### **Greece Banks**

# Solid progress on build-up of capital buffers; 3 Buys, 1 Neutral; Piraeus up to Buy

Greek banks rebounded strongly over the last 6 months with an average 64% share price increase (vs. MSCI EM EMEA -1% and FTSE World Europe +10% in EUR). We attribute the strong performance to a combination of factors including:

(1) A relatively **strong outlook for the economy into 2023E** with the IMF forecasting Greece's real GDP growth at 1.8%, one of the highest levels relative to both Euro area and CEEMEA (for which GS economists expect 0.6%/1.5% real GDP growth in 2023E). According to our economists, Greek inflation remains below the Euro area average thanks to mostly two factors: the lower energy intensity of the Greek economy and the sizeable energy-related fiscal measures (estimated at 5.7% of GDP in 2021-22) that are likely to extend into 2023. They further expect the favorable macro backdrop and the long duration of European financial assistance to support the decreasing path of debt-to-GDP ratio (towards 150% by 2025) increasing the likelihood that Greek sovereign debt gains investment grade rating and a full re-entry into sovereign markets in the first half of 2023 (link).

(2) **Solid progress on 3Cs**, i.e. <u>c</u>apital build-up, <u>c</u>apital generation and <u>c</u>overage ratios over NPEs. On our analysis, Greek banks' ROTE/CET1 improved by 2.5pp/1.4pp over 2022E yoy while the coverage ratio reached 60% vs. 52% in 2021. We expect the progress on 3Cs to continue over 2023-24E and model ROTE/CET1 ratio/NPE coverage ratio averaging 10.3%/15%/80% in 2024E from 8.4%/13%/60% in 2022E, respectively.

(3) **A more front-loaded pace of rate hikes** than was expected in Jul'22/Sep'22 (Exhibit 8) translating into beats vs. consensus in 2Q22 and 3Q22 (by 7%/21% on average on NII/core PBT, respectively) and an average c.20% EPS upgrade by Bloomberg consensus for 2023E-24E over the past six months.

Despite the sharp re-rating of Greek banks over the last six months, we see ample headroom for a further increase for our Buy-rated names given that valuations remain at a deep discount to book. In particular, we highlight **Piraeus (up to Buy from Neutral)** which we expect to deliver among the strongest levels of progress on CET1, ROTE and NPE coverage ratio over 2022-24E across Greek banks and to track ahead of its 2023-25E CET1 ratio <u>guidance</u> by one year. We see a number of

Goldman Sachs does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to <a href="https://www.gs.com/research/hedge.html">www.gs.com/research/hedge.html</a>. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

#### Waleed Mohsin +971(4)376-3575 |

waleed.mohsin@gs.com Goldman Sachs International

#### Mikhail Butkov +971(4)376-3564 | mikhail.butkov@gs.com Goldman Sachs International

Ashwath P T, CFA +971(4)376-3439 | ashwath.pt@gs.com Goldman Sachs International near-term catalysts for Greek banks including dividend announcements (potentially by NBG/Eurobank in 1Q23E), potential upgrades to guidance amid a solid macro outlook into 2023E, incremental revenue gains from rate hikes and ongoing progress on 3Cs. We expect a potential dividend announcement by NBG/Eurobank in 1Q23E to reinforce the prospects of dividend reinstatement for Alpha/Piraeus (which plan to pay dividend in 1Q24E) and reaffirm capital buffers being adequate for the Greek banking system. While we expect Greek banks to benefit from rate hikes in the near term, any potential negative effects of rate cuts in the medium term (i.e. beyond 3Q24E) are likely to be mitigated by volumes and fee income growth, as well as cost of risk normalization on our forecast. With this note, we are Buy-rated on Piraeus/NBG/Alpha and Neutral on Eurobank, and see average upside of 32% for our coverage.

What do we change? We increase our EPS forecasts for Greek banks by 4%/15%/4% over 2022-24 reflecting higher NII forecasts (+19%/12% in 2023-24E) on a more front-loaded pace of rate hikes since mid-2022 than expected and our revised analysis of sensitivities of asset/liabilities to rates; this is partially offset by a more conservative outlook on (1) cost of risk, which we now model at 85bps on average in 2023-24E vs. 70bps previously and (2) expenses, which we revise upwards by 4% reflecting additional inflationary pressures (Exhibit 5). Our EPS estimate changes beyond 2024E are minor (less than 3%).

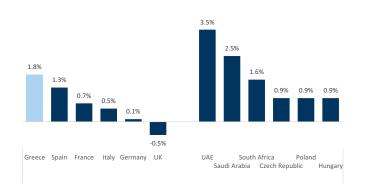
We also change our COE assumptions and now use 16% for all banks in our Greek banks coverage: we revise it upwards from our previous assumption of 15% for Alpha/Eurobank/NBG (marking to market with GGB bond yields depreciating over the last six months) and revise downwards from 17% for Piraeus (as we expect the historical spread in market-implied COE of Piraeus vs other banks to compress given its significant progress on CET1 and capital generation). Finally, we roll forward our valuation to 2024E (from 2023E).

Summary of investment views and ratings: We upgrade Piraeus to Buy (from Neutral): Despite a sharp re-rating since Jul'22, Piraeus continues to trade at a material discount to peers (0.3x on CY24E P/TBV vs. 0.6x for NBG/Eurobank) and its valuation screens as attractive relative to the medium-term ROTE target of 12%. We expect the valuation gap vs peers to narrow, as, on our forecasts, the CET1 trajectory for Piraeus in 2022-24E mirrors that of NBG/Eurobank in 2020-22E, which ultimately translated into a re-rating for the latter two stocks (Exhibit 22, Exhibit 27). This, in combination with expected ROTE improvement of 2.6pp over 2022-24E should, in our view, drive significant upside for the stock: our new 12m TP of EUR2.2 implies 39% upside. We reiterate our **Buy** rating on **Alpha**, which we expect in 2024E to screen closer to NBG/Eurobank in 2023E on ROTE/CET1 while it trades at a 32% discount on 2024E P/TBV. We also reiterate our Buy rating on NBG, which, on our analysis, has the highest 2024E CET1 (16.7%) and NPE coverage ratio (>100%) in our Greek banks coverage, and trades at a 29% discount to DM European banks (GSe 2024E CET1/NPE coverage 14.5%/70%) on 2024E P/TBV and at an 8% discount to Eurobank. We remain **Neutral** on **Eurobank**; while we continue to expect the bank to generate the highest ROTE within our Greek banks coverage at 11.4% in 2024E and have the second-highest CET1 (15.2%) and NPE coverage ratio (at >100%), we note that it trades at the highest 2024E

P/TBV multiple of 0.61x and therefore we see the risk-reward profile as balanced.

### Exhibit 1: Based on the IMF's forecasts for Greece's GDP growth outlook, it is among the highest in 2023 relative to Euro area and **CEEMEA**

2023E GDP growth outlook for EU and CEEMEA, %



Source: IMF (for Greece), Goldman Sachs Global Investment Research for other countries

### Exhibit 3: Greece bond yields have adjusted to a constructive macro outlook and 10-year GGBs have been trading in line with **Italian BTPs since 2021**

10-year treasury bond yields, %

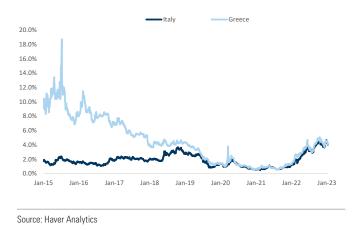
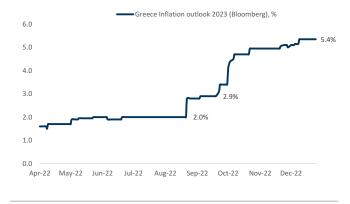


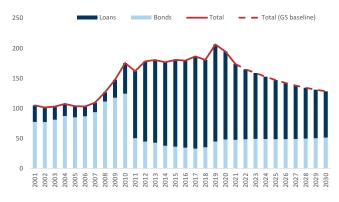
Exhibit 5: ... yet the Greek inflation outlook for 2023E has increased

over the last few months: Bloomberg consensus now expects 5.4% in 2023E (vs. a previous expectation of 2%-3% in Sep-Oct'22)



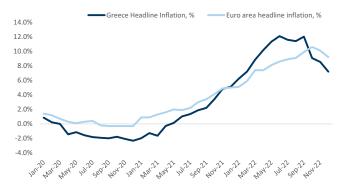
Source: Bloomberg

Exhibit 2: GS economists expect Greece's debt-to-GDP to reduce to 150% by 2025; they believe the Greek economy continues to improve, increasing the likelihood that its sovereign debt gains investment grade rating and a full re-entry into sovereign markets in the first half of 2023



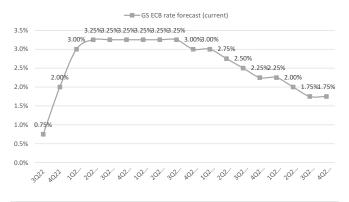
Source: Goldman Sachs Global Investment Research, PDMA

Exhibit 4: Inflation in Greece was below that in Euro area in 4022 amid (1) lower energy intensity and (2) energy-related fiscal measures (estimated at 5.7% of GDP)... Greece and Euro area headline inflation, %



Source: Statistical Service of Greece

### Exhibit 6: Our economists forecast the ECB rate to peak in 2023E at 3.25% and decline from 4024E



Source: Goldman Sachs Global Investment Research

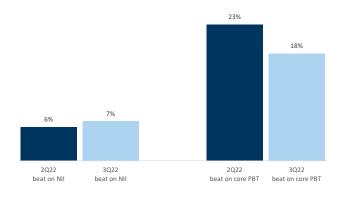
### Estimate changes: increase forecasts for NII, cost of risk and expenses

Greek banks have significantly outperformed Visible Alpha Consensus Data expectations in 2Q/3Q22 delivering an average beat of 7%/21% on NII and PBT. On our analysis, this was primarily driven by a more front-loaded rate hiking pace than was expected in Jul'22 and Sep'22 and also a relatively higher pass-through of higher rates on asset yields vs. liabilities. We increase our forecasts for NII by 19%/12% for 2023-24 on average for Greek banks to mainly reflect our revised analysis of sensitivities of asset/liabilities to rates. In particular, we now model 0.6x beta for performing loans, 0.20-0.35x for securities and 0.25x-0.40x for cost of funds. Our updated assumptions imply a 25-30bps NIM benefit from a 100bps hike over 2022-24E relative to previous implied NIM sensitivity of c.15bps. Our economists expect the ECB rate to peak in 2Q23E (at 3.25%), a period when we expect Greek NIMs to reach their peak levels as well; we model some reduction in Greek NIMs after 1H23E as we expect the repricing of deposits to accelerate over time. We expect NIMs to average 2.76%/2.64% in 2023-24 vs. 2.49% in 2022E (Exhibit 10 - Exhibit 12)

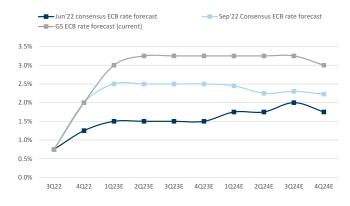
We increase our cost of risk forecast to an average of 85bps in 2023-24E (from 70bps) to account for higher rates. While the net NPE inflows were negative for Greek banks in 2H22E and the outlook for asset quality remains strong, we believe banks are likely to continue to increase coverage ratios to account for any potential risk of macro deterioration. We expect NPE coverage ratios to reach 80% in 2024E (vs. 60% in 2022E) and model cost of risk normalising at 60bps on average in 2025-26E (<u>Exhibit 13</u>).

We revise our expenses forecasts upwards by an average 4% reflecting the increased inflationary outlook for Greece for 2023E over the past few months (<u>Exhibit 5</u>).

### Exhibit 7: Greek banks significantly outperformed Visible Alpha Consensus Data expectations in 2022 and 3022, delivering an average 6%/7% beat on NII and 23%/18% beat on core PBT...



### Exhibit 8: ... which was primarily driven by a more front-loaded pace of ECB rate hikes than was expected by consensus initially as well as relatively faster repricing of assets vs. liabilities



Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

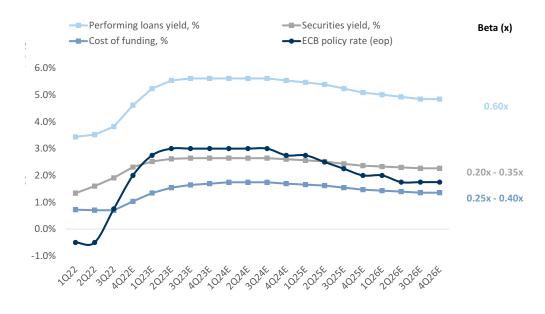
Source: Bloomberg

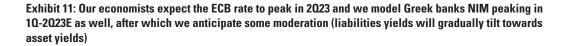
Exhibit 9: We increase our 2023-24 NII forecasts by 19%/12% on average to reflect our updated assumptions on rates pass-through to NIM and our economists' updated ECB rate forecasts; we also incorporate more conservative assumptions on cost of risk and expenses

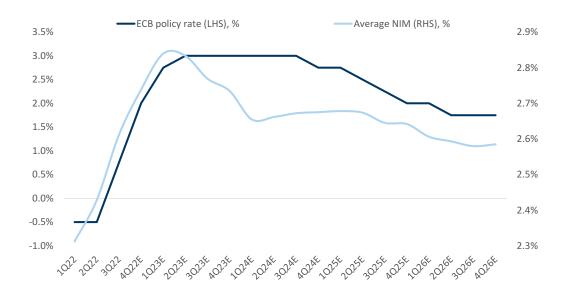
•				-				•			•	
FUD	A	Alpha Bar	ık	E	Euroban	k	Nationa	I Bank of	f Greece		Piraeus	
EUR	2022E	2023E	2024E	2022E	2023E	2024E	2022E	2023E	2024E	2022E	2023E	2024E
EPS New	0.17	0.23	0.27	0.26	0.19	0.21	0.68	0.68	0.69	0.40	0.39	0.45
EPS Old	0.16	0.21	0.27	0.24	0.16	0.20	0.64	0.58	0.67	0.39	0.34	0.43
Change	3%	9%	0%	5%	19%	6%	6%	17%	3%	3%	16%	5%
NII New, mn EUR	1,279	1,503	1,482	1,485	1,655	1,649	1,300	1,517	1,454	1,301	1,447	1,419
NII Old, mn EUR	1,208	1,290	1,358	1,367	1,367	1,468	1,228	1,237	1,304	1,230	1,236	1,248
Change	6%	16%	9%	9%	21%	12%	6%	23%	12%	6%	17%	14%
Opex New, mn EUR	-942	-907	-886	-907	-875	-852	-779	-777	-764	-867	-854	-839
Opex Old, mn EUR	-957	-876	-846	-876	-832	-812	-767	-741	-728	-845	-836	-810
Change	-2%	4%	5%	4%	5%	5%	2%	5%	5%	3%	2%	4%
Provisions New, mn EUR	-597	-398	-316	-342	-420	-340	-223	-314	-256	-627	-476	-386
Provisions Old, mn EUR	-593	-312	-240	-278	-308	-257	-227	-215	-207	-613	-376	-336
Change	1%	28%	32%	23%	36%	32%	-1%	46%	24%	2%	26%	15%

Source: Company data, Goldman Sachs Global Investment Research



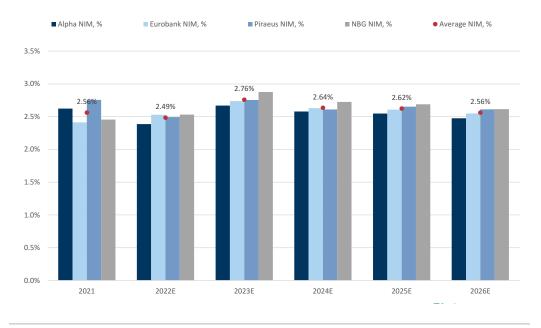




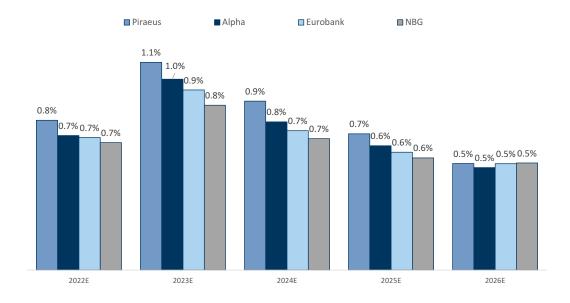


Source: Company data, ECB, Goldman Sachs Global Investment Research

### Exhibit 12: We expect Greece banks NIMs to expand by 27bps on average in 2023E NIM forecast for Greek banks, %



### Exhibit 13: We expect Greek banks to increase provisions in light of the increase in interest rates Organic cost of risk forecast for Greek banks, %



Source: Goldman Sachs Global Investment Research

# Investment views: Upgrade Piraeus to Buy; reiterate Buy on NBG/Alpha; remain Neutral on Eurobank

Greek banks rebounded strongly over the last 6 months with an average 64% share price increase (vs. MSCI EM EMEA -1% and FTSE World Europe +10% in EUR). We expect the ongoing progress on capital build-up, capital generation, NPE resolutions and increase in coverage ratios to continue to drive the performance of Greek banks over 2022-24: we model ROTE/CET1 ratio/NPE coverage ratio averaging 10.3%/15%/80% in 2024 from 8.4%/13%/60% in 2022E, respectively. We see NBG/Eurobank being the closest to European banks on the above metrics in 2024E (Exhibit 14) and see Alpha and Piraeus moving closer to these levels in 2025-26E. We upgrade **Piraeus to Buy (from Neutral)**, reiterate Buy on **NBG/Alpha** and remain **Neutral** on **Eurobank**, and see 32% upside for our Greek banks coverage.

Exhibit 14: We differentiate between Greek banks based on 3Cs: capital generation, capital adequacy and coverage ratios, %

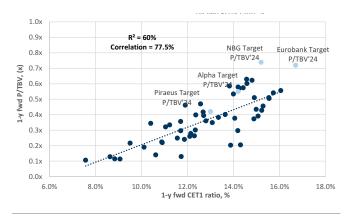
Capital adequacy & Credit Quality	DM European banks	NBG 2024	Eurobank 2024	Alpha 2024	Piraeus 2024
Gross NPE ratio, % 2024	1.8%	2.6%	2.7%	4.5%	4.2%
CET1 ratio, % 2024	14.5%	16.7%	15.2%	14.2%	13.0%
NPE coverage ratio, % 2024	70%	>100%	>100%	40%	65%
Organic capital generation	DM European banks	NBG	Eurobank	Alpha	Piraeus
Performing loans 2022-25E CAGR	2.4%	5.3%	4.7%	5.2%	5.0%
Fee incomes 2022-25E CAGR	2%	5%	4%	5%	4%
∆ C/I 2022-25E	-4.6pp	-7.4pp	-6.7pp	-6.4pp	-9.2pp
Cost of Risk 2023-25E	0.4%	0.7%	0.7%	0.8%	0.9%
ROTE, 2024E	13.0%	10.6%	11.4%	9.8%	9.0%
P/TBV 2024E	0.79x	0.56x	0.61x	0.40x	0.30x

Source: Goldman Sachs Global Investment Research

On our analysis, Greek banks' valuations have been significantly correlated with absolute CET1 ratio levels over the past three years (<u>Exhibit 15</u>), with each 1.0pp improvement in 1y fwd CET1 ratio translating into a ~0.06x increase in 1y fwd P/TBV, all else equal. We expect the market to continue to give credit to Greek banks' valuations for incremental improvements in CET1.

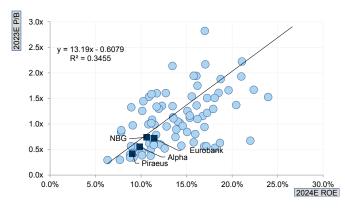
Meanwhile, as Greek banks move closer to average CEEMEA/European levels on CET1 (with incremental potential for further improvement becoming more limited), we expect the market to become more focused on growth and returns (as discussed in our February 2022 <u>deep-dive report</u>: From risk to growth). Our target valuation multiples for Greek banks are above those suggested by the P/TBV vs. CET1 regression (<u>Exhibit 15</u>) and close to the trend line for P/TBV vs. ROTE regression of CEEMEA/European banks (<u>Exhibit 17</u> and <u>Exhibit 18</u>), as our capital-adjusted ROTE/COE valuation methodology already gives credit to Greek banks valuations for expected ROTE improvement.

## Exhibit 15: CET1 ratio appears to be one of the factors to which the correlation of Greek banks' valuations is the strongest 1-y forward P/TBV vs. 1-y forward CET1 ratio (1020 to 1023 for the four banks)



Source: Company data, Goldman Sachs Global Investment Research

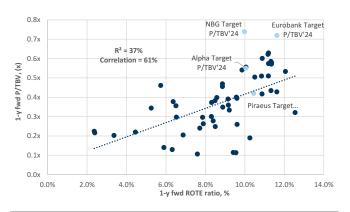




Source: Goldman Sachs Global Investment Research

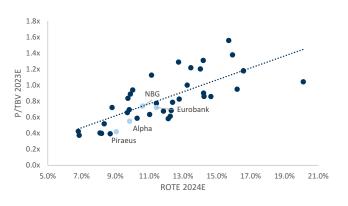
# Exhibit 16: We expect the market to focus more on growth and returns of Greek banks and the correlation between ROTE and P/TBV to strengthen

1-y forward P/TBV vs. 1-y forward CET1 ratio (1020 to 1023 for the four banks)



Source: Company data, Goldman Sachs Global Investment Research

### **Exhibit 18: ... and European banks** P/TBV vs. ROTE for European banks



Source: Goldman Sachs Global Investment Research

### Implications for price targets, valuations and ratings

We continue to use a capital-adjusted ROTE/COE valuation approach to capture the differences in capital buffers for Greek banks. We change our COE assumptions and now use 16% for all banks in our Greek banks coverage: we revise it upwards from 15% for Alpha/Eurobank/NBG previously (marking to market with GGB bond yields depreciating over the last six months) and we revise downwards from 17% for Piraeus (as we expect the historical spread in market-implied COE of Piraeus vs other banks to compress given its significant progress on CET1 and capital generation). Our 12-month price targets for Alpha/Eurobank/NBG increase by 31% on average and by 120% for Piraeus, explained by estimates changes, our valuation roll-forward and revised assumptions on COE (see Exhibit 19 for details).

#### Exhibit 19: Greek banks valuation

ROTE/COE capital-adjusted valuation 2024E		NBG	Eurobank	Alpha	Piraeus	Comments
CET1 Ratio 2024E		16.7%	15.2%	14.2%	13.0%	
Target Capital ratio		14.0%	14.0%	14.0%	14.0%	Unchanged
Excess capital per share 2024E		1.10	0.14	0.03	-0.27	
Avg TBVPS 2024E (capital-adjusted)		5.83	1.69	2.75	5.29	
ROTE 2024E (capital-adjusted)		11.9%	12.3%	9.9%	8.6%	
COE		16.0%	16.0%	16.0%	16.0%	NBG/Eurobank/Alpha +100bp Piraeus -100bps
Growth, %		2.0%	2.0%	2.0%	2.0%	
Target P/B multiple		0.706x	0.739x	0.566x	0.469x	
Fair value	EUR	4.12	1.25	1.56	2.48	
Fair value + excess capital	EUR	5.22	1.39	1.59	2.21	
Price Target		5.20	1.40	1.60	2.20	
Current price	EUR	4.03	1.15	1.14	1.59	
Jpside to PT	%	29%	22%	40%	39%	
Rating (new)		Buy	Neutral	Buy	Buy	We upgrade Piraeus to Buy
Rating (old)		,		,	Neutral	Other ratings are unchanged
Price Target (old)		4.20	1.04	1.19	1.00	
Change, %		23.8%	34.6%	34.5%	120.0%	
Current P/E 2024E		5.8x	5.5x	4.2x	3.5x	
arget P/E 2024E (implied)		7.5x	6.7x	5.9x	4.9x	
Current P/TBV 2024E		0.56x	0.61x	0.40x	0.30x	
arget P/TBV 2024E (new; implied)		0.72x	0.74x	0.55x	0.42x	
Target P/TBV 2024E (old; implied)		0.58x	0.55x	0.41x	0.19x	

Source: Company data, Goldman Sachs Global Investment Research

#### Exhibit 20: Summary of drivers of changes in price targets for Greek banks

	Drivers of TP change	NBG, Eurobank, Alpha	Piraeus	Comment
	ROTE increase	2.1pp	1.97pp	
1	Implied change in Target P/B (w/o COE (	0.17x	0.14x	
	Impact on TP	30%	45%	
2	COE change	-0.05x	0.03x	+1pp for NBG/Eurob/Alpha; -1pp for
2	Impact on TP	-9%	9%	Piraeus
3	TBVPs increase, %	3.0%	3.3%	
5	Impact on TP	3.0%	3.3%	
4	CET1 increase	0.7%	1.28%	
-	Impact on TP	7.9%	30.1%	

Numbers may not sum to an actual change in TP because of the multiplification effect

Source: Goldman Sachs Global Investment Research

### A summary of our stock-specific views:

We upgrade **Piraeus to Buy (from Neutral).** We expect Piraeus to deliver among the strongest levels of progress over 2022-24E on CET1 (+1.9pp), ROTE (+2.6pp) and NPE coverage ratio (+13pp) across Greek banks and to track ahead of its 2023-25E CET1 ratio <u>guidance</u> by one year. Despite the sharp re-rating over the last six months, Piraeus continues to trade at a material discount to peers: 0.30x on CY24E P/TBV vs. 0.59x for NBG/Eurobank. We expect the valuation gap to narrow, as, on our forecasts, the CET1 trajectory for Piraeus in 2022-24E mirrors that of NBG/Eurobank in 2020-22E, which ultimately translated into a re-rating of the latter two stocks, from 1-y fwd P/TBV of 0.2-0.3x in 2020 to 0.6x at current spot (<u>Exhibit 22</u>, <u>Exhibit 27</u>). Therefore, as we estimate Piraeus's CET1 ratio increasing from 11% in 2022E to 13% in 2024E, we expect it to get more credit in its valuation multiple and, in this regard, note the

17 January 2023

historically strong correlation between 1-y fwd P/TBV dynamics of Greek banks and the 1-y fwd CET1 ratio (Exhibit 25). Our capital-adjusted ROTE/COE valuation methodology also captures the upside related to both CET1 and ROTE improvement over 2022-24E and our implied 2024E target P/TBV multiple is 0.42x for Piraeus compared to 0.3x at spot. Further progress on CET1 and ROTE over 2025-26E would imply a P/TBV multiple of 0.62x and 0.71x on our forecasts for Piraeus, which is close to our current 0.7x 2024E target P/TBV for NBG and Eurobank (Exhibit 19). Our revised 12-month ROTE/COE-based price target for Piraeus is  $\in$  2.2 (from  $\in$ 1.0), which implies 39% upside.

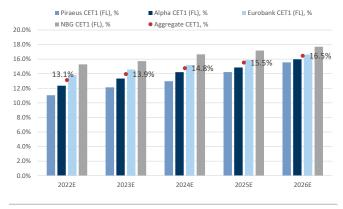
We reiterate our **Buy** rating on **Alpha** which screens favorably on our 3Cs (Credit quality, Core capital buffers and Capital generation) framework. We expect Alpha in 2024E to screen closer to NBG/Eurobank in 2023E on ROTE/CET1, while it trades at a 32% discount on 2024E P/TBV. We see significant room for solid capital generation over FY22-24E of c.200bps and ROTE improvement from 7% in 2022E to 10% in 2024E. Our revised 12-month capital-adjusted ROTE/COE-based price target of €1.60 (from €1.19) implies 40% upside.

We also reiterate our **Buy** rating on NBG, which, on our analysis, has the highest 2024E CET1 (16.7%) and NPE coverage ratio (>100%) in our Greek banks coverage, and trades at a 29% discount to DM European banks (GSe 2024E CET1/NPE coverage 14.5%/70%) on 2024E P/TBV and at an 8% discount to Eurobank. We view the potential dividend reinstatement from 2022E profits (as has been indicated by the group post FY21 results - <u>see here</u>) as an additional catalyst (we model 20% dividend payout). Our revised 12-month ROTE/COE-based price target is €5.20 (from €4.20).

We remain **Neutral** on **Eurobank**: We view positively the progress made by Eurobank's management on NPE resolution, provision reserve build, ROTE recovery, and the restoration of capital buffers over the last three years, and continue to expect it to generate the highest ROTE in 2024E (at 11.4%) within our Greek banks coverage and have the second-highest CET1 (15.2%) and NPE coverage ratio (at >100%). We also note that the potential reinstatement of dividend from 2022E profit (as has been indicated by the group post FY21 results - <u>see here</u>) could serve as a positive catalyst (we model 20% dividend payout). That said, we note that the stock trades at the highest 2024E P/TBV multiple of 0.61x, and we see relatively less upside for this name compared to the rest of our Greek banks coverage. Our revised 12-month ROTE/COE-based price target is €1.40 (from €1.04).

All prices in this report are as of the close of January 13, 2023, unless stated otherwise.

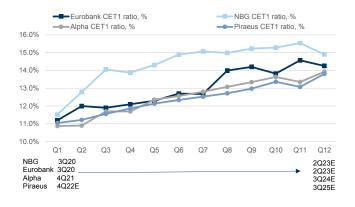
### Exhibit 21: We are Buy-rated on NBG which has the highest CET1 and NPE coverage ratios in our Greece banks coverage CET1 Fully-loaded progression for Greek banks 2022-26E, %



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 23: Greek banks key risks

Exhibit 22: We reiterate our Buy rating on Alpha and upgrade Piraeus to Buy (from Neutral) as we expect both banks' capital build-up trajectory to track that of NBG/Eurobank over 2020-22...



Source: Goldman Sachs Global Investment Research

Company	Key risks
Alpha	Key downside risks to our view and price target: (1) weaker-than-expected macro backdrop; (2) delays in NPE resolution; (3) regulatory changes; (4) competitive pressure impacting pricing and volumes; (5) meaningful increase in risk perception impacting cost of equity and valuation, and (6) lower-than-assumed scope for cost savings.
Piraeus	Key downside risks to our view and price target: (1) weaker-than-expected macro backdrop; (2) unfavourable regulatory changes; (3) competitive pressure impacting pricing and volumes; (4) lower-than-expected performing loan portfolio growth; (5) meaningful increase in risk perception impacting cost of equity and valuation, and (6) negative capital surprises.
Eurobank	Key upside/downside risks to our view and price target include: (1) stronger/weaker-than-expected macro backdrop; (2) faster/delayed NPE resolution; (3) regulatory changes; (4) market share gains/competitive pressure impacting pricing and volumes, and (5) meaningful improvement/increase in risk perception impacting cost of equity and valuation.
NBG	Key downside risks to our view and price target include: (1) a weaker-than-expected macro backdrop; (2) unfavourable regulatory changes; (3) competitive pressures impacting pricing and volumes; (4) lower-than-expected performing loan portfolio growth; (5) meaningful increase in risk perception impacting cost of equity and valuation, and (6) negative capital surprises.

### Piraeus Financial Holdings (BOPr.AT): Up to Buy (from Neutral)

We upgrade **Piraeus to Buy (from Neutral) with a revised 12-month price target of €2.2 (from €1.0), which implies 39% upside**. On our analysis, Piraeus continues to progress on 3Cs (core capital buffers, credit quality and capital generation) and it tracks ahead of guidance on CET1 ratio (which we expect at 12%/13%/14% in 2023/24/25E vs. <u>guidance of 11%/12%/13%</u>). We forecast Piraeus to deliver an increase of 2.6pp in ROTE over 2022-24E and 1.9pp in CET1 ratio, and reach 65% coverage ratio in 2024E (from 52% in 2022E). Additionally, we expect Piraeus to be among the banks delivering the most progress on cost optimization over 2022-25E with a 9pp reduction in C/I (compared to an average 7.4pp reduction for other Greek banks) and be on track to achieve its guidance of <40% C/I in 2025E. We would see a potential dividend announcement by peers NBG/Eurobank in 1Q23 as positive readacross and a catalyst for Piraeus, as it will reinforce dividend expectations for Piraeus and reaffirm capital buffers being adequate for the Greek banking system.

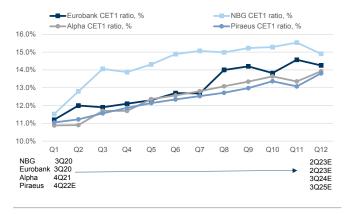
Where do we see more upside? Despite the sharp re-rating over the last six months, we believe the bank's valuation at 0.3x 2024E P/TBV is yet to fully reflect its medium-term ROTE and capital targets. We note that Piraeus continues to trade at a material discount to peers, e.g. at 0.30x on CY24E P/TBV vs. Alpha/NBG/Eurobank at 0.40x/0.56x/0.61x. Meanwhile, on our forecasts, the CET1 trajectory for Piraeus in 2022-24E should mirror that seen for NBG/Eurobank over 2020-22E (Exhibit 22), which ultimately translated into a re-rating for both NBG and Eurobank (Exhibit 27), from 1-y fwd P/TBV of 0.2-0.3x in 2020 to 0.6x at current spot. As we estimate Piraeus's CET1 ratio increasing from 11% in 2022E to 13% in 2024E, we expect it to get more credit for this in valuation and, in this regard, note the historically strong correlation between 1-y fwd P/TBV dynamics of Greek banks and the 1-y fwd CET1 ratio (Exhibit 25). As we incorporate our updated CET1 forecasts for 2024E/25E/26E into the historical regression of P/TBV vs. CET1, we arrive at an implied P/TBV multiple of 0.37x/0.45x/0.52x in 2024E/25E/26E respectively, which compares with spot 2024E P/TBV of 0.3x.

Our ROTE/COE-driven target 2024E P/TBV of 0.42x is, however, above that suggested by the P/TBV vs. CET1 regression (<u>Exhibit 15</u>), as this methodology also captures the progress on ROTE improvement. On this methodology, further progress on ROTE and CET1 over 2025-26E would imply a P/TBV multiple of 0.62x and 0.71x for Piraeus, which is close to our current 2024E target P/TBV of 0.7x for NBG and Eurobank (<u>Exhibit 19</u>). We provide illustrative sensitivity of our TP to ROTE and CET1 in <u>Exhibit 28</u>.

What do we change? Our EPS estimates for Piraeus change by 3%/16%/5% over 2022-24E reflecting the increase in NII (on a more front-loaded pace of rate hikes since mid-2022 than expected) and updated NIM sensitivity analysis, which is partially offset by more conservative assumptions on cost of risk and expenses. We now also use a COE of 16% for Piraeus (down from 17% previously), which is in line with that of other Greek banks, as we expect the historical spread in COE of Piraeus vs other banks to also compress with improving CET1. Finally, we roll forward our valuation to 2024 (from 2023). A combination of these changes translates into a new 12-month price target of

#### €2.2 (up from €1.0), which implies 39% upside.

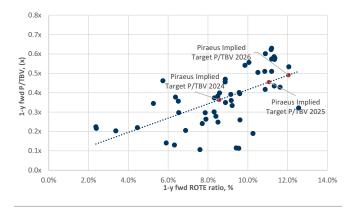
### Exhibit 24: We upgrade Piraeus to Buy (from Neutral) as we expect the capital build-up trajectory to track the progress of NBG/Eurobank over 2020-22



Source: Goldman Sachs Global Investment Research

### Exhibit 26: The P/TBV vs. ROTE regression implies a P/TBV of 0.36x/0.45x/0.49x for Piraeus in 2024/25/26E compared to current spot 2024E of 0.3x

P/TBV vs. ROTE regresssion and Piraeus implied P/TBV (based on capital-adjusted ROTE)



Source: Company data, Goldman Sachs Global Investment Research

### Exhibit 28: Illustrative sensitivity of Piraeus's capital-adjusted ROTE/COE-based TP to an increase/decrease in CET1, ROTE, COE (all else equal)

Sensitivity of Target Price to changes in	Step	Impact on Target Price
CET1	0.1pp	2.3pp
ROTE	0.1pp	2.3pp
COE	1.0pp	~ 9pp

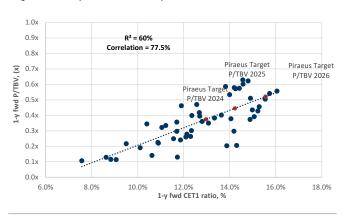
Source: Goldman Sachs Global Investment Research

### **Key risks**

Weaker-than-expected macroeconomic outlook: IMF expects 1.8% GDP growth for

### Exhibit 25: The P/TBV vs. CET1 regression implies a P/TBV of 0.37x/0.45x/0.52x in 2024/25/26E for Piraeus compared to current spot 2024E of 0.3x

Regression of 1y fwd P/TBV vs. 1-y fwd CET1 ratio



Source: Company data, Goldman Sachs Global Investment Research

### Exhibit 27: Restoration of capital buffers for Eurobank/NBG supported its re-rating since 3020 12m P/TBV (x) of Greek banks



Source: Goldman Sachs Global Investment Research

Exhibit 29: Forecasted change in CET1 and ROTE over 2023-26E by year

Forecasted change yoy of CET1 (as per ba			espective	e year
	2023E	2024E	2025E	2026E
Forecasted CET1 change, yoy	1.1pp	0.8pp	1.3pp	1.3pp
Forecasted ROTE change, yoy	2.0pp	0.6pp	1.9pp	0.2pp

Source: Goldman Sachs Global Investment Research

Greece in 2023E, which is among the highest levels compared to Europe and CEEMEA. Slower-than-expected economic growth may result in lower business and consumer activity and translate into lower loan and fee income growth as well as impacting asset quality.

**Lower benefit from higher rates:** In our NIM analysis, we model 0.6x beta for performing loans, 0.20-0.35x for securities and 0.25x-0.40x for cost of funds implying a c.30bps pass-through on NIM from a 100bps rate hike over 2022-24E. Faster-than-expected repricing of deposits or lower pass-through on loans/securities may result in lower NIM sensitivity. Additionally, if the impact of higher rates on asset quality is more significant than we model, this would offset the benefit of higher rates on the revenues side.

**Competitive pressures impacting pricing and volumes:** Following NPE resolution, Greek banks have more capital for growth, which may result in greater competition on volumes/prices and therefore drive lower growth or margin compression for banks.

**Lower scope for cost savings:** We model Piraeus's C/I ratio decreasing by 9pp over 2022-25E reaching its guidance of <40% C/I in 2025E. An acceleration in expenses, higher-than-expected spending on digitalization or lower cost savings could result in delays in achieving guidance and lower our profit forecasts.

**Unfavorable political or regulatory actions** related, for example, to dividend restrictions or consumer protection measures. For example, we note that in Dec'22 the Greek government proposed measures to support vulnerable borrowers (<u>link</u>), which while, on our analysis, should have a limited impact on EPS in 2023E (at c.1-3%, all else equal, based on our sensitivity analysis <u>here</u>), any additional measures could have a more significant impact on profits.

### Exhibit 30: Piraeus key financials and ratios

EUR bn; EUR for per share data

# Piraeus: Key financials and ratios

Income statement	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII	1.41	1.44	1.49	1.41	1.30	1.45	1.42	-5%	-8%	11%	-2%
Fees	0.34	0.32	0.32	0.40	0.43	0.45	0.47	25%	9%	5%	3%
Core Revenues	1.75	1.75	1.80	1.81	1.73	1.90	1.89	0%	-4%	10%	-1%
Other	0.13	0.42	0.09	0.72	0.79	0.12	0.10	702%	9%	-85%	-13%
Total income	1.88	2.17	1.89	2.53	2.52	2.02	1.99	34%	0%	-20%	-1%
Operating expenses	-1.16	-1.01	-1.08	-0.90	-0.87	-0.85	-0.84	-17%	-4%	-2%	-2%
Pre-provision profits	0.72	1.16	0.81	1.63	1.65	1.16	1.15	102%	1%	-30%	-1%
Impairments & other	-0.64	-0.77	-1.34	-4.31	-0.63	-0.48	-0.39	222%	-85%	-25%	-19%
Pre-tax profit	0.08	0.39	-0.53	-2.68	1.02	0.69	0.76				
Profit after-tax	0.17	0.27	-0.66	-2.99	0.90	0.49	0.57				
Net attributable income	-0.16	0.16	-0.66	-3.00	0.95	0.49	0.57				
Balance sheet	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
Customer loans (net)	39.8	39.2	39.6	36.5	37.5	37.8	39.7	-8%	3%	1%	5%
Customer deposits	44.7	47.4	49.6	55.4	57.0	58.5	60.3	12%	3%	3%	3%
Total assets	61.9	61.2	71.6	79.8	83.0	85.1	87.3	11%	4%	2%	3%
Ordinary shareholders' equity	5.3	5.6	5.0	5.8	6.5	6.9	7.4	16%	12%	7%	7%
Per share data	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
GS EPS	11.3	5.6	-24.63	1.1	0.40	0.39	0.45	-104%	-63%	-3%	15%
DPS	-	-	-	-	-	-	0.09				
BVPS	202	212	189	4.6	5.2	5.5	5.9	-98%	12%	7%	7%
TBVPS	191	201	179	3.9	4.5	4.8	5.2	-98%	14%	8%	8%
Ratios	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
	/ / /										
NII / AIEA	3.2%	3.2%	3.0%	2.8%	2.5%	2.8%	2.6%	-0.2pp	-0.3pp	0.3pp	-0.1pp
	3.2% 62%	3.2% 47%	3.0% 57%	2.8% 36%	2.5% 34%	2.8% 42%	2.6% 42%	-0.2pp -21.7pp	-0.3pp -1.1pp	0.3pp 8.0pp	-0.1pp -0.1pp
NII / AIEA Cost / Income Credit costs / avg gross loans		47%				42%			-0.3pp -1.1pp n/m	0.3pp 8.0pp -46bps	-0.1pp -0.1pp -21bps
Cost / Income Credit costs / avg gross loans	62%		57%	36%	34%		42%	-21.7pp	-1.1pp	8.0pp	-0.1pp -21bp
Cost / Income Credit costs / avg gross loans Loans / deposits	62% 96bps	47% 139bps	57% 226bps	36% n/m	34% 156bps	42% 110bps	42% 89bps	-21.7pp n/m	-1.1pp n/m	8.0pp -46bps	-0.1pp -21bps 1.2pp
Cost / Income	62% 96bps 89%	47% 139bps 83%	57% 226bps 80%	36% n/m 66%	34% 156bps 66%	42% 110bps 65%	42% 89bps 66%	-21.7pp n/m -14.0pp	-1.1pp n/m 0.0pp	8.0pp -46bps -1.2pp	-0.1pp -21bps
Cost / Income Credit costs / avg gross loans Loans / deposits GS ROE GS ROTE	62% 96bps 89% 5.3%	47% 139bps 83% 2.7%	57% 226bps 80% -12.0%	36% n/m 66% 3.7%	34% 156bps 66% 5.5%	42% 110bps 65% 7.3%	42% 89bps 66% 7.9%	-21.7pp n/m -14.0pp n/m	-1.1pp n/m 0.0pp 1.8pp	8.0pp -46bps -1.2pp 1.8pp	-0.1pp -21bp 1.2pp 0.6pp
Cost / Income Credit costs / avg gross loans Loans / deposits GS ROE	62% 96bps 89% 5.3% 5.6%	47% 139bps 83% 2.7% 2.9%	57% 226bps 80% -12.0% -12.7%	36% n/m 66% 3.7% 4.2%	34% 156bps 66% 5.5% 6.4%	42% 110bps 65% 7.3% 8.4%	42% 89bps 66% 7.9% 9.0%	-21.7pp n/m -14.0pp n/m n/m	-1.1pp n/m 0.0pp 1.8pp 2.2pp	8.0pp -46bps -1.2pp 1.8pp 2.0pp	-0.1pp -21bp 1.2pp 0.6pp 0.6pp 0.1pp
Cost / Income Credit costs / avg gross loans Loans / deposits GS ROE GS ROTE ROA NPE ratio	62% 96bps 89% 5.3% 5.6% 0.5%	47% 139bps 83% 2.7% 2.9% 0.2%	57% 226bps 80% -12.0% -12.7% -1.0%	36% n/m 66% 3.7% 4.2% 1.2%	34% 156bps 66% 5.5% 6.4% 0.4%	42% 110bps 65% 7.3% 8.4% 0.6%	42% 89bps 66% 7.9% 9.0% 0.7%	-21.7pp n/m -14.0pp n/m n/m -3270%	-1.1pp n/m 0.0pp 1.8pp 2.2pp -0.8pp -5.0pp	8.0pp -46bps -1.2pp 1.8pp 2.0pp 0.2pp -1.6pp	-0.1pp -21bp 1.2pp 0.6pp 0.6pp 0.1pp -1.9pp
Cost / Income Credit costs / avg gross loans Loans / deposits GS ROE GS ROTE ROA	62% 96bps 89% 5.3% 5.6% 0.5% 51.5%	47% 139bps 83% 2.7% 2.9% 0.2% 48.8%	57% 226bps 80% -12.0% -12.7% -1.0% 45.3%	36% n/m 66% 3.7% 4.2% 1.2% 12.6%	34% 156bps 66% 5.5% 6.4% 0.4% 7.6%	42% 110bps 65% 7.3% 8.4% 0.6% 6.1%	42% 89bps 66% 9.0% 0.7% 4.2%	-21.7pp n/m -14.0pp n/m n/m n/m	-1.1pp n/m 0.0pp 1.8pp 2.2pp -0.8pp	8.0pp -46bps -1.2pp 1.8pp 2.0pp 0.2pp	-0.1pp -21bp 1.2pp 0.6pp 0.6pp

# National Bank of Greece (NBGr.AT): Summary financials

### Exhibit 31: NBG key financials and ratios

EUR bn; EUR for per share data

# NBG: Key financials and ratios

Income statement	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII	1.11	1.19	1.17	1.21	1.30	1.52	1.45	3%	7%	17%	-4%
Fees	0.24	0.26	0.26	0.29	0.35	0.36	0.37	12%	21%	3%	2%
Core Revenues	1.35	1.45	1.43	1.50	1.65	1.88	1.82	5%	10%	14%	-3%
Other	-0.07	0.23	1.10	0.40	0.29	-0.00	-0.00				
Total income	1.28	1.68	2.53	1.90	1.94	1.87	1.82	-25%	2%	-3%	-3%
Operating expenses	-0.88	-0.85	-0.82	-0.78	-0.78	-0.78	-0.76	-4%	0%	0%	-2%
Pre-provision profits	0.40	0.83	1.71	1.12	1.16	1.09	1.05	-34%	3%	-5%	-4%
Impairments & other	-0.31	-0.35	-1.10	-0.28	-0.22	-0.31	-0.26	-75%	-20%	41%	-18%
Pre-tax profit	0.09	0.48	0.60	0.84	0.93	0.78	0.80				
Profit after-tax	0.07	0.47	0.59	0.83	0.78	0.62	0.64				
Net attributable income	-0.08	-0.25	0.04	0.86	0.78	0.62	0.63				

Balance sheet	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
Customer loans (net)	30.0	29.2	27.0	30.4	34.8	36.2	36.8	13%	14%	4%	2%
Customer deposits	43.0	43.7	49.1	53.5	56.8	58.8	60.4	9%	6%	4%	3%
Total assets	65.1	64.2	77.5	84.0	82.1	84.7	87.0	8%	-2%	3%	3%
Ordinary shareholders' equity	5.0	5.3	5.1	5.7	6.1	6.5	7.0	14%	6%	7%	7%

Per share data	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
GS EPS	0.03	0.49	0.58	0.36	0.68	0.68	0.69	-39%	91%	0%	2%
DPS	-	-	-	-	0.17	0.14	0.14			-20%	2%
BVPS	5.4	5.8	5.5	6.3	6.6	7.1	7.6	14%	6%	7%	7%
TBVPS	5.3	5.5	5.2	5.9	6.2	6.7	7.2	13%	5%	8%	8%

Ratios	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII / AIEA	2.7%	2.9%	2.5%	2.5%	2.5%	2.9%	2.7%	-0.1pp	0.1pp	0.3pp	-0.2pp
Cost / Income	69%	51%	32%	41%	40%	42%	42%	8.8pp	-0.9pp	1.2pp	0.6pp
Credit costs / avg gross loans	74bps	99bps	88bps	87bps	63bps	84bps	67bps	-2bps	-23bps	21bps	-17bps
Loans / deposits	70%	67%	55%	57%	61%	61%	61%	1.8pp	4.4pp	0.2pp	-0.6pp
GS ROE	0.6%	8.4%	10.1%	5.9%	13.1%	9.9%	9.9%	-4.2pp	7.2pp	-3.2pp	0.0pp
GS ROTE	0.6%	8.6%	10.6%	6.2%	14.1%	10.6%	10.6%	-4.4pp	7.8pp	-3.5pp	0.0pp
ROA	0.1%	0.7%	0.7%	0.4%	1.0%	0.7%	0.8%	-0.3pp	0.6pp	-0.2pp	0.0pp
NPE ratio	0.0%	31.3%	15.0%	7.0%	5.2%	4.8%	2.6%	-8.0pp	-1.8pp	-0.5pp	-2.1pp
Coverage ratio	0%	53%	62%	76%	86%	103%	132%	13.6pp	10.1pp	17.7pp	28.1pp
CET 1 % (Basel III)	12.7%	12.8%	12.8%	14.9%	15.3%	15.7%	16.7%	2.1pp	0.4pp	0.4pp	0.9pp
Dividend payout	0%	0%	0%	0%	20%	20%	20%		20.0pp	0.0pp	0.0pp

# Alpha Services and Holdings (ACBr.AT): Summary financials

### Exhibit 32: Alpha key financials and ratios

EUR bn; EUR for per share data

# Alpha Bank: Key financials and ratios

Income statement	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII	1.76	1.55	1.53	1.38	1.28	1.50	1.48	-10%	-7%	17%	-1%
Fees	0.33	0.34	0.33	0.40	0.39	0.40	0.44	21%	-2%	1%	11%
Core Revenues	2.09	1.89	1.86	1.78	1.67	1.90	1.92	-4%	-6%	14%	1%
Other	0.51	0.43	0.71	0.17	0.30	0.14	0.16	-76%	72%	-53%	14%
Total income	2.60	2.32	2.57	1.95	1.97	2.04	2.08	-24%	1%	4%	2%
Operating expenses	-1.16	-1.17	-1.14	-1.21	-0.94	-0.91	-0.89	6%	-22%	-4%	-2%
Pre-provision profits	1.44	1.15	1.43	0.74	1.03	1.13	1.20	-48%	39%	10%	5%
Impairments & other	-1.73	-0.99	-1.32	-3.68	-0.60	-0.40	-0.32	179%	-84%	-33%	-21%
Pre-tax profit	-0.29	0.16	0.11	-2.94	0.43	0.74	0.88				
Profit after-tax	0.05	0.11	0.10	-2.87	0.23	0.54	0.64				
Net attributable income	0.05	0.11	0.10	-2.91	0.46	0.54	0.64				
Balance sheet	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
Customer loans (net)	40.2	39.3	39.4	36.9	39.1	40.2	41.5	-6%	6%	3%	3%
Customer deposits	38.7	40.4	43.8	47.0	50.6	52.4	53.9	7%	8%	4%	3%
Total assets	61.0	63.5	70.1	73.4	77.5	79.8	81.7	5%	6%	3%	2%
Ordinary shareholders' equity	8.1	8.5	8.3	6.1	6.3	6.8	7.2	-27%	3%	8%	7%
Per share data	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
GS EPS	0.03	0.07	0.06	0.19	0.17	0.23	0.27	232%	-11%	38%	20%
DPS	-	-	-	-	-	0.05	0.05				20%
BVPS	5.3	5.5	5.4	2.6	2.7	2.9	3.1	-52%	3%	8%	7%
TBVPS	5.0	5.2	5.0	2.4	2.5	2.7	2.9	-52%	4%	8%	8%
								_			
Ratios	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII / AIEA	3.4%	3.0%	2.9%	2.6%	2.4%	2.7%	2.6%	-0.3pp	-0.2pp	0.3pp	-0.1pp
Cost / Income	45%	51%	44%	62%	48%	44%	43%	17.5pp	-14.1pp	-3.3pp	-1.9pp
Credit costs / avg gross loans	315bps	196bps	267bps	342bps	151bps	97bps	76bps	75bps	-191bps	-53bps	-22bps
Loans / deposits	104%	97%	90%	78%	77%	77%	77%	-11.4pp	-1.1pp	-0.6pp	0.2pp
GS ROE	0.6%	1.3%	1.0%	5.0%	6.3%	8.2%	9.2%	3.9pp	1.4pp	1.9pp	1.0pp
GS ROTE	0.7%	1.3%	1.1%	5.4%	6.9%	8.8%	9.8%	4.3pp	1.5pp	2.0pp	1.0pp
ROA	0.1%	0.2%	0.1%	0.5%	0.5%	0.7%	0.8%	0.4pp	0.0pp	0.2pp	0.1pp
NPE ratio	48.9%	44.8%	42.5%	13.1%	7.5%	5.9%	4.5%	-2948%	-5.6pp	-1.6pp	-1.4pp
Coverage ratio	48%	44%	47%	47%	38%	39%	40%	-0.5pp	-8.8pp	1.5pp	0.9pp
CET 1 % (Fully Loaded)	14.0%	14.9%	14.8%	10.9%	12.4%	13.3%	14.2%	-3.9pp	1.5pp	1.0pp	0.9pp
Dividend payout	0%	0%	0%	0%	0%	20%	20%			20.0pp	0.0pp

## Eurobank (EURBr.AT): Summary financials

### Exhibit 33: Eurobank key financials and ratios

EUR bn; EUR for per share data

### Eurobank: Key financials and ratios

Income statement	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII	1.42	1.38	1.35	1.32	1.48	1.66	1.65	-2%	12%	11%	0%
Fees	0.31	0.35	0.38	0.46	0.54	0.56	0.57	19%	18%	5%	2%
Core Revenues	1.73	1.73	1.73	1.78	2.02	2.22	2.22	2%	14%	10%	0%
Other	0.12	0.11	0.45	0.13	0.64	0.08	0.06	-71%	398%	-87%	-25%
Total income	1.85	1.84	2.18	1.90	2.66	2.30	2.28	-13%	40%	-13%	-1%
Operating expenses	-0.88	-0.90	-0.87	-0.88	-0.91	-0.88	-0.85	1%	4%	-4%	-3%
Pre-provision profits	0.97	0.94	1.31	1.03	1.75	1.42	1.43	-22%	70%	-19%	1%
Impairments & other	-0.67	-0.63	-0.59	-0.44	-0.33	-0.42	-0.34	-25%	-26%	28%	-19%
Pre-tax profit	0.29	0.31	0.72	0.58	1.42	1.00	1.09				
Profit after-tax	0.20	0.26	0.54	0.42	1.11	0.71	0.77				
Net attributable income	0.09	0.13	-1.21	0.33	1.28	0.71	0.77				

Balance sheet	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
Customer loans (net)	36.2	37.4	37.4	39.0	41.7	43.4	44.6	4%	7%	4%	3%
Customer deposits	39.1	44.8	47.3	53.2	56.3	57.8	59.5	12%	6%	3%	3%
Total assets	58.0	64.8	67.7	77.9	84.2	85.9	88.2	15%	8%	2%	3%
Ordinary shareholders' equity	5.0	6.7	5.2	5.6	6.6	6.9	7.3	7%	16%	5%	7%

Per share data	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
GS EPS	0.09	0.08	0.15	0.11	0.26	0.19	0.21	-22%	124%	-25%	9%
DPS	-	-	-	-	0.07	0.04	0.04			-44%	9%
BVPS	2.3	1.8	1.4	1.5	1.8	1.8	2.0	7%	16%	5%	7%
TBVPS	2.2	1.7	1.3	1.4	1.7	1.8	1.9	8%	17%	5%	7%

Ratios	2018	2019	2020	2021	2022E	2023E	2024E	21/20	22/21E	23/22E	24/23E
NII / AIEA	2.9%	2.7%	2.6%	2.4%	2.5%	2.7%	2.6%	-0.2pp	0.1pp	0.2pp	-0.1pp
Cost / Income	48%	49%	40%	46%	34%	38%	37%	6.2pp	-11.9pp	3.9pp	-0.8pp
Credit costs / avg gross loans	147bps	140bps	136bps	104bps	68bps	89bps	69bps	-32bps	-36bps	21bps	-20bps
Loans / deposits	93%	83%	79%	73%	74%	75%	75%	-5.8pp	0.7pp	1.0pp	-0.2pp
GS ROE	3.9%	4.3%	9.3%	6.1%	20.8%	10.7%	11.0%	-3.3pp	14.8pp	-10.2pp	0.3pp
GS ROTE	4.0%	4.6%	10.0%	6.4%	21.9%	11.2%	11.4%	-3.6pp	15.5pp	-10.7pp	0.3pp
ROA	0.3%	0.4%	0.8%	0.6%	1.2%	0.8%	0.9%	-0.2pp	0.6pp	-0.3pp	0.0pp
NPE ratio	37.1%	29.3%	13.9%	6.9%	5.3%	4.0%	2.7%	-708%	-1.6pp	-1.3pp	-1.4pp
Coverage ratio	52%	54%	61%	66%	72%	86%	111%	5.7pp	6.1pp	13.3pp	25.3pp
CET 1 % (Fully Loaded)	11.3%	14.6%	12.0%	12.7%	13.8%	14.6%	15.2%	0.7pp	1.1pp	0.8pp	0.6pp
TA / TE	11.6x	9.9x	13.0x	14.1x	13.0x	12.7x	12.1x	8%	-8%	-2%	-4%
Dividend payout*	0%	0%	0%	0%	20.0%	20.0%	20.0%			0%	0%
* of normalized corpings avaluding one offe											

\* of normalized earnings excluding one-offs

### **Disclosure Appendix**

### **Reg AC**

We, Waleed Mohsin, Mikhail Butkov and Ashwath PT, CFA, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

### **GS Factor Profile**

The Goldman Sachs Factor Profile provides investment context for a stock by comparing key attributes to the market (i.e. our coverage universe) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g. valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

**Growth** is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile.

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

### **M&A Rank**

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign a M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability are representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

### Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

### **Disclosures**

The rating(s) for Alpha Services and Holdings, Eurobank Holdings, National Bank of Greece and Piraeus Financial Holdings is/are relative to the other companies in its/their coverage universe: Absa Group Ltd., Abu Dhabi Commercial Bank, Abu Dhabi Islamic Bank, Akbank, Al-Rajhi Bank, Alinma Bank, Alpha Services and Holdings, Arab National Bank, Banque Saudi Fransi, Capitec Bank Holdings, Commercial Bank of Qatar, Commercial Intl Bank Egypt, Doha Bank, Dubai Financial Market, Dubai Islamic Bank, Emirates NBD, Eurobank Holdings, First Abu Dhabi Bank, Firstrand Ltd., Investec Plc, National Bank of Greece, National Bank of Kuwait, Nedbank Group, Piraeus Financial Holdings, Qatar Islamic Bank, Qatar National Bank, Riyad Bank, Saudi British Bank, Saudi National Bank, Saudi Tadawul Group, Standard Bank Group, Turkiye Garanti Bankasi, Turkiye Halk Bankasi AS, Turkiye Isbankasi, Turkiye Vakiflar Bankasi, Yapi Kredi

### **Company-specific regulatory disclosures**

The following disclosures relate to relationships between The Goldman Sachs Group, Inc. (with its affiliates, "Goldman Sachs") and companies covered by the Global Investment Research Division of Goldman Sachs and referred to in this research.

Goldman Sachs beneficially owned 1% or more of common equity (excluding positions managed by affiliates and business units not required to be aggregated under US securities law) as of the month end preceding this report: Eurobank Holdings (€1.18) and Piraeus Financial Holdings (€1.67)

Goldman Sachs has received compensation for investment banking services in the past 12 months: Alpha Services and Holdings (€1.16), Eurobank Holdings (€1.18), National Bank of Greece (€4.09) and Piraeus Financial Holdings (€1.67)

Goldman Sachs expects to receive or intends to seek compensation for investment banking services in the next 3 months: Alpha Services and Holdings (€1.16), Eurobank Holdings (€1.18), National Bank of Greece (€4.09) and Piraeus Financial Holdings (€1.67)

Goldman Sachs has received compensation for non-investment banking services during the past 12 months: Alpha Services and Holdings (€1.16), Eurobank Holdings (€1.18), National Bank of Greece (€4.09) and Piraeus Financial Holdings (€1.67)

Goldman Sachs had an investment banking services client relationship during the past 12 months with: Alpha Services and Holdings ( $\in$ 1.16), Eurobank Holdings ( $\in$ 1.18), National Bank of Greece ( $\in$ 4.09) and Piraeus Financial Holdings ( $\in$ 1.67)

Goldman Sachs had a non-investment banking securities-related services client relationship during the past 12 months with: Alpha Services and Holdings (€1.16), Eurobank Holdings (€1.18), National Bank of Greece (€4.09) and Piraeus Financial Holdings (€1.67)

Goldman Sachs had a non-securities services client relationship during the past 12 months with: Alpha Services and Holdings (€1.16), Eurobank Holdings (€1.18), National Bank of Greece (€4.09) and Piraeus Financial Holdings (€1.67)

### Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global Equity coverage universe

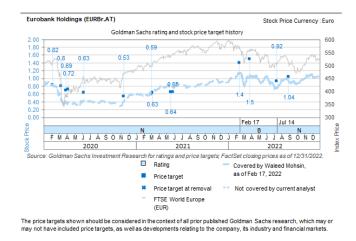
	F	Rating Distribution	n	Investment Banking Relationships				
	Buy	Hold	Sell	.	Buy	Hold	Sell	
Global	47%	37%	16%	, .	64%	58%	48%	

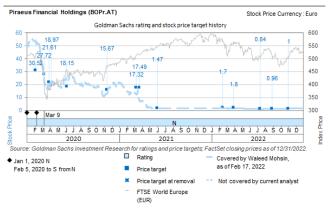
As of January 1, 2023, Goldman Sachs Global Investment Research had investment ratings on 3,201 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by the FINRA Rules. See 'Ratings, Coverage universe and related definitions' below. The Investment Banking Relationships chart reflects the percentage of subject companies within each rating category for whom Goldman Sachs has provided investment banking services within the previous twelve months.

### Price target and rating history chart(s)

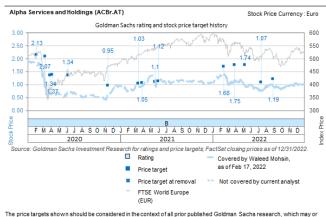


The price targets shown should be considered in the context of all prior published Goldman Sachs research, which may or may not have included price targets, as well as developments relating to the company, its industry and financial markets.





The price targets shown should be considered in the context of all prior published Goldman Sachs research, which may or may not have included price targets, as well as developments relating to the company, its industry and financial markets.



may not have included price targets, as well as developments relating to the company, its industry and financial markets.

### **Regulatory disclosures**

### **Disclosures required by United States laws and regulations**

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts**: Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

**Distribution of ratings:** See the distribution of ratings disclosure above. **Price chart:** See the price chart, with changes of ratings and price targets in prior periods, above, or, if electronic format or if with respect to multiple companies which are the subject of this report, on the Goldman Sachs website at <a href="https://www.gs.com/research/hedge.html">https://www.gs.com/research/hedge.html</a>.

### Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and

regulations. Australia: Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. Brazil: Disclosure information in relation to CVM Resolution n. 20 is available at https://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Resolution n. 20, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. Canada: This information is being provided to you for information purposes only and is not, and under no circumstances should be construed as, an advertisement, offering or solicitation by Goldman Sachs & Co. LLC for purchasers of securities in Canada to trade in any Canadian security. Goldman Sachs & Co. LLC is not registered as a dealer in any jurisdiction in Canada under applicable Canadian securities laws and generally is not permitted to trade in Canadian securities and may be prohibited from selling certain securities and products in certain jurisdictions in Canada. If you wish to trade in any Canadian securities or other products in Canada please contact Goldman Sachs Canada Inc., an affiliate of The Goldman Sachs Group Inc., or another registered Canadian dealer. Hong Kong: Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. India: Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 951-A, Rational House, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Japan: See below. Korea: This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. New Zealand: Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. Russia: Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. Singapore: Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. Taiwan: This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. United Kingdom: Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

**European Union and United Kingdom:** Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at <a href="https://www.gs.com/disclosures/europeanpolicy.html">https://www.gs.com/disclosures/europeanpolicy.html</a> which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

### Ratings, coverage universe and related definitions

Buy (B), Neutral (N), Sell (S) Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's total return potential relative to its coverage universe. Any stock not assigned as a Buy or a Sell on an Investment List with an active rating (i.e., a stock that is not Rating Suspended, Not Rated, Coverage Suspended or Not Covered), is deemed Neutral. Each region manages Regional Conviction lists, which are selected from Buy rated stocks on the respective region's Investment Its and represent investment recommendations focused on the size of the total return potential and/or the likelihood of the realization of the return across their respective areas of coverage. The addition or removal of stocks from such Conviction lists are managed by the Investment Review Committee or other designated committee in each respective region and do not represent a change in the analysts' investment rating for such stocks.

**Total return potential** represents the upside or downside differential between the current share price and the price target, including all paid or anticipated dividends, expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The total return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

**Coverage Universe:** A list of all stocks in each coverage universe is available by primary analyst, stock and coverage universe at <a href="https://www.gs.com/research/hedge.html">https://www.gs.com/research/hedge.html</a>.

Not Rated (NR). The investment rating, target price and earnings estimates (where relevant) have been suspended pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or in a strategic transaction involving this company, when there are legal, regulatory or policy constraints due to Goldman Sachs' involvement in a transaction, and in certain other circumstances. Rating Suspended (RS). Goldman Sachs Research has suspended the investment rating and price target for this stock, because there is not a sufficient fundamental basis for determining an investment rating or target price. The previous investment rating and target price, if any, are no longer in effect for this stock does not cover this company. Not Coverage Suspended (CS). Goldman Sachs has suspended coverage of this company. Not Coverade (NC). Goldman Sachs does not cover this company. Not Available or Not Applicable (NA). The information is not available for display or is not applicable. Not Meaningful

(NM). The information is not meaningful and is therefore excluded.

### **Global product; distributing entities**

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Public Communication Channel Goldman Sachs Brazil: 0800 727 5764 and / or contatogoldmanbrasil@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Canal de Comunicação com o Público Goldman Sachs Brasil: 0800 727 5764 e/ou contatogoldmanbrasil@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom.

Effective from the date of the United Kingdom's departure from the European Union and the European Economic Area ("Brexit Day") the following information with respect to distributing entities will apply:

Goldman Sachs International ("GSI"), authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: GSI, authorised by the PRA and regulated by the FCA and the PRA, disseminates research in the following jurisdictions within the European Economic Area: the Grand Duchy of Luxembourg, Italy, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Norway, the Republic of Finland, the Republic of Cyprus and the Republic of Ireland; GS -Succursale de Paris (Paris branch) which, from Brexit Day, will be authorised by the French Autorité de contrôle prudentiel et de resolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de resolution and the Autorité des marches financiers ("AMF") disseminates research in France; GSI - Sucursal en España (Madrid branch) authorized in Spain by the Comisión Nacional del Mercado de Valores disseminates research in the Kingdom of Spain; GSI - Sweden Bankfilial (Stockholm branch) is authorized by the SFSA as a "third country branch" in accordance with Chapter 4, Section 4 of the Swedish Securities and Market Act (Sw. lag (2007:528) om värdepappersmarknaden) disseminates research in the Kingdom of Sweden; Goldman Sachs Bank Europe SE ("GSBE") is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research in the Federal Republic of Germany and those jurisdictions within the European Economic Area where GSI is not authorised to disseminate research and additionally, GSBE, Copenhagen Branch filial af GSBE, Tyskland, supervised by the Danish Financial Authority disseminates research in the Kingdom of Denmark; GSBE - Sucursal en España (Madrid branch) subject (to a limited extent) to local supervision by the Bank of Spain disseminates research in the Kingdom of Spain; GSBE - Succursale Italia (Milan branch) to the relevant applicable extent, subject to local supervision by the Bank of Italy (Banca d'Italia) and the Italian Companies and Exchange Commission (Commissione Nazionale per le Società e la Borsa "Consob") disseminates research in Italy; GSBE - Succursale de Paris (Paris branch), supervised by the AMF and by the ACPR disseminates research in France; and GSBE - Sweden Bankfilial (Stockholm branch), to a limited extent, subject to local supervision by the Swedish Financial Supervisory Authority (Finansinpektionen) disseminates research in the Kingdom of Sweden.

### **General disclosures**

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (<u>https://www.sipc.org</u>).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst's published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst's fundamental equity rating for such stocks, which rating reflects a stock's return potential relative to its coverage universe as described herein.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at <a href="https://www.theocc.com/about/publications/character-risks.jsp">https://www.theocc.com/about/publications/character-risks.jsp</a> and

https://www.fiadocumentation.org/fia/regulatory-disclosures\_1/fia-uniform-futures-and-options-on-futures-risk-disclosures-booklet-pdf-version-2018. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request. **Differing Levels of Service provided by Global Investment Research:** The level and types of services provided to you by the Global Investment Research division of GS may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to <a href="https://research.gs.com">https://research.gs.com</a>.

Disclosure information is also available at https://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.

#### © 2023 Goldman Sachs.

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of The Goldman Sachs Group, Inc.