCCY*	2	2	3	3	7	4
SPREAD AND BASIS VS HISTORY						
Average spread (past 4yrs)	121	116	113	113	112	108
Avg. XCCY basis (past 4yrs)	-20	-21	-21	-21	-21	-7
Average Total (past 4yrs)	141	136	134	134	133	115
Deviation versus average	73	70	63	58	49	59

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Source: Macrobond, ING estimates

The favoured play here is to use current spreads as an opportunity to pay EUR and receive USD. The basis is no longer fuelling an arbitrage here, but the absolute spread itself is generous versus history (see table above). The structure synthetically creates a EUR liability where appreciation of the EUR would be a concern. However, here, we anticipate USD strength, which will then act as a positive mark-to-market impulse. The risk is for further widening in spreads, but that should be cushioned by the FX exposure.

In the following pages we show how other currencies look. There are significant basis discount conditions still attached to the likes of JPY, CHF, TWD, KRW, HKD, SGD, DKK, CZK and even MXN to name a few. CNH too has a wide-spread circumstance. The PLN in contrast maintains a positive basis, whereas GBP, AUD and CAD are broadly neutral.

Padhraic Garvey

Regional Head of Research, Americas
Head of Global Debt and Rates Strategy
padhraic.garvey@ing.com

Bloomberg: RESP INGX<GO>, IBED<GO>,
Fixed/Float Monitor<GO>

Fig 1 USD/JPY Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	352	338	328	320	307	289
XCCY basis	-42	-45	-49	-51	-56	-58
All-in Spread	394	383	376	371	362	347
FX RATE	Spot					
FX forward profile	156	145	139	135	130	122
Implied cost per annum	384	373	366	361	353	341
Implied spread vs XCCY*	10	10	10	10	9	6
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	228	215	158	204	199	134
Avg. XCCY basis (past 2yrs)	-50	-56	-61	-65	-69	-71
Average Total (past 2yrs)	279	271	219	269	268	205
Deviation versus average	115	112	158	102	94	141

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupons. No implied arbitrage here

Fig 2 USD/CHF Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	382	371	362	355	345	337
XCCY basis	-18	-18	-19	-20	-23	-30
All-in Spread	400	389	381	375	368	367
FX RATE	Spot					
FX forward profile	0.89	0.82	0.79	0.76	0.74	0.62
Implied cost per annum	395	385	379	373	366	361
Implied spread vs XCCY*	5	4	2	2	2	6
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	198	184	175	169	162	155
Avg. XCCY basis (past 2yrs)	-31	-33	-36	-39	-46	-55
Average Total (past 2yrs)	229	217	211	209	208	210
Deviation versus average	171	172	169	166	160	157

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupons. No implied arbitrage here

Fig 3 USD/CNH Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	195	193	189	187	183	184
All-in Spread	195	193	189	187	183	184
FX RATE	Spot					
FX forward profile	7.24	6.98	6.86	6.75	6.64	
Implied cost per annum	186	181	174	173	-13	-9
Implied spread vs XCCY*	9	12	15	13	196	193
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	172	190	175	167	161	160
Deviation versus average	23	3	14	20	23	24

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupons. No implied arbitrage here

Fig 4 USD/MXN Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-540	-533	-534	-534	-540	-547
XCCY basis	-43	-50	-54	-61	-68	-72
All-in Spread	-497	-483	-480	-473	-472	-475
FX RATE	Spot					
FX forward profile	20.5	23.7	24.9	26.0		
Implied cost per annum	-522	-504	-499	-491		
Implied spread vs XCCY*	25	21	19	18		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-548	-538	-535	-534	-538	-544
Avg. XCCY basis (past 2yrs)	3	-4	-9	-14	-17	-18
Average Total (past 2yrs)	-551	-534	-525	-520	-521	-525
Deviation versus average	54	51	45	47	49	50

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupons. No implied arbitrage here

Source: Macrobond, ING estimates

Fig 5 GBP/USD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-15	-13	-12	-11	-8	-9
XCCY basis	2	2	1	-1	-3	-4
All-in Spread	-17	-14	-12	-10	-5	-5
FX RATE	Spot					
FX forward profile	1.27	1.26	1.26	1.26	1.27	1.27
Implied cost per annum	-11	-8	-5	-3	2	2
Implied spread vs XCCY*	-5	-7	-7	-7	-8	-7
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-1	-3	0	7	13	21
Avg. XCCY basis (past 2yrs)	-11	-12	-14	-15	-15	-15
Average Total (past 2yrs)	10	10	14	22	28	35
Deviation versus average	-27	-24	-26	-32	-33	-40

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupling. No implied arbitrage here

Fig 6 AUD/USD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-3	-7	-15	-23	-38	-69
XCCY basis	2	4	5	6	8	10
All-in Spread	-5	-11	-19	-28	-46	-79
FX RATE	Spot					
FX forward profile	0.65	0.65	0.64	0.64	0.63	0.60
Implied cost per annum	-2	-9	-17	-27	-46	-67
Implied spread vs XCCY*	-3	-2	-2	-1	0	-12
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	15	1	-8	-17	-32	-54
Avg. XCCY basis (past 2yrs)	-1	2	4	5	7	10
Average Total (past 2yrs)	16	0	-12	-22	-39	-64
Deviation versus average	-21	-10	-7	-6	-7	-15

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupling. No implied arbitrage here

Fig 7 USD/CAD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	109	105	103	100	92	82
XCCY basis	-11	-9	-7	-5	-2	0
All-in Spread	120	114	110	105	94	82
FX RATE	Spot					
FX forward profile	1.41	1.37	1.36	1.35	1.32	1.30
Implied cost per annum	119	112	109	105	93	80
Implied spread vs XCCY*	1	2	2	0	2	2
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-1	-4	-3	-2	-3	-6
Avg. XCCY basis (past 2yrs)	-11	-9	-7	-6	-5	-7
Average Total (past 2yrs)	10	5	4	4	2	1
Deviation versus average	110	109	107	102	92	80

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupling. No implied arbitrage here

Fig 8 USD/HKD Cross Currency Swap

	2yr	3yr	4yr	5yr		
SPREAD AND CCS BASIS						
Current Spread	40	40	41	40	38	35
XCCY basis	-19	-25	-30	-34	-39	-42
All-in Spread	59	65	71	74	77	77
FX RATE	Spot					
FX forward profile	7.78	7.70	7.66	7.59	7.54	7.31
Implied cost per annum	52	51	62	63	67	62
Implied spread vs XCCY*	7	14	9	12	10	15
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-11	-16	-19	-21	-23	-23
Avg. XCCY basis (past 2yrs)	-30	-35	-39	-43	-47	-56
Average Total (past 2yrs)	20	19	20	23	24	33
Deviation versus average	39	46	51	52	52	44

* Note: This spread is actually close to zero, but materially affected by the direction of the re-coupling. No implied arbitrage here

Source: Macrobond, ING estimates

Fig 9 USD/DKK Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	199	190	184	178	168	159
XCCY basis	-37	-35	-34	-33	-31	-23
All-in Spread	236	225	218	211	199	182
FX RATE Spot						
FX forward profile	7.08	6.75	6.61	6.50	6.37	5.86
Implied cost per annum	232	223	211	208	199	187
Implied spread vs XCCY*	4	2	7	3	0	-5
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	98	91	88	86	84	80
Avg. XCCY basis (past 2yrs)	-65	-63	-62	-61	-59	-57
Average Total (past 2yrs)	162	155	150	147	144	136
Deviation versus average	74	71	68	63	55	46

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 10 USD/SEK Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	211	202	194	188	177	168
XCCY basis	-18	-16	-14	-13	-11	-7
All-in Spread	229	218	208	201	187	175
FX RATE Spot						
FX forward profile	10.98	10.52	10.32	10.15	10.01	9.74
Implied cost per annum	212	206	195	184	170	158
Implied spread vs XCCY*	17	12	13	17	17	16
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	154	149	182	143	139	134
Avg. XCCY basis (past 2yrs)	-20	-19	-18	-16	-14	-9
Average Total (past 2yrs)	174	168	200	160	153	144
Deviation versus average	55	50	9	41	35	31

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 11 USD/NOK Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	33	39	39	40	42	47
XCCY basis	-9	-7	-7	-7	-8	-10
All-in Spread	42	46	46	47	51	57
FX RATE Spot						
FX forward profile	11.14	11.08	11.04	10.98	10.93	10.65
Implied cost per annum	26	30	36	37	39	44
Implied spread vs XCCY*	16	16	10	11	11	13
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-50	-43	-39	-36	-31	
Avg. XCCY basis (past 2yrs)	-14	-11	-10	-8	-8	
Average Total (past 2yrs)	-36	-32	-30	-28	-24	
Deviation versus average	78	78	76	75	74	

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 12 USD/CZK Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	62	56	50	45	37	27
XCCY basis	-37	-39	-39	-37	-32	-24
All-in Spread	99	95	89	82	68	51
FX RATE Spot						
FX forward profile	4.10	4.21	4.25	4.30		
Implied cost per annum	-97	-91	-92	-96		
Implied spread vs XCCY*	195	186	180	178		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-87	-46	-76	-76	-78	
Avg. XCCY basis (past 2yrs)	-63	-63	-62	-60	-56	
Average Total (past 2yrs)	-23	17	-14	-15	-22	
Deviation versus average	122	78	103	97	90	

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Source: Macrobond, ING estimates

Fig 13 USD/KRW Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	112	109	105	102	98	95
XCCY basis	-77	-70	-69	-69	-69	-69
All-in Spread	189	179	173	171	167	164
FX RATE Spot						
FX forward profile	1401	1355	1346	1323	1308	
Implied cost per annum	165	131	142	136		
Implied spread vs XCCY*	24	49	32	35		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	103	87	77	71	65	63
Avg. XCCY basis (past 2yrs)	-64	-59	-61	-55	-57	-62
Average Total (past 2yrs)	166	145	138	126	123	125
Deviation versus average	23	34	36	45	45	39

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 14 USD/TWD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	269	263	256	251	246	235
XCCY basis	-43	-45	-52	-53	-42	-34
All-in Spread	312	308	307	304	288	268
FX RATE Spot						
FX forward profile	32.5	30.5	29.8	29.3	28.7	
Implied cost per annum	315	286	251	235		
Implied spread vs XCCY*	-3	22	57	69		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	254	254	238	228	219	212
Avg. XCCY basis (past 2yrs)	-58	-60	-61	-59	-59	-60
Average Total (past 2yrs)	312	314	299	288	278	271
Deviation versus average	0	-6	9	16	10	-3

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 15 USD/SGD Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	145	139	131	124	117	113
XCCY basis	-17	-23	-28	-33	-36	-43
All-in Spread	162	161	158	156	153	155
FX RATE Spot						
FX forward profile	1.34	1.30	1.28			
Implied cost per annum	154	154				
Implied spread vs XCCY*	8	7				
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	75	62	53	32	43	23
Avg. XCCY basis (past 2yrs)	-16	-24	-31	-38	-37	-58
Average Total (past 2yrs)	91	86	84	70	81	81
Deviation versus average	71	75	74	87	73	74

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 16 USD/INR Cross Currency Swap

	2yr	3yr	4yr	5yr		
SPREAD AND CCS BASIS						
Current Spread	-248	-265	-275	-282	-278	-272
XCCY basis						
All-in Spread	-248	-265	-275	-282	-278	-272
FX RATE Spot						
FX forward profile	84.44	88.91	91.37	94.51	97.29	
Implied cost per annum	-53	-36	-28	-23	-1	-1
Implied spread vs XCCY*	-196	-229	-247	-259	-277	-271
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-285	-284	-299	-309	-317	-316
Avg. XCCY basis (past 2yrs)						
Average Total (past 2yrs)	-285	-284	-299	-309	-317	-316
Deviation versus average	36	19	24	27	39	44

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Source: Macrobond, ING estimates

Fig 17 USD/HUF Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-211	-218	-225	-232	-246	-261
XCCY basis	-24	-14	-15	-18	-17	-15
All-in Spread	-187	-204	-211	-214	-229	-246
FX RATE	Spot					
FX forward profile	385.5	385.6	385.7	385.8	385.9	
Implied cost per annum	-173	-178	-190	-203		
Implied spread vs XCCY*	-14	-26	-21	-11		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-315	-310	-311	-313	-321	
Avg. XCCY basis (past 2yrs)	-45	-40	-38	-34	-35	
Average Total (past 2yrs)	-270	-270	-272	-280	-285	
Deviation versus average	83	66	62	66	56	

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 18 USD/RON Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-129	-135	-145	-152	-158	-161
XCCY basis	26	14	13	15	23	23
All-in Spread	-155	-149	-158	-167	-181	-184
FX RATE	Spot					
FX forward profile	4.72	4.86	4.93	5.02	5.11	
Implied cost per annum	-1435	-1451	-1557	-1614		
Implied spread vs XCCY*	1280	1301	1399	1448		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-211	-229	-243	-250	-247	
Avg. XCCY basis (past 2yrs)	23	23	23	25	28	
Average Total (past 2yrs)	-235	-252	-266	-276	-275	
Deviation versus average	80	103	108	109	94	

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Fig 19 USD/PLN Cross Currency Swap

	2yr	3yr	4yr	5yr	7yr	10yr
SPREAD AND CCS BASIS						
Current Spread	-56	-41	-41	-44	-53	-64
XCCY basis	39	48	50	50	50	53
All-in Spread	-95	-88	-91	-94	-103	-117
FX RATE	Spot					
FX forward profile	4.10	4.18	4.21	4.25	4.30	
Implied cost per annum	-97	-91	-92	-96		
Implied spread vs XCCY*	2	3	1	2		
SPREAD AND BASIS VS HISTORY						
Average spread (past 2yrs)	-165	-101	-103	-106	-114	
Avg. XCCY basis (past 2yrs)	40	41	42	43	45	
Average Total (past 2yrs)	-205	-143	-145	-149	-158	
Deviation versus average	110	55	54	55	55	

* Note: This spread is actually close to zero, but materially affected by the direction of the re-couponing. No implied arbitrage here

Research Analyst Contacts

	Name	Title	Email
EMEA			
Macro	Global	Marieke Blom Carsten Brzeski Global Head of Research and Chief Economist Global Head of Macro and Chief Economist, Eurozone, Germany, Austria	marieke.blom@ing.com carsten.brzeski@ing.de
	Eurozone	Peter Vanden Houte Philippe Ledent Bert Colijn Marcel Klok Paolo Pizzoli James Smith Charlotte de Montpellier Inga Fechner Franziska Biehl Ruben Dewitte	peter.vandenhoute@ing.com philippe.ledent@ing.com bert.colijn@ing.com marcel.klok@ing.com paolo.pizzoli@ing.com james.smith@ing.com charlotte.de.montpellier@ing.com inga.fechner@ing.de franziska.marie.biehl@ing.de ruben.dewitte@ing.com
	CEE	Péter Virovác Valentin Tataru Stefan Posea Dmitry Dolgin Muhammet Mercan Rafal Benecki Leszek Kasek Adam Antoniak Michal Rubaszek David Havrlant	peter.virovac@ing.com valentin.tataru@ing.com tiberiu-stefan.posea@ing.com dmitry.dolgin@ing.de muhammet.mercan@ing.com.tr rafal.benecki@ing.pl leszek.kasek@ing.pl adam.antoniak@ing.pl michal.rubaszek@ing.pl david.havrlant@ing.com
Sectors		Jeroen van den Broek Maureen Schuller Suvi Platerink Kosonen Marina Le Blanc Marine Leleux Nadège Tillier Jan Frederik Slijkerman Jesse Norcross Timothy Rahill Roelof-Jan van den Akker Egor Fedorov Oleksiy Soroka Ewa Manthey	jeroen.van.den.broek@ing.com maureen.schuller@ing.com suvi.platerink-kosonen@ing.com marina.le.blanc@ing.com marine.leleux2@ing.com nadege.tillier@ing.com jan.frederik.slijkerman@ing.com jesse.norcross@ing.com timothy.rahill@ing.com roelof-jan.van.den.akker@ing.com egor.fedorov@ing.com oleksiy.soroka@ing.com ewa.manthey@ing.com
Markets		Chris Turner Francesco Pesole Frantisek Taborsky Benjamin Schroeder Michiel Tukker James Wilson	chris.turner@ing.com francesco.pesole@ing.com frantisek.taborsky@ing.com benjamin.schroeder@ing.com michiel.tukker@ing.com james.wilson@ing.com
Americas			
Markets		Padhraic Garvey	padhraic.garvey@ing.com
Sectors		Coco Zhang	coco.zhang@ing.com
Macro		James Knightley	james.knightley@ing.com
Asia-Pacific			
Macro		Rob Carnell Lynn Song Min Joo Kang	robert.carnell@asia.ing.com lynn.song@asia.ing.com min.joo.kang@asia.ing.com
Sectors		Warren Patterson	warren.patterson@asia.ing.com

Disclosures Appendix

ANALYST CERTIFICATION

The analyst(s) who prepared this report hereby certifies that the views expressed in this report accurately reflect his/her personal views about the subject securities or issuers and no part of his/her compensation was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this report.

IMPORTANT DISCLOSURES

Company disclosures are available from the disclosures page on our website at <https://research.ing.com>.

The remuneration of research analysts is not tied to specific investment banking transactions performed by ING Group although it is based in part on overall revenues, to which investment banking contribute.

Securities prices: Prices are taken as of the previous day's close on the home market unless otherwise stated.

Conflicts of interest policy. ING manages conflicts of interest arising as a result of the preparation and publication of research through its use of internal databases, notifications by the relevant employees and Chinese walls as monitored by ING Compliance. For further details see our ING Wholesale Banking Conflict of Interest Policy: [ing-wb-conflicts-of-interest-policy_eng.pdf \(ingwb.com\)](#).

Research analyst(s): The research analyst(s) for this report may not be registered/qualified as a research analyst with the NYSE and/or NASD. The research analyst(s) for this report may not be an associated person of ING Financial Markets LLC and therefore may not be subject to Rule 2241 and Rule 2242 restrictions on communications with a subject company, public appearances and trading securities held by the research analyst's account.

FOREIGN AFFILIATES DISCLOSURES

Each ING legal entity which produces research is a subsidiary, branch or affiliate of ING Bank N.V. See back page for the addresses and primary securities regulator for each of these entities.

AMSTERDAM Tel: 31 20 563 8955	BRUSSELS Tel: 32 2 547 2111	LONDON Tel: 44 20 7767 1000	NEW YORK Tel: 1 646 424 6000	SINGAPORE Tel: 65 6535 3688
Bratislava Tel: 421 2 5934 6111	Frankfurt Tel: 49 69 27222 62400	Madrid Tel: 34 91 789 8880	Paris Tel: 33 1 56 39 32 84	Sofia Tel: 359 2 917 6400
Bucharest Tel: 40 21 222 1600	Geneva Tel: 41 22 592 3079	Manila Tel: 63 2 479 8888	Prague Tel: 420 257 474 111	Taipei Tel: 886 2 8729 7600
Budapest Tel: 36 1 235 8800	Hong Kong Tel: 852 2848 8488	Mexico City Tel: 52 55 5258 2000	Sao Paulo Tel: 55 11 4504 6000	Tokyo Tel: 81 3 3217 0301
Buenos Aires Tel: 54 11 4310 4700	Istanbul Tel: 90 212 335 1000	Milan Tel: 39 02 89629 3610	Seoul Tel: 82 2 317 1800	Warsaw Tel: 48 22 820 4696
Dublin Tel: 353 1 638 4000	Kiev Tel: 380 44 230 3030	Moscow Tel: 7 495 755 5400	Shanghai Tel: 86 21 2020 2000	

Research offices: legal entity/address/primary securities regulator

Amsterdam	ING Bank NV, Bijlmerdreef 106, Amsterdam, 1102 CT, Netherlands. <i>Netherlands Authority for the Financial Markets</i>
Brussels	ING Bank NV Belgian Branch, Avenue Marnix 24, Brussels, Belgium, B-1000. <i>Financial Services and Market Authority (FSMA)</i>
Bucharest	ING Bank NV Amsterdam - Bucharest Branch, Expo Business Park, 54A Aviator Popișteanu str., building no. 3, 012095, Bucharest 1, Romania, Romania. <i>Financial Supervisory Authority, Romanian National Bank</i>
Budapest	ING Bank NV Hungary Branch, Dozsa György ut 84/B, H - 1068 Budapest, Hungary. <i>National Bank of Hungary</i>
Frankfurt	ING-DiBa AG, Theodor-Heuss-Allee 2, 60486 Frankfurt, Germany. <i>Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)</i>
Hong Kong	ING Bank NV, Hong Kong Branch, 8/F, Three Pacific Place, 1 Queens' Road East, Hong Kong. <i>Hong Kong Securities and Futures Commission</i>
Istanbul	ING Bank AS, ING Bank Headquarters, Resitpasa Mahallesi Eski Buyukdere Cad. No.8, 34467 Sariyer, Istanbul, Turkey. <i>Capital Markets Board</i>
London	ING Bank NV London Branch, 8-10 Moorgate, London EC2R 6DA, United Kingdom. <i>Financial Conduct Authority</i>
Manila	ING Bank NV Manila Branch, 22nd Floor, Arthaland Century Pacific Tower, 5th Ave. cor. 30th St., Bonifacio Global City, 1634 Taguig City, Metro Manila, Philippines. <i>Philippine Securities and Exchange Commission</i>
Milan	ING Bank NV Milano, 250, Viale Fulvio Testi, 20126, Milano, Italy. <i>Commissione Nazionale per le Società e la Borsa</i>
New York	ING Financial Markets LLC, 1133 Avenue of the Americas, New York, NY 10036, United States. <i>Securities and Exchange Commission</i>
Prague	ING Bank NV, Prague Branch, Českomoravská 2420/15, Prague 9, Czech Republic. <i>Czech National Bank</i>
Seoul	ING Bank NV Seoul Branch, 11th Floor, Seoul Finance Center, 136 Sejong-Daero, Jung-Gu, Seoul, 04520 Korea. <i>Financial Services Commission (FSC) and/or Financial Supervisory Service (FSS)</i>
Singapore	ING Bank NV Singapore Branch, 1 Wallich Street, 12-01 Guoco Tower, Singapore 078881. <i>Monetary Authority of Singapore</i>
Warsaw	ING Bank Slaski SA, 34, ul. Sokolska, Katowice, 40-086, Poland. <i>Polish Financial Supervision Authority</i>

Disclaimer

This report has been prepared on behalf of ING (being for this purpose the Wholesale Banking business of ING Bank N.V. and certain of its subsidiary companies) solely for information purposes. ING forms part of ING Group (being for this purpose ING Groep N.V. and its subsidiary and affiliated companies). The information in this report is not investment, legal or tax advice or an offer or solicitation for the purchase or sale of any financial instrument. While reasonable care has been taken to ensure that the information contained herein is not untrue or misleading at the time of publication, ING makes no representation that it is accurate or complete. The information contained herein is subject to change without notice. ING may have issued, and may in the future issue, other communications that are inconsistent with, and reach different conclusions from, the information presented in this report. ING Group and any of its officers, employees, related and discretionary accounts may, to the extent not disclosed above and to the extent permitted by law, have long or short positions or may otherwise have an interest in any transactions or investments (including derivatives) referred to in this report. In addition, ING Group may provide banking, insurance or asset management services for, or solicit such business from, any company referred to in this report. Neither ING Group nor any of its officers or employees accepts any liability for any direct or consequential loss arising from any use of this report or its contents. Copyright and database rights protection exists in this report and it may not be reproduced, distributed or published by any person for any purpose without the prior express consent of ING. All rights are reserved. This report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the report refers to website material of ING, ING has not reviewed any such site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to ING's own website material) is provided solely for your convenience and information and the content of any such website does not in any way form part of this document. Accessing such website or following such link through this report or ING's website shall be at your own risk. Any investments referred to herein may involve significant risk, are not necessarily available in all jurisdictions, may be illiquid and may not be suitable for all investors. The value of, or income from, any investments referred to herein may fluctuate and/or be affected by changes in exchange rates. Past performance is not indicative of future results. ING will not treat recipients of this report as its customers by virtue of their receiving this report. Investors should make their own investigations and investment decisions without relying on this report. Only investors with sufficient knowledge and experience in financial matters to evaluate the merits and risks should consider an investment in any company or market discussed herein and other persons should not take any action on the basis of this report. Clients should contact analysts at, and execute transactions through, an ING entity in their home jurisdiction unless governing law permits otherwise. ING is authorised by the Dutch Central Bank and supervised by the European Central Bank (ECB), the Dutch Central Bank (DNB) and the Dutch Authority for the Financial Markets (AFM). ING Bank N.V. is incorporated in the Netherlands (Trade Register no. 33031431 Amsterdam). The wording in this report is concluded on publication date as mentioned in this report. Additional information is available on request. For more information about ING Group, please visit <http://www.ing.com>.

Country-specific disclosures: EEA: This report is distributed in the EEA by ING Bank N.V. and constitutes "investment research" for the purposes of the Markets in Financial Instruments Directive (MiFID II) and as such contains an objective or independent explanation of the matters contained herein. Any recommendations contained in this report must not be relied on as investment advice based on the recipient's personal circumstances. If further clarification is required on words or phrases used in this report, the recipient is recommended to seek independent legal or financial advice. **Hong Kong:** This report is distributed in Hong Kong by ING Bank N.V., Hong Kong Branch which is licensed by the Securities and Futures Commission of Hong Kong under the Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong) ("SFO"). This document does not constitute a solicitation or an offer of securities or an invitation to the public within the meaning of the SFO. This report is to be circulated only to "professional investors" as defined in the SFO. **Italy:** This report is issued in Italy only to persons described in Article No. 58 of Consob Regulation No. 16190. **Singapore:** This document is provided in Singapore by or through ING Bank N.V., Singapore Branch and is provided only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289. If you are an accredited investor or expert investor, please be informed that in ING's dealings with you, ING is relying on the following exemptions to the Financial Advisers Act, Cap. 110 ("FAA"): (1) the exemption in Regulation 33 of the Financial Advisers Regulations ("FAR"), which exempts ING from complying with Section 25 of the FAA on disclosure of product information to clients; (2) the exemption set out in Regulation 34 of the FAR, which exempts ING from complying with Section 27 of the FAA on recommendations; and (3) the exemption set out in Regulation 35 of the FAR, which exempts ING from complying with Section 36 of the FAA on disclosure of certain interests in securities. **United Kingdom:** This report is issued in the United Kingdom by ING Bank N.V., London Branch only to persons described in Articles 19, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 and is not intended to be distributed, directly or indirectly, to any other class of persons (including private investors). ING Bank N.V., London Branch is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. **United States:** Any person wishing to discuss this report or effect transactions in any security discussed herein should contact ING Financial Markets LLC, which is a member of the NYSE, FINRA and SIPC and part of ING, and which has accepted responsibility for the distribution of this report in the United States under applicable requirements. This report is to be circulated only to institutional investors. The distribution of this report in other jurisdictions may be restricted by law or regulation and persons into whose possession this document comes should inform themselves about, and observe, any such restrictions.