Deutsche Bank Research



Economics

US Economic Notes

Date 29 August 2025

What you need to know for the week ahead

Figure	1: DB economic forecasts				
		2025F	2026F	2027F	
		Q4/Q4	Q4/Q4	Q4/Q4	
	Real GDP	1.5	2.0	2.2	
	Unemployment rate, %	4.5	4.4	4.3	
	Core CPI	3.1	2.8	2.4	
	Fed Funds	3.875	3.625	3.625	

Source: Deutsche Bank Research

Figure 2: Webinar

Post Employment Conference Call

Friday Sep 05, 9:00 am EDT

To register for the call, please contact your

DB sales rep or go to the following URL:

https://www.dbresearch.com/REPO/RPS EN-

PROD/PROD0000000000600974.link

Source: Deutsche Bank Research

Brett Ryan Senior US Economist +1-212-250-6294

Matthew Luzzetti, Ph.D.

Chief US Economist +1-212-250-6161

Justin Weidner Economist

+1-212-469-1679

Amy Yang

Economist

+1-212-250-9959

Commentary for Tuesday: This week's holiday-shortened economic calendar features a healthy dose of data amidst a light sprinkling of Fedspeak. Friday's employment report will undoubtedly be the focus for both market participants and the Fed. We expect headline (100k forecast vs. 73k previously) and private (+100k vs. 83k) payrolls to improve a bit relative to their trailing three-month averages of 35k and 52k, respectively. If our forecasts prove close to the mark, the unemployment rate should remain steady at 4.2%, though there is risk that it rounds down to 4.1%. Regarding other details of the report, average hourly earnings (+0.3% vs. +0.3%) and hours worked (34.3hrs vs. 34.3hrs) should remain steady, with the upshot being that the year-over-year growth rate of our payroll proxy for nominal income would fall by roughly 40bps to 4.8% - a still healthy level supportive of consumer spending. As always, we will host our client webinar to discuss the employment data and implications for the policy outlook at 9:00AM. To register, please click here.

With respect to our payroll forecasts, though we expect a mild uptick from July, as we have noted over the past couple of months, we have noticed a pattern of subdued summer payroll gains – at least relative to their January-May averages – over the past couple of years. For example, average private payrolls from June – August of 2023 were roughly 32% below their January – May average. In 2024,



the drop-off was even more pronounced with the average June – August private payrolls a little over 65% below their January – May average. However, we believe the breakeven rate of payroll gains (that is, the pace of job growth that would keep the unemployment rate steady) is somewhere in the range of 50k-100k per month at present (see "US Economic Perspectives: Potential paths for breakeven employment").

With respect to the household survey, as we discussed in detail (see "<u>US</u> <u>Economic Perspectives: The missed education of the July employment report</u>"), the 39% increase in those unemployed who were new entrants in July was the largest since the early months of the pandemic and absent the pandemic, the largest on record. Indeed, those aged 16-19 made up about 60% of those unemployed new entrant workers in July. Moreover, the unemployment rate for 18-19 year olds has jumped by 2.9ppts between May and July. However, the unemployment rate for 20-24 year olds fell by 0.3ppts over the same period and was unchanged for those 25 and over including prime age (25-54). In short, there is a risk that outsized weakness in the 16-19 age cohort could unwind in August, thus resulting in the unemployment rate rounding down to 4.1%.

Given that Chair Powell's Jackson Hole speech leaned toward a near-term rate cut, it would likely take massive outperformance on nonfarm payroll gains for market participants to question the Fed cutting at the September 17 FOMC meeting. However, a steady unemployment rate (or even a decline) could alleviate some fears of a material downshift in the labor market, keeping the Fed cautious on further rate cuts beyond the next meeting.

Recall that last week Fed Governor Waller argued that while his base case was for a 25bps reduction in September, he could potentially support a larger 50bps cut if the jobs data points to a "substantially weakening economy and inflation remains well contained." In his speech, he specifically cited the recent rise in teenage unemployment, which in his view signalled a downshift in labor demand. Hence, if the rise in teenage unemployment over the past couple of months reverses in August, it could allay some of Governor Waller's concerns. The same can be said for this Thursday's ADP employment survey (+100k vs. +104k), and Wednesday's July JOLTS, which Waller also name checked as indicators he was keeping a close eye on.

Regarding this week's Fedspeak, there are a few appearances on the docket as of this writing, though all officials are set to speak prior to the August employment report. NY Fed President Williams will give an outlook speech on Thursday. He recently indicated that every meeting will be "live", and we expect his overall tone to broadly match Chair Powell's signals at Jackson Hole. As a reminder, following Powell's address, which cautiously signaled his support for a near-term rate, we adjusted our Fed view. We expect the Fed to cut rates by 25bps in September, followed by similar sized reductions in December and March (see "Powell's speech at Jackson supports September action").

Prior to Williams, St. Louis Fed President Musalem (voter) will speak about the US economy and monetary policy on Wednesday. Although Musalem has been generally hawkish since joining the Fed, his latest comments signaled some openness to reducing rates. On Thursday, Chicago's Goolsbee (voter) will appear in a moderated Q&A. Goolsbee has leaned hawkish of late, expressing concerns around persistent inflation and the recent acceleration in services prices in

Deutsche Bank Securities Inc. Page 2



particular. If he maintains this view, he is a potential hawkish dissent risk at the September FOMC meeting if the Committee decides to cut rates, pending key upcoming data releases. Kansas City's Schmid (voter) may also be a hawkish dissent risk.

Beyond the Fedspeak, markets will be glued to the latest newsflow around President Trump's removal of Fed Governor Cook. At the time of writing, the court hearing on the injunction yielded no decision from the judge presiding over the case and further filings are expected this Tuesday. Last week we discussed a few possible implications if Cook were to be removed and Trump were to achieve a majority of the Board. Among the risks we cited was the potential for the Board to not approve some regional presidents who come up for approval early next year (see "Fed Notes: What the announcement of Cook's removal means for the Fed ").

Other data releases this week will provide the Fed more color on recent labor trends as well as clues on current-quarter economic activity. We expect mixed headline results from Tuesday's manufacturing ISM (49.3 vs. 48.0) and Thursday's services ISM (49.8 vs. 50.1), though the focus will likely be on the employment indicators within the two series. Recall that the employment components of both series have slipped over the last couple of months, another signal of cooling labor demand cited by Governor Waller.

Tuesday's construction spending (+0.5% vs. -0.4%), Wednesday's unit motor vehicle sales (16.2mn vs. 16.4mn) and Thursday's international trade balance (\$-\$77.8bn vs. -\$60.2bn) will all inform analysts' estimates for Q3 real GDP growth. On the back of last week's advanced data on durable goods, trade and consumption, we raised our Q3 real GDP growth forecast by 90bps to 2.0%. Though our Q4 growth forecast fell by 20bps to 1.1%, the upshot is that our Q4/Q4 real GDP projection increased by 30bps to 1.5%.

In summary, this week's docket will help shape the policy discussion and the messaging coming out of the September FOMC meeting. With Fed officials showing sharp divisions between those more concerned with inflation and those who see greater risks to the labor market, this week's employment data, while unlikely to settle the debate, could nonetheless move one camp closer to the other.

Region	Name	Date	Dove/Hawk	Voter	Events
St. Louis	Musalem	3-Sep	Hawk	Υ	Speaks on economy and policy at Peterson
FRB	FRB	3-Sep			Beige Book
New York	Williams	4-Sep	Dove	Υ	Speaks on economic outlook and monetary policy
Chicago	Goolsbee	4-Sep	Dove	Υ	Appears in a moderated Q&A
FRB	FRB	Sep-6 - Sep-18	1		External Communications Blackout

Please see the following pages for a forecast summary and estimates of the upcoming US high-frequency data over the next several weeks.

Deutsche Bank Securities Inc.



Figure 4: DB Econor)25		1		026		ı	00	27		2025F	2026F	2027F
•															
(% qoq, saar)	Q1F	Q2F	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F	Q4/Q4	Q4/Q4	Q4/Q4
GDP	-0.5	3.3	2.0	1.1	1.5	1.8	2.2	2.4	2.2	2.4	2.1	2.2	1.5	2.0	2.2
Private consumption	0.5	1.6	1.9	1.5	1.6	1.7	1.9	2.1	2.1	2.2	2.1	2.2	1.4	1.8	2.1
Investment	23.8	-13.8	5.3	2.5	1.4	2.5	3.2	4.2	3.1	3.6	2.7	2.5	3.6	2.8	3.0
Nonresidential	10.3	5.7	3.2	0.9	1.2	2.2	2.5	2.4	2.8	2.9	3.3	3.2	5.0	2.1	3.0
Residential	-1.3	-4.7	-2.0	-3.0	-2.0	2.0	3.0	3.0	2.5	2.4	2.6	2.3	-2.8	1.5	2.4
Gov't consumption	-0.6	-0.2	-0.3	-1.8	1.1	1.8	1.6	1.6	1.4	1.5	1.5	1.5	-0.7	1.5	1.5
Exports	0.4	-1.3	3.6	1.5	1.6	2.1	2.1	2.0	2.0	2.1	2.0	2.1	1.0	1.9	2.0
Imports	38.0	-29.8	5.5	2.1	1.7	1.9	1.7	1.9	2.1	2.0	1.9	2.0	1.1	1.8	2.0
Contribution (pp): Inventories	2.6	-3.3	0.4	0.4	0.2	0.1	0.1	0.3	0.1	0.2	-0.1	-0.1	0.0	0.0	0.1
Net trade	-4.6	4.9	-0.4	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1
Unemployment rate, %	4.1	4.2	4.3	4.5	4.5	4.5	4.4	4.4	4.3	4.3	4.3	4.3	4.5	4.4	4.3
Prices (% yoy)															
CPI	2.7	2.5	2.9	3.1	3.1	3.3	3.1	2.7	2.5	2.5	2.5	2.5	3.1	2.7	2.5
Core CPI	3.1	2.8	3.0	3.1	3.1	3.2	3.1	2.8	2.6	2.5	2.5	2.4	3.1	2.8	2.4
PCE	2.5	2.4	2.8	3.1	3.0	3.1	2.8	2.5	2.3	2.1	2.1	2.1	3.1	2.5	2.1
Core PCE	2.8	2.7	3.0	3.1	3.1	3.1	2.9	2.6	2.4	2.1	2.1	2.1	3.1	2.6	2.1
Fed Funds	4.375	4.375	4.125	3.875	3.625	3.625	3.625	3.625	3.625	3.625	3.625	3.625	3.875	3.625	3.625



Figure	5: Data	Cale	ndar ar	nd DB F	orecas	ts													
Aug-25	0. Date	. • • • •	Tradi di	Aug-26	0.0000			Aug-27				Aug-28				Aug-29			
New Home	Sales				oods Order	e		5 Yr Note	Auction		\$70bn	Initial Claims				Personal II	ncome		
10:00 AM	May:	630k		8:30 AM	May:	Jun:	Jul:	2 Yr FRN A			\$28bn	8:30AM	Aug-09	224k	-3k	8:30 AM	May:	Jun:	Jul:
10.00 AW	Jun:	656		Headline	+16.5%	-9.4	-2.8	2 11 111117	detion		\$20011	0.50/101	Aug-16	234	+10	Income	-0.4%	+0.3	+0.4
	Jul:	652		Ex-Trans.	+0.6%	+0.3	+1.1						Aug-23	229	-5	Consump.	Unch.	+0.4	+0.5
	Jul.	032		Core	+1.9%	-0.6	+1.1					Real GDP	Aug-25	225	Deflator	Core PCE	+0.2%	+0.3	+0.3
				1	Confidence		Ŧ1.1					8:30 AM	4024:	+2.4%	+2.3%	Advance G			
				10:00 AM	Jun:	95.2						0.50 AIVI	1025:	-0.5	+3.8	8:30 AM	Mav:	-\$96.6B	
				10.00 AIVI	Jul:	98.7						Prelim:	2025:	+3.3	+2.0	0.30 AIVI	Jun:	-86.0	
					Aug:	97.4						1	ome Sales		T2.0		Jul:	-103.6	
				2 Yr Note A	-	37.4	\$69bn					10:00 AM	May:	+1.8%		Chicago P		-103.0	
				2 II Note A	Auction		\$05011					10.00 AIVI	Jun:	-0.8		9:45 AM	Jun:	40.4	
													Jul:	-0.4		9.45 AIVI	Jul:	47.1	
												7 Yr Note		-0.4	\$44bn		Aug:	41.5	
												/ II Note	Auction		\$44011	Canaumas			
																Consumer 10:00 AM	Jun:	60.7	
																10.00 AIVI		61.7	
																Cia-ti	Jul:		
FORECA	CT															Final:	Aug:	58.2	
	31			C 00				C 02				C== 04				C 05			
Sep-01	labor D-	11=0:4-		Sep-02				Sep-03				Sep-04				Sep-05			
	Labor Day			ISM Index	to an	40.0		July JOLTS		eased		1	oyment Re			Employme		1.4	
	(US market	s closed	1)	10:00 AM	Jun:	49.0		Factory Or				8:15 AM	Jun:	-23k		8:30 AM	Jun:	Jul:	Aug:
					Jul:	48.0		10:00 AM	May:	+8.3%			Jul:	+104		Payrolls	+14k	+73	+100
					Aug:	49.3			Jun:	-4.8			Aug:	+100		Private	+3k	+83	+100
				1	on Spendin				Jul:	-2.1		Initial Clai				UnRate	4.1%	4.2	4.2
				10:00 AM	May:	-0.4%		Fed's Beig				8:30AM	Aug-16	234k	+10k	Hrly Erngs	+0.2%	+0.3	+0.3
					Jun:	-0.4		Unit motor					Aug-23	229	-5	Workwk	34.2	34.3	34.3
					Jul:	+0.5			Jun:	15.3			Aug-30	221	-7				
									Jul:	16.4		Productivi			ULCs				
									Aug:	16.2		8:30AM	4024:	+1.7%	+3.8%	ISM Service			
													1Q25:	-1.8	+6.9	10:00 AM	Jun:	50.8	
												Final:	2025:	+2.4	+1.6		Jul:	50.1	
												1	nal Trade B				Aug:	49.8	
												8:30 AM	May:	-\$71.7B		3 Yr Note	Announcer	nent	\$58bn
													Jun:	-60.2		10 Yr Note			\$39bn
													Jul:	-77.8		30 Yr Bond	Announce	ement	\$22bn
Sep-08				Sep-09				Sep-10				Sep-11				Sep-12			
Consumer				3 Yr Note A	Auction		\$58bn	PPI		Total	Core	CPI Price		Total	Core	Consumer	Sentiment		
3:00 PM	May:	+\$5.1B						8:30AM	Jun:	Unch.	Unch.	8:30AM	Jun:	+0.3%	+0.2%	10:00 AM	Jul:	61.7	
	Jun:	+7.4							Jul:	+0.9	+0.9		Jul:	+0.2	+0.3		Aug:	58.2	
	Jul:	+10.0							Aug:	+0.3	+0.3		Aug:	+0.31	+0.28	Prelim:	Sep:	66.0	
								Wholesale	Inventorio	es		20 Yr Bond	Announce	ement	\$13bn				
								10:00 AM	May:	-0.3%		10 Yr TIPS	Announce	ment	\$19bn				
									Jun:	+0.1		30 Yr Bond	Auction		\$22bn				
									Jul:	-O. 1									
								10 Yr Note	Auction		\$39bn								
Sep-15				Sep-16				Sep-17				Sep-18				Sep-19			
NY Fed Em	pire State	Survey		Retail Sale	s			Housing		Starts	Permits	Philadelph	ia Fed						
8:30AM	Jul:	+5.5		8:30AM	Jun:	Jul:	Aug:	8:30AM	Jun:	1.358M	1.393M	08:30AM	Jul:	+15.9					
	Aug:	+11.9		Total	+0.9%	+0.5	+0.3		Jul:	1.428	1.362		Aug:	-0.3					
	Sep:	+1.0		Ex Autos	+0.8%	+0.3	+0.3		Aug:	1.375	1.390		Sep:	+5.1					
				Control	+0.8%	+0.5	+0.3	FOMC Mee				Leading E	conomic Ir	ndicators					
				Industrial I	Production		Cap. Util					10:00AM	Jun:	-0.3%					
				9:15AM	Jun:	+0.4%	77.7%						Jul:	-0.1					
					Jul:	-0.1	77.5						Aug:	+0.1					
NAHB Hou	sing Marke	t Index		-	Aug:	+0.1	77.6					2 Yr Note			\$69bn				
10:00 AM	Jul:	33		Business I								5 Yr Note	Announcen	nent	\$70bn				
	Aug:	32		10:00 AM	May:	Unch.						1	Announcen		\$44bn				
	Sep:	32			Jun:	+0.2						2 Yr FRN A			\$28bn				
20 Yr Bond			\$13bn		Jul:	-0.1						10 Yr TIPS			\$19bn				
Sep-22				Sep-23				Sep-24				Sep-25				Sep-26			

Source: BEA, BLS, ISM, FRB & Deutsche Bank Research



Appendix 1

Analyst Certification

The views expressed in this report accurately reflect the personal views of the undersigned lead analyst(s). In addition, the undersigned lead analyst(s) has not and will not receive any compensation for providing a specific recommendation or view in this report. Matthew Luzzetti, Ph.D., Brett Ryan, Justin Weidner, Amy Yang.

Important Disclosures

Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Other information is sourced from Deutsche Bank, subject companies, and other sources. For further information regarding disclosures relevant to Deutsche Bank Research, please visit our global disclosure look-up page on our website at https://research.db.com/Research/Disclosures/FICCDisclosures. Aside from within this report, important risk and conflict disclosures can also be found at <a href="https://research.db.com/Research/Disclosures/D



Additional Information

The information and opinions in this report were prepared by Deutsche Bank AG or one of its affiliates (collectively 'Deutsche Bank'). Though the information herein is believed to be reliable and has been obtained from public sources believed to be reliable, Deutsche Bank makes no representation as to its accuracy or completeness. Hyperlinks to third-party websites in this report are provided for reader convenience only. Deutsche Bank neither endorses the content nor is responsible for the accuracy or security controls of those websites.

If you use the services of Deutsche Bank in connection with a purchase or sale of a security that is discussed in this report, or is included or discussed in another communication (oral or written) from a Deutsche Bank analyst, Deutsche Bank may act as principal for its own account or as agent for another person.

Deutsche Bank may consider this report in deciding to trade as principal. It may also engage in transactions, for its own account or with customers, in a manner inconsistent with the views taken in this research report. Others within Deutsche Bank, including strategists, sales staff and other analysts, may take views that are inconsistent with those taken in this research report. Deutsche Bank issues a variety of research products, including fundamental analysis, equity-linked analysis, quantitative analysis and trade ideas. Recommendations contained in one type of communication may differ from recommendations contained in others, whether as a result of differing time horizons, methodologies, perspectives or otherwise. Deutsche Bank and/or its affiliates may also be holding debt or equity securities of the issuers it writes on. Analysts are paid in part based on the profitability of Deutsche Bank AG and its affiliates, which includes investment banking, trading and principal trading revenues.

Opinions, estimates and projections constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of Deutsche Bank and are subject to change without notice. Deutsche Bank provides liquidity for buyers and sellers of securities issued by the companies it covers. Deutsche Bank research analysts sometimes have shorter-term trade ideas that may be inconsistent with Deutsche Bank's existing longerterm ratings. Some trade ideas for equities are listed as Catalyst Calls on the Research Website (https://research.db.com/Research/), and can be found on the general coverage list and also on the covered company's page. A Catalyst Call represents a high-conviction belief by an analyst that a stock will outperform or underperform the market and/or a specified sector over a time frame of no less than two weeks and no more than three months. In addition to Catalyst Calls, analysts may occasionally discuss with our clients, and with Deutsche Bank salespersons and traders, trading strategies or ideas that reference catalysts or events that may have a nearterm or medium-term impact on the market price of the securities discussed in this report, which impact may be directionally counter to the analysts' current 12-month view of total return or investment return as described herein. Deutsche Bank has no obligation to update, modify or amend this report or to otherwise notify a recipient thereof if an opinion, forecast or estimate changes or becomes inaccurate. Coverage and the frequency of changes in market conditions and in both general and company-specific economic prospects make it difficult to update research at defined intervals. Updates are at the sole discretion of the coverage analyst or of the Research Department Management, and the majority of reports are published at irregular intervals. This report is provided for informational purposes only and does not take into account the particular investment objectives, financial situations, or needs of individual clients. It is not an offer or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy. Target prices are inherently imprecise and a product of the analyst's judgment. The financial instruments discussed in this report may not be suitable for all investors, and investors must make their own informed investment decisions. Prices and availability of financial instruments are subject to change without notice, and investment transactions can lead to losses as a result of price fluctuations and other factors. If a financial instrument is denominated in a currency other than an investor's currency, a change in exchange rates may adversely affect the investment. Past performance is not necessarily indicative of future results. Performance calculations exclude transaction costs, unless otherwise indicated. Unless otherwise indicated, prices are current as of the end of the previous trading session and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is also sourced from Deutsche Bank, subject companies, and other parties. Artificial intelligence tools may be used in the preparation of this material, including but not limited to assist in fact-finding, data analysis, pattern recognition, content drafting and editorial corrections pertaining to research material.



The Deutsche Bank Research Department is independent of other business divisions of the Bank. Details regarding our organizational arrangements and information barriers we have to prevent and avoid conflicts of interest with respect to our research are available on our website (https://research.db.com/Research/) under Disclaimer.

Macroeconomic fluctuations often account for most of the risks associated with exposures to instruments that promise to pay fixed or variable interest rates. For an investor who is long fixed-rate instruments (thus receiving these cash flows), increases in interest rates naturally lift the discount factors applied to the expected cash flows and thus cause a loss. The longer the maturity of a certain cash flow and the higher the move in the discount factor, the higher will be the loss. Upside surprises in inflation, fiscal funding needs, and FX depreciation rates are among the most common adverse macroeconomic shocks to receivers. But counterparty exposure, issuer creditworthiness, client segmentation, regulation (including changes in assets holding limits for different types of investors), changes in tax policies, currency convertibility (which may constrain currency conversion, repatriation of profits and/or liquidation of positions), and settlement issues related to local clearing houses are also important risk factors. The sensitivity of fixed-income instruments to macroeconomic shocks may be mitigated by indexing the contracted cash flows to inflation, to FX depreciation, or to specified interest rates - these are common in emerging markets. The index fixings may - by construction - lag or mis-measure the actual move in the underlying variables they are intended to track. The choice of the proper fixing (or metric) is particularly important in swaps markets, where floating coupon rates (i.e., coupons indexed to a typically short-dated interest rate reference index) are exchanged for fixed coupons. Funding in a currency that differs from the currency in which coupons are denominated carries FX risk. Options on swaps (swaptions) the risks typical to options in addition to the risks related to rates movements.

Derivative transactions involve numerous risks including market, counterparty default and illiquidity risk. The appropriateness of these products for use by investors depends on the investors' own circumstances, including their tax position, their regulatory environment and the nature of their other assets and liabilities; as such, investors should take expert legal and financial advice before entering into any transaction similar to or inspired by the contents of this publication. The risk of loss in futures trading and options, foreign or domestic, can be substantial. As a result of the high degree of leverage obtainable in futures and options trading, losses may be incurred that are greater than the amount of funds initially deposited - up to theoretically unlimited losses. Trading in options involves risk and is not suitable for all investors. Prior to buying or selling an option, investors must review the 'Characteristics and Risks of Standardized Options', at https://www.theocc.com/company-information/documents-and-archives/options-disclosure-document. If you are unable to access the website, please contact your Deutsche Bank representative for a copy of this important document.

Participants in foreign exchange transactions may incur risks arising from several factors, including the following: (i) exchange rates can be volatile and are subject to large fluctuations; (ii) the value of currencies may be affected by numerous market factors, including world and national economic, political and regulatory events, events in equity and debt markets and changes in interest rates; and (iii) currencies may be subject to devaluation or government-imposed exchange controls, which could affect the value of the currency. Investors in securities such as ADRs, whose values are affected by the currency of an underlying security, effectively assume currency risk.

Unless governing law provides otherwise, all transactions should be executed through the Deutsche Bank entity in the investor's home jurisdiction. Aside from within this report, important conflict disclosures can also be found at https://research.db.com/Research/ on each company's research page or under the 'Disclosures' tab. Investors are strongly encouraged to review this information before investing.

Deutsche Bank (which includes Deutsche Bank AG, its branches and affiliated companies) is not acting as a financial adviser, consultant or fiduciary to you or any of your agents (collectively, "You" or "Your") with respect to any information provided in this report. Deutsche Bank does not provide investment, legal, tax or accounting advice, Deutsche Bank is not acting as your impartial adviser, and does not express any opinion or recommendation whatsoever as to any strategies, products or any other information presented in the materials. Information contained herein is being provided solely on the basis that the recipient will make an independent assessment of the merits of any investment decision, and it does not constitute a recommendation of, or express an opinion on, any product or service or any trading strategy.



The information presented is general in nature and is not directed to retirement accounts or any specific person or account type, and is therefore provided to You on the express basis that it is not advice, and You may not rely upon it in making Your decision. The information we provide is being directed only to persons we believe to be financially sophisticated, who are capable of evaluating investment risks independently, both in general and with regard to particular transactions and investment strategies, and who understand that Deutsche Bank has financial interests in the offering of its products and services. If this is not the case, or if You are an IRA or other retail investor receiving this directly from us, we ask that you inform us immediately.

In July 2018, Deutsche Bank revised its rating system for short term ideas whereby the branding has been changed to Catalyst Calls ("CC") from SOLAR ideas; the rating categories for Catalyst Calls originated in the Americas region have been made consistent with the categories used by Analysts globally; and the effective time period for CCs has been reduced from a maximum of 180 days to 90 days.

United States: Approved and/or distributed by Deutsche Bank Securities Incorporated, a member of FINRA and SIPC. Analysts located outside of the United States are employed by non-US affiliates and are not registered/qualified as research analysts with FINRA.

European Economic Area (exc. United Kingdom): Approved and/or distributed by Deutsche Bank AG, a joint stock corporation with limited liability incorporated in the Federal Republic of Germany with its principal office in Frankfurt am Main. Deutsche Bank AG is authorized under German Banking Law and is subject to supervision by the European Central Bank and by BaFin, Germany's Federal Financial Supervisory Authority.

United Kingdom: Approved and/or distributed by Deutsche Bank AG acting through its London Branch at 21 Moorfields, London EC2Y 9DB. Deutsche Bank AG in the United Kingdom is authorised by the Prudential Regulation Authority and is subject to limited regulation by the Prudential Regulation Authority and Financial Conduct Authority. Details about the extent of our authorisation and regulation are available on request.

Hong Kong SAR: Distributed by Deutsche Bank AG, Hong Kong Branch, except for any research content relating to futures contracts within the meaning of the Hong Kong Securities and Futures Ordinance Cap. 571. Research reports on such futures contracts are not intended for access by persons who are located, incorporated, constituted or resident in Hong Kong. The author(s) of a research report may not be licensed to carry on regulated activities in Hong Kong, and if not licensed, do not hold themselves out as being able to do so. The provisions set out above in the 'Additional Information' section shall apply to the fullest extent permissible by local laws and regulations, including without limitation the Code of Conduct for Persons Licensed or Registered with the Securities and Futures Commission. This report is intended for distribution only to 'professional investors' as defined in Part 1 of Schedule of the SFO. This document must not be acted or relied on by persons who are not professional investors. Any investment or investment activity to which this document relates is only available to professional investors and will be engaged only with professional investors.

India: Prepared by Deutsche Equities India Private Limited (DEIPL) having CIN: U65990MH2002PTC137431 and registered office at 14th Floor, The Capital, C-70, G Block, Bandra Kurla Complex, Mumbai (India) 400051. Tel: +91 22 7180 4444. It is registered by the Securities and Exchange Board of India (SEBI) as a Stock broker bearing registration no.: INZ000252437; Merchant Banker bearing SEBI Registration no.: INM000010833 and Research Analyst bearing SEBI Registration no.: INH000001741. DEIPL's Compliance / Grievance officer is Ms. Rashmi Poddar (Tel: +91 22 7180 4929 email ID: complaints.deipl@db.com). Registration granted by SEBI and certification from NISM in no way guarantee performance of DEIPL or provide any assurance of returns to investors. Investment in securities market are subject to market risks. Read all the related documents carefully before investing. DEIPL may have received administrative warnings from the SEBI for breaches of Indian regulations. Deutsche Bank and/or its affiliate(s) may have debt holdings or positions in the subject company. With regard to information on associates, please refer to the "Shareholdings" section in the Annual Report at: https://www.db.com/ir/en/annual-reports.htm

Japan: Approved and/or distributed by Deutsche Securities Inc.(DSI). Registration number - Registered as a financial instruments dealer by the Head of the Kanto Local Finance Bureau (Kinsho) No. 117. Member of associations: JSDA, Type II Financial Instruments Firms Association and The Financial Futures Association of Japan. Commissions and



risks involved in stock transactions - for stock transactions, we charge stock commissions and consumption tax by multiplying the transaction amount by the commission rate agreed with each customer. Stock transactions can lead to losses as a result of share price fluctuations and other factors. Transactions in foreign stocks can lead to additional losses stemming from foreign exchange fluctuations. We may also charge commissions and fees for certain categories of investment advice, products and services. Recommended investment strategies, products and services carry the risk of losses to principal and other losses as a result of changes in market and/or economic trends, and/or fluctuations in market value. Before deciding on the purchase of financial products and/or services, customers should carefully read the relevant disclosures, prospectuses and other documentation. 'Moody's', 'Standard Poor's', and 'Fitch' mentioned in this report are not registered credit rating agencies in Japan unless Japan or 'Nippon' is specifically designated in the name of the entity. Reports on Japanese listed companies not written by analysts of DSI are written by Deutsche Bank Group's analysts with the coverage companies specified by DSI. Some of the foreign securities stated on this report are not disclosed according to the Financial Instruments and Exchange Law of Japan. Target prices set by Deutsche Bank's equity analysts are based on a 12-month forecast period.

Korea: Distributed by Deutsche Securities Korea Co.

South Africa: Deutsche Bank AG Johannesburg is incorporated in the Federal Republic of Germany (Branch Register Number in South Africa: 1998/003298/10).

Singapore: This report is issued by Deutsche Bank AG, Singapore Branch (One Raffles Quay #18-00 South Tower Singapore 048583, 65 6423 8001), which may be contacted in respect of any matters arising from, or in connection with, this report. Where this report is issued or promulgated by Deutsche Bank in Singapore to a person who is not an accredited investor, expert investor or institutional investor (as defined in the applicable Singapore laws and regulations), they accept legal responsibility to such person for its contents.

Taiwan: Information on securities/investments that trade in Taiwan is for your reference only. Readers should independently evaluate investment risks and are solely responsible for their investment decisions. Deutsche Bank research may not be distributed to the Taiwan public media or quoted or used by the Taiwan public media without written consent. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation to trade in such securities/instruments.

Qatar: Deutsche Bank AG in the Qatar Financial Centre (registered no. 00032) is regulated by the Qatar Financial Centre Regulatory Authority. Deutsche Bank AG - QFC Branch may undertake only the financial services activities that fall within the scope of its existing QFCRA license. Its principal place of business in the QFC: Qatar Financial Centre, Tower, West Bay, Level 5, PO Box 14928, Doha, Qatar. This information has been distributed by Deutsche Bank AG. Related financial products or services are only available only to Business Customers, as defined by the Qatar Financial Centre Regulatory Authority.

Russia: The information, interpretation and opinions submitted herein are not in the context of, and do not constitute, any appraisal or evaluation activity requiring a license in the Russian Federation.

Kingdom of Saudi Arabia: Deutsche Securities Saudi Arabia (DSSA) is a closed joint stock company authorized by the Capital Market Authority of the Kingdom of Saudi Arabia with a license number (No. 37-07073) to conduct the following business activities: Dealing, Arranging, Advising, and Custody activities. DSSA registered office is Faisaliah Tower, 17th Floor, King Fahad Road - Al Olaya District Riyadh, Kingdom of Saudi Arabia P.O. Box 301806.

United Arab Emirates: Deutsche Bank AG in the Dubai International Financial Centre (registered no. 00045) is regulated by the Dubai Financial Services Authority. Deutsche Bank AG - DIFC Branch may only undertake the financial services activities that fall within the scope of its existing DFSA license. Principal place of business in the DIFC: Dubai International Financial Centre, The Gate Village, Building 5, PO Box 504902, Dubai, U.A.E. This information has been distributed by Deutsche Bank AG. Related financial products or services are available only to Professional Clients, as defined by the Dubai Financial Services Authority.



Australia and New Zealand: This research is intended only for 'wholesale clients' within the meaning of the Australian Corporations Act and New Zealand Financial Advisors Act, respectively. Please refer to Australia-specific research disclosures and related information at https://www.dbresearch.com/PROD/RPS_EN-

PROD/PROD000000000521304.xhtml . Where research refers to any particular financial product recipients of the research should consider any product disclosure statement, prospectus or other applicable disclosure document before making any decision about whether to acquire the product. In preparing this report, the primary analyst or an individual who assisted in the preparation of this report has likely been in contact with the company that is the subject of this research for confirmation/clarification of data, facts, statements, permission to use company-sourced material in the report, and/or site-visit attendance. Without prior approval from Research Management, analysts may not accept from current or potential Banking clients the costs of travel, accommodations, or other expenses incurred by analysts attending site visits, conferences, social events, and the like. Similarly, without prior approval from Research Management and Anti-Bribery and Corruption ("ABC") team, analysts may not accept perks or other items of value for their personal use from issuers they cover.

Additional information relative to securities, other financial products or issuers discussed in this report is available upon request. This report may not be reproduced, distributed or published without Deutsche Bank's prior written consent.

Backtested, hypothetical or simulated performance results have inherent limitations. Unlike an actual performance record based on trading actual client portfolios, simulated results are achieved by means of the retroactive application of a backtested model itself designed with the benefit of hindsight. Taking into account historical events the backtesting of performance also differs from actual account performance because an actual investment strategy may be adjusted any time, for any reason, including a response to material, economic or market factors. The backtested performance includes hypothetical results that do not reflect the reinvestment of dividends and other earnings or the deduction of advisory fees, brokerage or other commissions, and any other expenses that a client would have paid or actually paid. No representation is made that any trading strategy or account will or is likely to achieve profits or losses similar to those shown. Alternative modeling techniques or assumptions might produce significantly different results and prove to be more appropriate. Past hypothetical backtest results are neither an indicator nor guarantee of future returns. Actual results will vary, perhaps materially, from the analysis.

The method for computing individual E,S,G and composite ESG scores set forth herein is a novel method developed by the Research department within Deutsche Bank AG, computed using a systematic approach without human intervention. Different data providers, market sectors and geographies approach ESG analysis and incorporate the findings in a variety of ways. As such, the ESG scores referred to herein may differ from equivalent ratings developed and implemented by other ESG data providers in the market and may also differ from equivalent ratings developed and implemented by other divisions within the Deutsche Bank Group. Such ESG scores also differ from other ratings and rankings that have historically been applied in research reports published by Deutsche Bank AG. Further, such ESG scores do not represent a formal or official view of Deutsche Bank AG.

It should be noted that the decision to incorporate ESG factors into any investment strategy may inhibit the ability to participate in certain investment opportunities that otherwise would be consistent with your investment objective and other principal investment strategies. The returns on a portfolio consisting primarily of sustainable investments may be lower or higher than portfolios where ESG factors, exclusions, or other sustainability issues are not considered, and the investment opportunities available to such portfolios may differ. Companies may not necessarily meet high performance standards on all aspects of ESG or sustainable investing issues; there is also no guarantee that any company will meet expectations in connection with corporate responsibility, sustainability, and/or impact performance.

Copyright © 2025 Deutsche Bank AG



David Folkerts-Landau

Group Chief Economist and Global Head of Research

Pam Finelli Global Chief Operating Officer Research	Steve Pollard Global Head of Company Research and Sales	Jim Reid Global Head of Macro and Thematic Research	Tim Rokossa Head of Germany Research
Gerry Gallagher Head of European Company Research	Matthew Barnard Head of Americas Company Research	Peter Milliken Head of APAC Company Research	Debbie Jones Global Head of Sustainability and Data Innovation, Research
Sameer Goel Global Head of EM & APAC Research	Francis Yared Global Head of Rates Research	George Saravelos Global Head of FX Research	Peter Hooper Vice-Chair of Research

International Production Locations

Deutsche Bank AG	Deutsche Bank AG	Deutsche Bank AG	Deutsche Securities Inc.
Deutsche Bank Place	Equity Research	Filiale Hongkong	1-3-1 Azabudai
Level 16	Mainzer Landstrasse 11-	International Commerce	Azabudai Hills Mori JP
Corner of Hunter & Phillip	17	Centre	Tower
Streets	60329 Frankfurt am Main	1 Austin Road West,	Minato-ku, Tokyo 106-
Sydney, NSW 2000	Germany	Kowloon,	0041
Australia	Tel: (49) 69 910 00	Hong Kong	Japan
Tel: (61) 2 8258 1234		Tel: (852) 2203 8888	Tel: (81) 3 6730 1000
Deutsche Bank AG	Deutsche Bank Securities	Deutsche Bank AG	

21 Moorfields London EC2Y 9DB United Kingdom Tel: (44) 20 7545 8000

1 Columbus Circle New York, NY 10019 Tel: (1) 212 250 2500

The Deutsche Bank

Inc.

Center

Filiale Singapur One Raffles Quay, South Tower Singapore 048583 Tel: (65) 6423 8001