J.P.Morgan

North America Equity Research
14 February 2024

Arch Capital

MI & Reinsurance Tailwinds to Drive Strong Results

Neutral

ACGL, ACGL US
Price (14 Feb 24):$84.87

▲ **Price Target (Dec-24):$88.00**
Prior (Dec-24):$80.00

ACGL's results exceeded expectations, as upside in the MI and reinsurance businesses offset downside in insurance. We are Neutral on the stock due to valuation but consider Arch a premier franchise and feel that ACGL is the best name for investors seeking to take advantage of the hard reinsurance market.

- **EPS upside; raising estimates.** ACGL reported 4Q23 operating EPS of $2.49, well above our $1.97 estimate and consensus of $2.00. Results benefited from lower attritional losses, which more than offset slightly higher expenses. Compared to our model, the upside was driven partly by more favorable prior-year development (+$0.03 variance), but this was more than offset by higher cat losses (-$0.07 variance). Investment income was $0.06 better as well, and should continue to increase at a strong pace. We are raising our 2024 EPS forecast from $7.36 to $7.76 to reflect better reinsurance and MI margins.
- **Business trends were strong overall.** Reinsurance results were lifted by strong margins (CR 80.1% vs. our 82.9% estimate) and healthy premium growth (ex. one-time deals last year). As in recent quarters, MI results were lifted by robust margins (CR -3.3% vs. 32.0%E), helped by sizable releases of post-COVID reserves (-39.0% on CR vs. -12.0%E). Insurance margins were strong in an absolute sense, but fell short of our estimate (CR 93.2% vs. 91.4%E; CR ex. cats and PYD 89.9% vs. 89.7%E) due to higher than expected cat losses and an uptick in the expense ratio. Premiums exceeded expectation as well (NWP +7.5% vs. +1.5%E) as upside in the reinsurance and insurance businesses offset a shortfall in MI. As assumed, ACGL did not repurchase stock in 4Q. Management sounded very positive on the operating environment in the property cat reinsurance and MI markets, but less so on casualty pricing.
- **Our model projects ACGL to report robust results in the near term, but our long-term outlook is mixed.** In our view, Arch will report strong margins and top-line growth in re/insurance, and healthy margins but poor premium growth in MI. In the MI business, reserve releases related to COVID delinquencies should moderate, but we anticipate ongoing favorable development given the strong labor market and the rise in house prices. Higher interest rates are a headwind for growth, but should help premium persistency and margins in the MI division. In reinsurance, margins should benefit from firm pricing. Still, we remain skeptical of a sustained hard market in the reinsurance business. Our model assumes no share repurchases over the next few quarters given ACGL's current stock price and management's intent to deploy capital into the business amid the favorable pricing backdrop.
- **We reiterate our Neutral rating.** In our view, ACGL is a top-tier franchise, but in commoditized markets. While the company is well-positioned to benefit from hard reinsurance pricing, our long-term outlook for the reinsurance market is cautious. Also, we feel that ACGL's valuation is not attractive given its long-term ROE and EPS growth potential.

Insurance - Life & Nonlife

Jimmy S. Bhullar, CFA [AC]
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com
Bloomberg JPMA BHULLAR <GO>

Pablo S. Singzon
(1-212) 622-2295
pablo.s.singzon@jpmorgan.com
J.P. Morgan Securities LLC

Key Changes (FYE Dec)

	Prev	Cur
Adj. EPS - 24E ($)	7.36	7.76
Adj. EPS - 25E ($)	7.60	8.04

Quarterly Forecasts (FYE Dec)

Adj. EPS ($)	2023A	2024E	2025E
Q1	1.73	2.06	
Q2	1.92	1.91	
Q3	2.31	1.62	
Q4	2.49	2.17	
FY	8.45	7.76	8.04

Style Exposure

Quant Factors	Current %Rank	Hist %Rank (1=Top) 6M	1Y	3Y	5Y
Value	100	100	100	100	34
Growth	67	1	34	1	34
Momentum	67	1	34	34	34
Quality	1	1	1	1	1
Low Vol	1	1	1	34	1
ESGQ	12	12	13	91	98

4Q23 EPS: $2.49A vs. $1.97E

Positives: MI and reinsurance margins; insurance and reinsurance written premiums

Negatives: insurance margins; MI written premiums

Bloomberg: JPMA Bhullar <GO>

Sources for: Style Exposure – J.P. Morgan Quantitative and Derivatives Strategy; all other tables are company data and J.P. Morgan estimates.

See page 13 for analyst certification and important disclosures.

Jimmy S. Bhullar, CFA [AC]
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com

Price Performance

	YTD	1m	3m	12m
Abs	14.3%	9.2%	-0.7%	28.0%
Rel	9.5%	4.7%	-12.0%	7.1%

Company Data

Shares O/S (mn)	373
52-week range ($)	90.65-62.10
Market cap ($ mn)	31,681.97
Exchange rate	1.00
Free float(%)	97.0%
3M - Avg daily vol (mn)	1.74
3M - Avg daily val ($ mn)	139.2
Volatility (90 Day)	25
Index	S&P 500
BBG BUY|HOLD|SELL	12|5|1

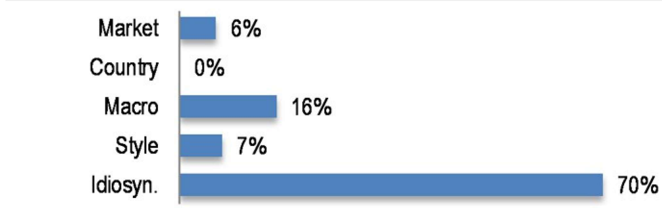
Key Metrics (FYE Dec)

$ in millions	FY23A	FY24E	FY25E
Financial Estimates			
NEP (Premium)	12,440	14,698	16,432
Underwriting income	2,612	2,008	2,146
Net investment income	1,023	1,313	1,535
Operating income	3,635	3,322	3,681
Adj. PBT	3,569	3,680	4,065
Adj. net income	3,201	2,952	3,033
Adj. EPS	8.45	7.76	8.04
BBG EPS	7.96	7.72	8.26
DPS	0.00	0.00	0.00
Investments	16,792	19,638	22,053
BVPS	46.94	54.90	62.78
NAVPS	46.94	54.90	62.78
Margins and Growth			
Adj. EPS growth	73.4%	(8.2%)	3.6%
Ratios			
Adj. tax rate	24.5%	8.0%	15.0%
Loss ratio	(50.2%)	(57.8%)	(58.5%)
Combined ratio	(21.4%)	(29.3%)	(30.1%)
Invest inc. % of Investments	-	-	-
Regulatory solvency ratio	-	-	-
Leverage (Debt/Debt+Equity)	-	-	-
ROE	21.6%	15.6%	14.1%
Valuation			
Dividend yield	0.0%	0.0%	0.0%
Adj. P/E	10.0	10.9	10.6
P/ BV	1.8	1.5	1.4

Summary Investment Thesis and Valuation

We reiterate our Neutral rating. Arch is a leading re/insurance franchise with a track record of higher and less volatile underwriting margins than most peers. Still, we are Neutral because of our cautious long-term outlook for the P&C reinsurance market and the stock's valuation. In our view, near-term results in the MI business will be marked by weak premium growth and moderating margins as attritional loss ratios normalize higher, partially offset by continued reserve release from post-COVID accident years. Over time, we expect MI returns to be held back by the commoditized nature of the product, black box pricing, and higher capital requirements. In P&C reinsurance, hard pricing and tighter terms/conditions should boost underwriting results in the near term, but our long-term outlook is negative as we remain skeptical of a sustained hard market.

Performance Drivers



Factors	6M Corr	1Y Corr
Market: MSCI EM Latam	0.04	0.25
Country: Bermuda	-0.32	0.05
Macro:		
HSI Volatility Index	-0.27	-0.29
Markit EM Composite PMI SA	-0.46	-0.24
Emerging Central Bank Rate	0.32	0.21
Quant Styles:		
Quality	0.46	0.33
LowVol	0.42	0.28
Momentum	0.40	0.24

Source: J.P. Morgan Quantitative and Derivatives Strategy for Performance Drivers; company data, Bloomberg Finance L.P. and J.P. Morgan estimates for all other tables. Note: Price history may not be complete or exact.

Jimmy S. Bhullar, CFA [AC]
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com

Table Of Contents

Jimmy S. Bhullar, CFA AC
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com

Investment Thesis

Please see Page 5 for a detailed review of 4Q23 results. ACGL will hold its earnings conference call at 11:00 AM Eastern on February 15, 2024. Conference call participants need to register at this link: https://register.vevent.com/register/BIa77bb69939154a5f80bec221534ac007 The call replay can be accessed at: ir.archcapgroup.com.

We consider ACGL the best stock for those seeking to invest on the hard reinsurance pricing theme, but are Neutral due to valuation. In our view, ACGL is an industry-leading reinsurance franchise with a unique culture and approach to underwriting that should generate above-average, and less volatile, margins over time. Arch is also a leading mortgage insurer, a business that we believe is structurally better than P&C reinsurance. We expect ACGL's reinsurance results to remain strong into 2024 given the market's discipline on pricing and terms/conditions. In primary P&C, ACGL has gained share and expanded margins, especially in E&S. In the MI business, margins should moderate from their abnormally high levels recently, but stay strong overall, while premium growth is likely to be weak. Despite optimism on near-term results, our long-term outlook is less upbeat and we anticipate a turn in pricing if reinsurers' margins sustain at recent levels over the next 1-2 years. The reinsurance market suffers from structural issues such as low barriers to entry, lack of differentiation among carriers, and limited pricing power, and we expect sustained robust results to drive softening of terms/conditions. Still, our overall view of ACGL is positive and we could get more bullish if the stock pulls back.

P&C Reinsurance: Near-Term Outlook Upbeat; L-T Cautious

Arch's near-term reinsurance margins should benefit from hard pricing and tighter terms, but our long-term outlook is cautious. The company has historically generated better and less volatile margins than most reinsurers, which we attribute to its focus on specialty business (where pricing tends to be less competitive), conservative underwriting, ability to shift mix based on changing conditions, and judicious management of catastrophe risk. In particular, ACGL prices business using the risk-free rate (leading to more conservative underwriting) and uses a long-term compensation plan for underwriters based on margins over a multi-year period. Furthermore, the creation of 3rd party capital vehicles such as Premia Re generates fee income for the company. Overall, we consider Arch a top-tier reinsurer and expect firm pricing to boost results through 2024. Still, our long-term outlook for reinsurance is cautious given its commoditized nature, the ease of entry of new capital, and a broad set of capital providers (including some, such as pension funds, with lower return thresholds). We are skeptical of prolonged hard pricing and believe that 1-2 years of strong margins will erode pricing discipline. Any signs of softening of terms/conditions or capacity entering the market would likely hurt sentiment on reinsurance stocks, which have become consensus longs since late 2022.

MI: Margins to Revert to More Normal Levels, Growth Weak

ACGL expanded in mortgage insurance through acquisitions (CMG in 2014 and United Guaranty in 2016) when market conditions were favorable, marked by appreciating home prices, stringent lending standards at mortgage issuers, and disciplined pricing by mortgage insurers. Arch's MI business has generated healthy margins since then and, despite the temporary setback from COVID-related delinquencies in 2020, results have been strong. We expect MI margins, which have been unsustainably strong, to revert lower to more normal levels as COVID-related reserve releases taper off. However, ACGL's more conservative loss picks post-COVID could lead to near-term upside. The strong labor market and elevated home prices are also supportive of margins. Higher interest rates are a headwind for new sales, but should boost persistency.

Jimmy S. Bhullar, CFA AC
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com

4Q23 Details

This evening, ACGL reported fourth quarter 2023 operating EPS of $2.49, significantly above our $1.97 estimate and consensus of $2.00 as lower attritional losses more than offset slightly higher expenses. Compared to our model, the EPS upside was driven partly by more favorable prior-year development (+$0.03 variance), while cat losses were higher than assumed (-$0.07 variance). Also, investment income was $0.06 better than assumed. By division, upside in the MI and reinsurance businesses offset downside in insurance.

Table 1: 4Q23 Operating Earnings: Actual versus Expected

$ in millions, except per share amounts

	4Q23E	4Q23A	Upside / (downside) to EPS	Comments
Underwriting Income by Division:				
Mortgage	187	286	$0.26	margins benefited from reserve release (CR -3.3% vs. 32.0%E)
Insurance	121	99	-$0.06	margins worse than assumed (CR 93.2% vs. 91.4%E); premium growth healthy
Reinsurance	274	330	$0.15	margins drove upside (80.1% vs. 82.9%E); premium growth modest
Underwriting income	**582**	**715**	**$0.35**	
Net investment income	288	313	$0.06	pre-tax investment yield of 4.11% in 4Q23 versus 3.68% in 3Q23 and 2.80% in 4Q22
Earnings from affiliates	25	69	$0.12	
Other income (losses) / COLI	4	23	$0.05	
Other expenses / corporate	40	55	-$0.04	
Interest expense	34	34	$0.00	
Pretax operating income	**825**	**1,031**	**$0.54**	
Income tax expense	66	76	-$0.03	tax benefit due to the establishment of a Bermuda deferred tax asset
Preferred dividends	10	10	$0.00	
Operating income	**749**	**945**	**$0.52**	
Weighted average dilutive shares	379.9	379.8	$0.00	no share buybacks as expected
Operating EPS	**$1.97**	**$2.49**	**$0.52**	**no major unusual items**

Source: Company reports and J.P. Morgan estimates.

Business trends were strong overall. Reinsurance results were lifted by strong margins (CR 80.1% versus our 82.9% estimate) and healthy premium growth (adjusted for one-time deals last year). As in recent quarters, MI results were lifted by robust margins (CR -3.3% vs. 32.0%E), helped by sizable releases of non-COVID reserves (-39.0% on CR vs. -12.0%E). Insurance margins were strong in an absolute sense, but fell short of our estimate (CR 93.2% vs. 91.4%E; CR ex. cats and PYD 89.9% vs. 89.7%E) due to higher than expected cat losses and an uptick in the expense ratio. Premium growth was better than anticipated as well (NWP +7.5% vs. +1.5%E) as upside in the reinsurance and insurance businesses offset a shortfall in MI. As assumed, Arch did not repurchase stock in the fourth quarter.

Jimmy S. Bhullar, CFA AC
(1-212) 622-6397
jimmy.s.bhullar@jpmorgan.com

Table 2: 4Q23 Key Financial Metrics

$ in millions

	4Q23E	4Q23A
Net premiums written	3,079	3,261
% change (y-o-y)	1.5%	7.5%
Net investment income	288	313
% change (y-o-y)	59.2%	72.9%
Loss ratio ex cats and PYD	54.2%	48.9%
Catastrophe losses	3.3%	4.1%
PYD (favorable) / unfavorable	-3.7%	-4.1%
Loss ratio	53.8%	49.0%
Expense ratio	28.5%	30.0%
Combined ratio	82.3%	78.9%
Combined ratio ex cats & PYD	82.7%	78.9%
Share buybacks ($ mil.)	-	-

Source: Company reports and J.P. Morgan estimates.

Mortgage Insurance: Results Lifted by Reserve Releases

In our view, mortgage insurance (MI) will be marked by weak premium growth, high persistency, and strong (but normalizing) margins. Higher interest rates should suppress mortgage insurance volumes, while reserve releases from cures of COVID-related delinquencies should moderate. Still, division results have been significantly better than assumed in recent quarter and that was the case in 4Q23. The MI division reported underwriting income of $286 million in 4Q23, well above our $187 million estimate, driven by upside in margins (CR -3.3% vs. 32.0%E). Earned premiums were weak, but higher than anticipated (-5.9% from 4Q22 vs. -8.6%E). The upside in margins was due to greater than assumed favorable reserve releases (-39.0% vs. -12.0%E) as well as a lower attritional loss ratio (18.3% vs. 24.0%E). Consistent with commentary after 3Q23 results, management attributed the reserve releases to better than expected cure rates and more favorable assumptions (lower average per claim reserve and lower ultimate loss per notice of default) for business issued in accident years 2020-2022. Meanwhile, attritional losses benefited from lower estimated claim rates, partially offset by a modest uptick in new delinquencies. Similar to the recent trend, top-line growth in the MI market remains sluggish, with net written premiums declining for 9 consecutive quarters. We expect factors that are boosting margins in the business (higher rates, lower inventory of houses, etc.) to continue to suppress top-line growth in the MI division.

In 2020 and early 2021, MI margins were hurt by artificially high delinquencies caused by homeowners availing themselves of government forbearance programs. However, after an initial spike in 2Q20, the number of delinquent loans has steadily declined. With the expiry of the forbearance programs, a significant portion of previously delinquent loans has cured, particularly loans by borrowers who were taking advantage of the mortgage payment holiday but were not in financial distress. Meanwhile, higher house prices have provided a cushion to homeowners under stress who are struggling to pay their mortgages, limiting losses for MI carriers. The percent of loans in default in the U.S. primary MI business inched up slightly from 1.65% at 9/30/23 to 1.74% at 12/31/23, but remains low overall.

Table 3: Mortgage Insurance Key Metrics

$ in millions

	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23E	4Q23A
Net written premiums	289	1,261	288	294	276	275	1,133	261	265	271	264	255
Premium Growth (y/y)	-12.8%	-1.5%	-14.0%	-12.5%	-8.2%	-5.1%	-10.2%	-9.4%	-9.8%	-1.9%	-4.0%	-7.1%
Losses and LAE ex. cats and PYD	14.8%	18.2%	17.6%	18.8%	21.0%	25.2%	20.7%	25.3%	24.3%	21.6%	24.0%	18.3%
Catastrophe losses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PYD (favorable) / unfavorable	-24.2%	-13.7%	-36.5%	-40.7%	-45.1%	-72.1%	-48.6%	-24.6%	-28.7%	-33.5%	-12.0%	-39.0%
Loss ratio	**-9.4%**	**4.4%**	**-18.9%**	**-21.9%**	**-24.1%**	**-46.9%**	**-28.0%**	**0.7%**	**-4.4%**	**-11.9%**	**12.0%**	**-20.7%**
Acquisition expense ratio	4.4%	7.6%	3.6%	3.4%	2.4%	4.4%	3.5%	2.4%	2.4%	0.7%	3.0%	0.4%
Operating expense ratio	16.7%	15.1%	18.4%	17.0%	16.5%	15.4%	16.8%	16.9%	17.0%	16.0%	17.0%	17.1%
Expense ratio	**21.1%**	**22.7%**	**22.1%**	**20.4%**	**18.8%**	**19.8%**	**20.3%**	**19.3%**	**19.4%**	**16.7%**	**20.0%**	**17.5%**
Combined ratio	**11.6%**	**27.1%**	**3.2%**	**-1.5%**	**-5.2%**	**-27.1%**	**-7.7%**	**19.9%**	**15.0%**	**4.8%**	**32.0%**	**-3.3%**
Combined ratio ex cats & PYD	35.8%	40.9%	39.7%	39.2%	39.9%	45.0%	41.0%	44.5%	43.7%	38.3%	44.0%	35.7%
Underwriting Income (Loss)	**269**	**953**	**285**	**298**	**299**	**374**	**1,257**	**243**	**253**	**282**	**187**	**286**

Source: Company reports and J.P. Morgan estimates.

In our view, MI margins will continue to benefit from reserve releases, but to a lesser extent than in recent quarters. Higher reported delinquencies at the onset of COVID led Arch and its MI peers to establish corresponding reserves despite the healthy labor market and appreciation in house prices. A meaningful portion of these delinquencies was due to homeowners taking advantage of the government's forbearance protection programs (to preserve liquidity), not actual financial hardship. Under U.S. GAAP accounting, Arch had to establish reserves based on reported delinquencies despite the high likelihood that the delinquencies would eventually cure (unlike other P&C lines an IBNR component is disallowed under U.S. GAAP for primary MI business). With most of these delinquent loans curing following the expiration of forbearance programs (initially set for 12/31/20, but then extended through 9/30/21 and, in some cases, year-end 2021 or beyond), ACGL has been releasing these previously incurred reserves. Currently, more than 80% of MI reserves are from accident years after COVID, suggesting less of a benefit from the release of reserves related to COVID delinquencies. Despite an expected decline, we project MI margins to remain healthy given the strong labor and housing markets, cures on previously delinquent loans, and the equity cushion accumulated by homeowners due to the appreciation in house prices. Higher interest rates are a positive for margins as well, as they are resulting in homeowners' staying in their existing houses (where they have more equity) longer then typical and are thereby improving persistency in the MI book. On a cautious note, top-line growth is likely to be weak as higher interest rates reduce mortgage originations. While a weaker economy could deflate home prices and lead to higher mortgage defaults, a material uptick in losses seems unlikely in the near term. Barring a recession, we expect core margins to stay healthy, though declining reserve releases will drive margins and earnings lower even if economic trends stay favorable.

ACGL has become a leading competitor in the MI market through acquisitions and could expand further via M&A, although deals seem unlikely in the near term. ACGL entered the mortgage re/insurance business in 2011 but was only marginally involved in the market at the onset, competing as a primary insurer through credit unions and as a reinsurer through the GSE credit risk transfer program. The company's 2014 acquisition of CMG Mortgage Insurance from Cuna Mutual gave it a bigger foothold as it received a ratings upgrade for its MI business (from BBB+ to A- at S&P) and gained distribution in the bank channel. Following the deal, Arch became a top 10 competitor in the domestic private MI market. Arch's market position strengthened further following its 2017 acquisition of United Guaranty (UGC) from AIG, which catapulted it to a top-3 spot (as part of the deal AIG retained 50% of mortgage insurance blocks originated by UGC pre 2017). Arch has also expanded in foreign MI markets through M&A, including its acquisition of Westpac's mortgage insurance business in Australia (closed in August 2021).

Insurance: Weaker Margins Offset Robust Premiums

The insurance business reported lower than assumed underwriting margins, but robust premium growth, contrary to the trend in the previous quarter. The division generated underwriting income of $99 million in 4Q23, short of our $121 million estimate, due to lower than expected margins (CR 93.2% vs. 91.4%E). Margins were suppressed by higher than anticipated cat losses (3.8% on CR versus 2.0%E), but missed our assumption on a core basis as well (CR ex. cats and PYD 89.9% vs. 89.7%E). Meanwhile, premium growth was strong on both a net written (+19.1% vs. +12.5%E) and earned basis (+16.5% vs. +12.6%E). Management attributed the strong premium growth to new accounts, increased volumes from existing accounts, and price increases. Favorable pricing conditions and the rise in reinsurance costs prompted the company to retain more business than in the past.

Table 4: Insurance Key Metrics

$ in millions

	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23E	4Q23A
Net written premiums	1,036	4,148	1,207	1,228	1,369	1,217	5,021	1,437	1,454	1,522	1,369	1,449
Premium Growth (y/y)	23.7%	31.2%	21.3%	27.5%	18.6%	17.4%	21.0%	19.1%	18.4%	11.2%	12.5%	19.1%
Losses and LAE ex. cats and PYD	57.5%	59.5%	55.5%	56.0%	56.0%	56.2%	56.0%	54.8%	55.2%	55.7%	55.7%	55.1%
Catastrophe losses	2.0%	5.6%	3.1%	1.5%	13.4%	2.8%	5.3%	1.6%	2.6%	2.6%	2.0%	3.8%
PYD (favorable) / unfavorable	-0.3%	-0.4%	-0.1%	-0.4%	-0.1%	-0.3%	-0.2%	-0.5%	-0.5%	-0.8%	-0.3%	-0.5%
Loss ratio	**59.2%**	**64.6%**	**58.5%**	**57.1%**	**69.3%**	**58.7%**	**61.0%**	**55.9%**	**57.3%**	**57.5%**	**57.4%**	**58.4%**
Acquisition expense ratio	18.8%	16.7%	19.1%	19.4%	19.6%	19.6%	19.4%	19.5%	19.9%	19.1%	19.5%	19.1%
Operating expense ratio	14.9%	15.4%	16.2%	14.6%	13.9%	13.8%	14.6%	15.5%	14.7%	14.3%	14.5%	15.7%
Expense ratio	**33.7%**	**32.1%**	**35.3%**	**34.0%**	**33.5%**	**33.5%**	**34.0%**	**35.0%**	**34.6%**	**33.4%**	**34.0%**	**34.8%**
Combined ratio	**93.0%**	**96.8%**	**93.8%**	**91.1%**	**102.8%**	**92.1%**	**95.1%**	**90.9%**	**91.9%**	**90.9%**	**91.4%**	**93.2%**
Combined ratio ex cats & PYD	91.3%	91.6%	90.8%	90.0%	89.5%	89.6%	90.0%	89.8%	89.8%	89.1%	89.7%	89.9%
Underwriting Income (Loss)	**71**	**117**	**63**	**98**	**(34)**	**98**	**225**	**114**	**108**	**129**	**121**	**99**

Source: Company reports and J.P. Morgan estimates.

Arch's primary P&C business is benefiting from favorable pricing, but we expect margin improvement in the business to be less than implied by price hikes. After shrinking its "cycle managed" business (now called as wholesale/large capacity) from 2012 to 2017, ACGL is seeing strong growth in this part of its primary book, driven by price hikes in the broader market, particularly in E&S. Results in less opportunistic parts of ACGL's book (specialty small/middle market and franchise) have been healthy as well. High inflation and rising reinsurance costs are driving an uptick in insurance pricing, especially in property and cat-exposed lines. Despite the increase in prices, we do not anticipate a material improvement in primary commercial lines margins at Arch and peers due to headwinds from higher inflation and reinsurance costs. Management teams at insurance underwriters as well as many investors are optimistic about improving non-cat margins at commercial insurers, but **we feel that assessing results on a non-cat basis is not as relevant given the significant increase in reinsurance retentions at primary companies.** On an overall combined ratio basis, results for most primary insurers were weak in 2023 given elevated cat losses. In contrast, reinsurers' cat losses have not increased to the same extent. We feel that consensus EPS forecasts for commercial lines insurers do not adequately reflect the shift in cat loads from reinsurers to primary carriers following the uptick in retention levels with 1/1/2023 reinsurance renewals.

Reinsurance: Robust Margins Lifted Results

The reinsurance business reported strong margins and premium growth, consistent with the trends in recent quarters. The business reported underwriting income of $330 million in 4Q23, considerably above our $274 million assumption, helped by upside in margins. The combined ratio was 80.1% in 4Q23 versus our 82.9% assumption as lower attritional losses (48.5% vs. 57.9%E) offset slightly less favorable reserve development (-1.3% vs. -5.3%E) and an uptick in the acquisition expense ratio (22.5% vs. 21.0%E). ACGL attributed the uptick in the acquisition expense ratio to business mix, not a change in market dynamics. Gross written premiums were weaker than expected (+9.7% vs. +15.0%E), but were healthy nonetheless. Net written premium were flat, but this was more due to a few non-recurring transactions in 4Q22, absent which they would have increased 25.6%. Management sounded upbeat on Arch's positioning amid capacity constraints in the property cat market. The increase in reinsurance attachment points in early 2023 shifted the risk of cat losses from reinsurers to primary carriers and management indicated that terms remained fairly consistent with 1/1/24 renewals. Conversely, contrary to its initial expectation, management has not seen a marked improvement in pricing and terms in the casualty market.

Table 5: Reinsurance Key Metrics

$ in millions

	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23E	4Q23A
Net written premiums	709	3,254	1,139	1,163	1,079	1,543	4,924	1,726	1,709	1,562	1,447	1,557
Premium Growth (y/y)	44.5%	32.4%	14.0%	25.7%	73.6%	117.6%	51.3%	51.5%	47.0%	44.8%	-6.3%	0.9%
Losses and LAE ex. cats and PYD	54.9%	57.9%	52.6%	55.3%	58.4%	57.4%	56.2%	56.6%	50.8%	49.9%	57.9%	48.5%
Catastrophe losses	6.7%	15.4%	6.7%	7.1%	39.1%	0.0%	12.9%	4.4%	6.3%	9.3%	5.0%	5.1%
PYD (favorable) / unfavorable	-6.4%	-5.6%	-2.8%	-4.5%	-4.9%	-4.5%	-4.3%	-3.4%	-1.8%	-2.8%	-5.3%	-1.3%
Loss ratio	**55.2%**	**67.8%**	**56.5%**	**57.9%**	**92.6%**	**52.9%**	**64.9%**	**57.6%**	**55.3%**	**56.4%**	**57.7%**	**52.3%**
Acquisition expense ratio	20.0%	18.9%	21.4%	20.4%	20.8%	19.9%	20.5%	21.1%	21.6%	19.7%	21.0%	22.5%
Operating expense ratio	7.9%	7.5%	8.7%	7.1%	6.3%	5.6%	6.8%	5.6%	5.1%	4.0%	4.2%	5.2%
Expense ratio	**27.9%**	**26.4%**	**30.1%**	**27.5%**	**27.1%**	**25.5%**	**27.3%**	**26.7%**	**26.7%**	**23.7%**	**25.2%**	**27.8%**
Combined ratio	**83.1%**	**94.2%**	**86.6%**	**85.5%**	**119.7%**	**78.5%**	**92.2%**	**84.3%**	**82.0%**	**80.0%**	**82.9%**	**80.1%**
Combined ratio ex cats & PYD	82.8%	84.3%	82.7%	82.9%	85.5%	83.0%	83.5%	83.3%	77.5%	73.5%	83.1%	76.3%
Underwriting Income (Loss)	**133**	**170**	**109**	**139**	**(197)**	**263**	**314**	**213**	**245**	**310**	**274**	**330**

Source: Company reports and J.P. Morgan estimates.

We are skeptical of sustained hard reinsurance pricing, but market trends are holding up better than our initial expectations and we believe that Arch is better

positioned than peers in the current environment. ACGL's reinsurance segment was initially established to take advantage of the hard market for casualty coverage in the early 2000s. Over the years, however, management has shifted Arch Re's business mix away from casualty risks towards other specialty lines such as surety, accident and health, agriculture, and trade credit, which are generally less competitive and have more attractive risk-reward. The hard pricing environment has boosted results in recent years and is causing management to increase its exposure to property coverages. This, in turn, should drive continued strong premiums and margins in the near term. Still, we expect the pace of price hikes to moderate longer term and remain skeptical of a sustained hard reinsurance market. Factors that contributed to a multi-year soft market prior to 2018 (glut of capital, greater fluidity/speed of capital, more providers of capacity, broker consolidation) are still prevalent, and should preclude prolonged hard pricing. On a positive note, ACGL's reinsurance results could benefit from the release of COVID-related reserves, a portion of which remain in IBNR. Similarly, loss reserves for Ian could ultimately prove to be too conservative (most reinsurers booked higher Ian-related losses than primary carriers).

Raising EPS Estimates

We are increasing our 2024 EPS forecast from $7.36 to $7.76. Our revised model reflects higher than previously assumed margins in the reinsurance and MI businesses. We consider catastrophe losses (which would affect reinsurance and insurance margins) and housing market conditions (which affect MI margins and premium growth) the key sources of potential variance in reported results and our projections.

Arch Capital *(Neutral; Price Target: $88.00)*

Investment Thesis

We consider Arch a premier re/insurance franchise, but bullish investor sentiment and valuation keep us from being more positive on the stock. Arch is a leading reinsurance business that we project to report superior and less volatile underwriting margins over time because of its unique culture and approach to the market. Also, Arch is a top competitor in mortgage insurance (MI), which we consider structurally better business than P&C reinsurance. In the near term, we expect MI results to be marked by weak premium growth and compressing, albeit still healthy, margins as loss ratios normalize. In reinsurance, firm pricing should boost both premium growth and margins in the immediate future. However, our long-term view of the reinsurance business is cautious. The reinsurance business suffers from structural issuer such as low barriers to entry, lack of differentiation by carrier, and limited pricing power. As such, we expect sustained high margins to erode price discipline and attract additional capacity into the market. Lastly, investor sentiment on ACGL is bullish and the stock's valuation is not compelling relative to the company's long-term ROE and EPS growth potential.

Valuation

We are raising our December 2024 price target from $80 to $88 to reflect our higher EPS and book value forecasts. Our price target assumes a 1.5x multiple on our 12/31/24E BV ex. AOCI forecast, a 1.6x multiple on our 12/31/24E BV forecast, and an 11.0x multiple on our 2025 EPS estimate, and we corroborate this approach with a sum-of-the-parts analysis that values ACGL's re/insurance business separately from mortgage insurance. Our target multiples for ACGL reflect its current business mix, which has become less skewed to mortgage insurance. ACGL trades at 1.9x BV and 10.8x 2024E EPS compared to 1.2x and 6.2x for the reinsurance sector, 1.1x and 7.9x for MI peers, and 1.9x and 12.4x for the broader P&C group.

Risks to Rating and Price Target

In our opinion, ACGL could outperform and exceed our price target if:

- **Re/insurance pricing stays firm for an extended period.** A prolonged hard market could drive upside to our EPS estimates and lift sentiment on the stock.
- **Management sustains insurance underwriting margins close to the recent level.** In our view, investor sentiment could improve if ACGL is able to sustain insurance combined ratios in the low to mid 90s, a significant improvement from ~100% previously, even as the tailwind from the current hard market recedes.

We feel that the stock could underperform the group and fail to reach our target if:

- **Additional capacity enters the reinsurance market.** This, in turn, could result in a reversal in pricing trends and potentially drive a reduction in EPS estimates as well as hurt sentiment on the sector.
- **The housing market deteriorates.** Given Arch's meaningful exposure to mortgage insurance and the more systematic nature of mortgage insurance risk, rising unemployment, higher mortgage defaults, and decreasing home values would pressure the company's results and hurt sentiment on the stock.
- **The pace of reserve development moderates.** Favorable reserve development has been a notable contributor to ACGL's results in recent years. A slowdown in the pace of development could pressure margins and returns.

Arch Capital: Summary of Financials

Income Statement - Annual	FY23A	FY24E	FY25E
Earned premiums	-	-	-
Policy charges and fee income	-	-	-
Net investment income	-	-	-
Other income	-	-	-
Total revenues	**-**	**-**	**-**
Insurance and annuity benefits	-	-	-
Interest credited	-	-	-
Interest expense	(133)	(139)	(145)
Acquisition & operating expenses	(2,312)	(2,756)	(3,108)
Amortization of acquisition costs (net)	-	-	-
Other expenses	-	-	-
Total expenses	**-**	**-**	**-**
Pretax income	3,569	3,680	4,065
Income taxes	873	(294)	(610)
Total net income	4,403	3,346	3,415
Total operating income	3,201	2,952	3,033
Weighted average diluted shares	379	380	377
EPS - operating	**8.45**	**7.76**	**8.04**

Income Statement - Quarterly	1Q24E	2Q24E	3Q24E	4Q24E
Earned premiums	-	-	-	-
Policy charges and fee income	-	-	-	-
Net investment income	-	-	-	-
Other income	-	-	-	-
Total revenues	**-**	**-**	**-**	**-**
Insurance and annuity benefits	-	-	-	-
Interest credited	-	-	-	-
Interest expense	(34)	(35)	(35)	(35)
Acquisition & operating expenses	(655)	(685)	(702)	(713)
Amortization of acquisition costs (net)	-	-	-	-
Other expenses	-	-	-	-
Total expenses	**-**	**-**	**-**	**-**
Pretax income	968	912	788	1,012
Income taxes	(77)	(73)	(63)	(81)
Total net income	881	829	715	921
Total operating income	782	730	617	823
Weighted average diluted shares	380	382	381	379
EPS - operating	**2.06**	**1.91**	**1.62**	**2.17**

Balance Sheet and Capital Data	FY23A	FY24E	FY25E
Shareholders' equity	-	-	-
Shareholders' equity ex. AOCI	-	-	-
Shares outstanding	373	371	363
Book value per share	46.94	54.90	62.78
Book value per share (ex. AOCI)	48.75	56.73	64.64
Capital for share repurchases	-	-	-
Capital for dividends	-	-	-
Dividends	0.00	0.00	0.00

Ratio Analysis	FY23A	FY24E	FY25E	FY26E
EPS growth - operating	73.4%	(8.2%)	3.6%	-
Book value per share (ex. AOCI) growth	31.5%	16.4%	13.9%	-
Return on equity (ROE)	21.6%	15.6%	14.1%	-
Return on equity (ex. AOCI)	-	-	-	-
Dividend payout ratio	0.0%	0.0%	0.0%	-
Total revenue growth	-	-	-	-
Total expense growth	-	-	-	-
Tax rate	24.5%	8.0%	15.0%	-

Source: Company reports and J.P. Morgan estimates.
Note: $ in millions (except per-share data).Fiscal year ends Dec

Analyst Certification: The Research Analyst(s) denoted by an "AC" on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an "AC" on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst's personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst's analysis was made in good faith and that the views reflect the Research Analyst's own opinion, without undue influence or intervention.

All authors named within this report are Research Analysts who produce independent research unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

Important Disclosures

- **Market Maker:** J.P. Morgan Securities LLC makes a market in the securities of Arch Capital.
- **Market Maker/ Liquidity Provider:** J.P. Morgan is a market maker and/or liquidity provider in the financial instruments of/related to Arch Capital.
- **Client:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients: Arch Capital.
- **Client/Non-Investment Banking, Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-investment-banking, securities-related: Arch Capital.
- **Client/Non-Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-securities-related: Arch Capital.
- **Non-Investment Banking Compensation Received:** J.P. Morgan has received compensation in the past 12 months for products or services other than investment banking from Arch Capital.
- **Debt Position:** J.P. Morgan may hold a position in the debt securities of Arch Capital, if any.

Company-Specific Disclosures: Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan–covered companies, and certain non-covered companies, by visiting https://www.jpmm.com/research/disclosures, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request.

Arch Capital (ACGL, ACGL US) Price Chart

Source: Bloomberg Finance L.P. and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage Dec 15, 2003. All share prices are as of market close on the previous business day.

Date	Rating	Price ($)	Price Target ($)
28-Apr-21	N	40.49	40
01-Jul-21	N	38.94	44
28-Oct-21	N	42.33	46
09-Feb-22	N	48.20	48
01-Apr-22	N	48.42	51
27-Apr-22	N	46.51	52
06-Jul-22	N	44.44	53
27-Jul-22	N	44.24	54
26-Oct-22	N	49.22	57
04-Jan-23	N	62.46	58
31-Mar-23	N	67.86	62
26-Apr-23	N	72.59	67
06-Jul-23	N	73.62	75
26-Jul-23	N	81.36	82
30-Oct-23	N	81.36	86
08-Jan-24	N	76.81	80

The chart(s) show J.P. Morgan's continuing coverage of the stocks; the current analysts may or may not have covered it over the entire period.
J.P. Morgan ratings or designations: OW = Overweight, N= Neutral, UW = Underweight, NR = Not Rated

Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:
J.P. Morgan uses the following rating system: Overweight (over the duration of the price target indicated in this report, we expect this stock will outperform the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe); Neutral (over the duration of the price target indicated in this report, we expect this stock will perform in line with the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe); and Underweight (over the duration of the price target indicated in

this report, we expect this stock will underperform the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe. NR is Not Rated. In this case, J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap Equity Research, each stock's expected total return is compared to the expected total return of a benchmark country market index, not to those Research Analysts' coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying Research Analyst's coverage universe can be found on J.P. Morgan's Research website, https://www.jpmorganmarkets.com.

Coverage Universe: Bhullar, Jimmy S: AFLAC, Inc. (AFL), Allstate (ALL), American International Group (AIG), Aon (AON), Arch Capital (ACGL), Brighthouse Financial (BHF), Chubb Ltd (CB), Corebridge Financial (CRBG), Equitable Holdings Inc (EQH), Globe Life Inc (GL), Hartford Financial Services (HIG), Lincoln National (LNC), Marsh & McLennan (MMC), MetLife, Inc. (MET), Principal Financial Group (PFG), Progressive (PGR), Prudential Financial (PRU), Reinsurance Group of America (RGA), RenaissanceRe (RNR), Ryan Specialty Group (RYAN), Travelers Cos (TRV), Unum Group (UNM), Voya Financial, Inc. (VOYA)

J.P. Morgan Equity Research Ratings Distribution, as of January 01, 2024

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage*	47%	39%	13%
IB clients**	48%	43%	32%
JPMS Equity Research Coverage*	46%	42%	12%
IB clients**	68%	63%	46%

***Please note that the percentages may not add to 100% because of rounding.**
****Percentage of subject companies within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.**
For purposes of FINRA ratings distribution rules only, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

Equity Valuation and Risks: For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at http://www.jpmorganmarkets.com, contact the primary analyst or your J.P. Morgan representative, or email research.disclosure.inquiries@jpmorgan.com. For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are available to download on the company pages of our client website, http://www.jpmorganmarkets.com. This report also sets out within it the material underlying assumptions used.

A history of J.P. Morgan investment recommendations disseminated during the preceding 12 months can be accessed on the Research & Commentary page of http://www.jpmorganmarkets.com where you can also search by analyst name, sector or financial instrument.

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

UK MIFID FICC research unbundling exemption: UK clients should refer to UK MIFID Research Unbundling exemption for details of J.P. Morgan's implementation of the FICC research exemption and guidance on relevant FICC research categorisation.

All research material made available to clients are simultaneously available on our client website, J.P. Morgan Markets, unless specifically permitted by relevant laws. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research material available on a particular stock, please contact your sales representative.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).

J.P. Morgan Research may, from time to time, write on issuers or securities targeted by economic or financial sanctions imposed or administered by the governmental authorities of the U.S., EU, UK or other relevant jurisdictions (Sanctioned Securities). Nothing in this report is intended to be read or construed as encouraging, facilitating, promoting or otherwise approving investment or dealing in such Sanctioned Securities. Clients should be aware of their own legal and compliance obligations when making investment decisions.

Any digital or crypto assets discussed in this research report are subject to a rapidly changing regulatory landscape. For relevant regulatory advisories on crypto assets, including bitcoin and ether, please see https://www.jpmorgan.com/disclosures/cryptoasset-disclosure.

The author(s) of this research report may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so.

Exchange-Traded Funds (ETFs): J.P. Morgan Securities LLC ("JPMS") acts as authorized participant for substantially all U.S.-listed ETFs. To the extent that any ETFs are mentioned in this report, JPMS may earn commissions and transaction-based compensation in connection with the distribution of those ETF shares and may earn fees for performing other trade-related services, such as securities lending to short sellers of the ETF shares. JPMS may also perform services for the ETFs themselves, including acting as a broker or dealer to the ETFs. In addition, affiliates of JPMS may perform services for the ETFs, including trust, custodial, administration, lending, index calculation and/or maintenance and other services.

Options and Futures related research: If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit https://www.theocc.com/components/docs/riskstoc.pdf for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf for a copy of the Security Futures Risk Disclosure Statement.

Changes to Interbank Offered Rates (IBORs) and other benchmark rates: Certain interest rate benchmarks are, or may in the future become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: https://www.jpmorgan.com/global/disclosures/interbank_offered_rates

Private Bank Clients: Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

Legal entity responsible for the production and distribution of research: The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

Legal Entities Disclosures and Country-/Region-Specific Disclosures:
Argentina: JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA"- Central Bank of Argentina) and Comisión Nacional de Valores ("CNV"- Argentinian Securities Commission - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited ("JPMSAL") (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market Participant of ASX Limited, a Clearing and Settlement Participant of ASX Clear Pty Limited and a Clearing Participant of ASX Clear (Futures) Pty Limited. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting https://www.jpmm.com/research/disclosures. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia's Research Independence Policy which can be found at the following link: J.P. Morgan Australia - Research Independence Policy. **Brazil**: Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / 0800-7700810 (For Hearing Impaired) / ouvidoria.jp.morgan@jpmorgan.com. **Canada**: J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Canadian Investment Regulatory Organization and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai International Financial Centre (DIFC)**: JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed by JP Morgan Chase Bank, N.A., Dubai Branch to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan SE ("JPM SE"), which is authorised as a credit institution by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and jointly supervised by the BaFin, the German Central Bank (Deutsche Bundesbank) and the European Central Bank (ECB). JPM SE is a company headquartered in Frankfurt with registered address at TaunusTurm, Taunustor 1, Frankfurt am Main, 60310, Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective implementation in their home jurisdictions ("EEA professional investors"). This material must not be acted on or relied on by persons who are not EEA professional investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong**: J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A.,

Hong Kong Branch (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. Where the distribution of this material is a regulated activity in Hong Kong, the material is distributed in Hong Kong by or through J.P. Morgan Securities (Asia Pacific) Limited and/or J.P. Morgan Broking (Hong Kong) Limited. **India**: J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai – 400098, is registered with the Securities and Exchange Board of India (SEBI) as a 'Research Analyst' having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number – INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: http://www.jpmipl.com. JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. Compliance Officer: Spurthi Gadamsetty; spurthi.gadamsetty@jpmchase.com; +912261573225. Grievance Officer: Ramprasadh K, jpmipl.research.feedback@jpmorgan.com; +912261573000.

Investment in securities market are subject to market risks. Read all the related documents carefully before investing. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors.

Indonesia: PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is registered and supervised by the Otoritas Jasa Keuangan (OJK). **Korea**: J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan**: JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia**: This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico**: J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **New Zealand**: This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Markets Conduct Act 2013). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Philippines**: J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Singapore**: This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMSS) [MCI (P) 030/08/2023 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore), both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMSS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. **South Africa**: J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Conduct Authority (FSCA). **Taiwan**: J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. **Thailand**: This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc ("JPMS plc") which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 ("the FPO"); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as "UK relevant persons". This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: J.P. Morgan EMEA - Research Independence Policy. **U.S.**: J.P. Morgan Securities LLC ("JPMS") is a member of the NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

General: Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. There may be certain discrepancies with data and/or limited content in this material as a result of calculations, adjustments, translations to different languages, and/or local regulatory restrictions, as applicable. These discrepancies should not impact the overall investment analysis, views and/or recommendations of the subject company(ies) that may be discussed in the material. J.P. Morgan accepts no liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. This material may include views on structured securities, options, futures and other derivatives. These are complex instruments, may involve a high degree of risk and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

Confidentiality and Security Notice: This transmission may contain information that is privileged, confidential, legally privileged, and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of the information contained herein (including any reliance thereon) is STRICTLY PROHIBITED. Although this transmission and any attachments are believed to be free of any virus or other defect that might affect any computer system into which it is received and opened, it is the responsibility of the recipient to ensure that it is virus free and no responsibility is accepted by JPMorgan Chase & Co., its subsidiaries and affiliates, as applicable, for any loss or damage arising in any way from its use. If you received this transmission in error, please immediately contact the sender and destroy the material in its entirety, whether in electronic or hard copy format. This message is subject to electronic monitoring: https://www.jpmorgan.com/disclosures/email

MSCI: Certain information herein ("Information") is reproduced by permission of MSCI Inc., its affiliates and information providers ("MSCI") ©2024. No reproduction or dissemination of the Information is permitted without an appropriate license. MSCI MAKES NO EXPRESS OR IMPLIED WARRANTIES (INCLUDING MERCHANTABILITY OR FITNESS) AS TO THE INFORMATION AND DISCLAIMS ALL LIABILITY TO THE EXTENT PERMITTED BY LAW. No Information constitutes investment advice, except for any applicable Information from MSCI ESG Research. Subject also to msci.com/disclaimer

"Other Disclosures" last revised February 03, 2024.

Completed 14 Feb 2024 09:26 PM EST

Disseminated 14 Feb 2024 09:30 PM EST