

US Economics Analyst 2025 Inflation Outlook: Tariffs or 2% (Walker)

- At 2.7% year-over-year, core PCE inflation has returned most of the way back to the 2% target. While the pieces are in place for inflation to close most of the remaining gap in 2025, we expect an escalation in tariff policy to delay the return to 2.0%.
- Much of the remaining inflation overshoot appears to reflect consumer prices catching up to input costs or market rates that rose sharply in the early pandemic years but have since slowed. In 2025, most of these categories should return to pre-pandemic levels of inflation as the gap between costs and prices closes fully. Most importantly, we expect shelter inflation to return to its pre-pandemic pace on a sequential basis around mid-year and to fall from 4.7% year-over-year in December 2024 to 3.4% in December 2025.
- With wage pressures cooling, inflation expectations back to normal, and the catch-up inflation that accounts for much of the remaining overshoot of the target fading, we expect core PCE inflation net of tariff effects to fall to 2.1% year-over-year in December 2025.
- We expect tariff increases on imports from China and autos that raise the effective tariff rate by 3-4pp. Our analysis of the impact of the tariffs imposed during the first Trump administration suggests that every 1pp increase in the effective tariff rate would raise core PCE prices by 0.1%. Taken together, the tariffs we expect boost our core PCE forecast to 2.4%.
- We expect less of a boost from outsized start of the year price increases in 2025, both because the "January effect" is a function of the level of inflation, which has fallen, and because the seasonal factors have come to expect larger January increases. Nonetheless, we still expect a pick-up in January inflation: we expect core PCE inflation of 0.30% MoM, above the latest six-month average of 0.19% but well below the 0.47% and 0.50% increases of January 2023 and 2024.
- While the greatest downside risks to our inflation forecasts for 2025 appear cyclical, the greatest upside risks appear policy related. In particular, the implementation of a 10% across-the-board tariff would boost core prices by roughly 1% and further delay a return to the 2% target.

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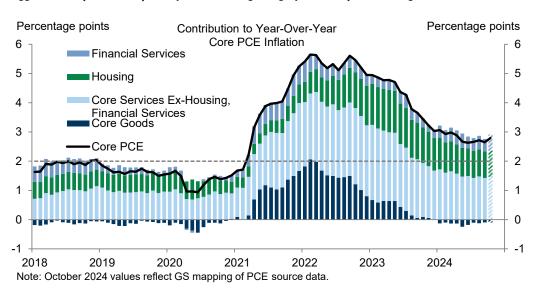
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2025 Inflation Outlook: Tariffs or 2%

After reaching a peak of 5.6% two years ago, core PCE Inflation has returned most of the way back to the 2% target. While progress was modest in 2024—we forecast core PCE inflation of 2.8% for Dec. 2024 vs. 3.0% for Dec. 2023—much of the remaining overshoot reflects lagged <u>catch-up effects</u>, especially in housing (Exhibit 1), and about half of the 0.4pp upside surprise relative to our <u>year-ago forecast</u> reflects the effect of a booming stock market on investment fees included in the financial services component (Exhibit 2), rather than firmer underlying cost pressures.

Exhibit 1: Core Inflation Has Returned Most of the Way to 2%, and Most of the Remaining Overshoot Reflects Lagged Catch-up Effects, Especially in the Housing Category, or the Impact of Rising Stock Prices



Source: Department of Commerce, Goldman Sachs Global Investment Research

Percentage points Percentage points Contribution to Change in GS 0.25 0.25 Dec. 2024 YoY Core PCE Forecast 0.20 0.20 0.15 0.15 0.10 0.10 0.05 0.05 0.00 0.00 -0.05 -0.05-0.10 -0.10 Total = +0.4pp-0.15 -0.15 Housing Pharma Health Care Food Services Air Transport Foreign Travel Pet Products Used Cars Rec. Vehicles Appliances Exp. Abroad Jewelry, Watches New Cars Other Core Goods Other Core Services Consumer Electronics Financial Services **Ground Transport** Clothing, Footwear

Exhibit 2: Greater-Than-Expected Financial Services Inflation and Less-Than-Expected Consumer Electronics Deflation Explain Most of the Surprise to 2024 Core PCE Inflation

Source: Goldman Sachs Global Investment Research

Almost Caught Up

The fundamentals have been in place for inflation to return to the 2% target since late last year, for two reasons. First, the labor market had returned to roughly the balance needed for wage pressures to cool sufficiently, and both consumer and business inflation expectations approached normal levels. Since then, wage growth has slowed to around 4% on a year-over-year basis (Exhibit 3).

Exhibit 3: With the Labor Market Back in Balance, Wage Growth Falling, and Inflation Expectations Back to Normal, the Fundamental Drivers Are in Place for Inflation to Continue Trending Back to the 2% Target



Wages and salaries for private industry workers ex-incentive paid occupations.

Source: Department of Labor, Goldman Sachs Global Investment Research

While the recent pace of wage growth is still somewhat above the 3.5% pace we think is consistent with 2%, the actual news on wage growth has been even more encouraging. This is in part because recent readings have been boosted by strong compensation growth for unionized workers, which has historically been a lagging indicator of labor market conditions because union workers' contracts adjust less frequently and therefore take longer to reflect past inflation spikes. Put more simply, a portion of this year's wage growth reflected lagged catch-up, not a reheating labor market. Indeed, the left panel of Exhibit 4 shows that wage growth for union workers has lagged the wage growth of nonunion workers over the past three years and only over the past year has started to catch up. The right panel of Exhibit 4 shows that nonunion compensation growth, which adjusts more rapidly, has already returned to pre-pandemic levels.

^{**} All private industry workers, GS composition-adjusted from 2020-2021. *** Average of NFIB, Dallas Fed manufacturing, Dallas Fed services, Richmond Fed Manufacturing, Richmond Fed services, NY Fed services, and Kansas City Fed services measures, rescaled to average hourly earnings.

Index (2020Q1=100) Index (2020Q1=100) Percent change, annual rate Percent change, annual rate **Employment Cost Index for Employment Cost Index for** Private Industry Workers (SA by GS) Private Industry Workers (SA by GS) -Union Nonunion — Nonunion -Union n

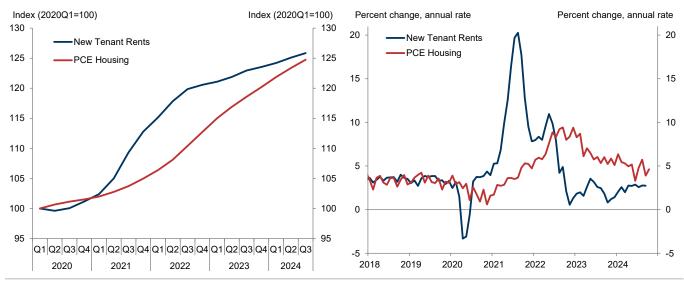
Exhibit 4: After Lagging Nonunion Wage Growth Over the Past Three Years, Union Wages Have Closed the Gap

Source: Department of Labor, Goldman Sachs Global Investment Research

Second, the components of inflation that are most elevated appear to be running hot because of lagged catch-up, not a more concerning reacceleration of demand. This applies to housing, health care, and government-regulated prices. In each of these sectors, market rates or input costs have increased sharply over the last few years but since slowed, consumer prices are now catching up, and the pace of increases should gradually slow as the gap between prices and costs closes.

Catch-up appears nearly exhausted for most sectors, perhaps most importantly for shelter inflation. Exhibit 5 shows that official shelter prices have nearly <u>caught up</u> to new tenant market rents in level terms and should continue to converge toward the low growth rate they have run at for the last two years. We expect the sequential pace of PCE shelter inflation to sustainably reach pre-pandemic levels around mid-2025, and for year-over-year PCE shelter inflation to fall from 4.7% year-over-year in Dec. 2024 to 3.4% in Dec. 2025.

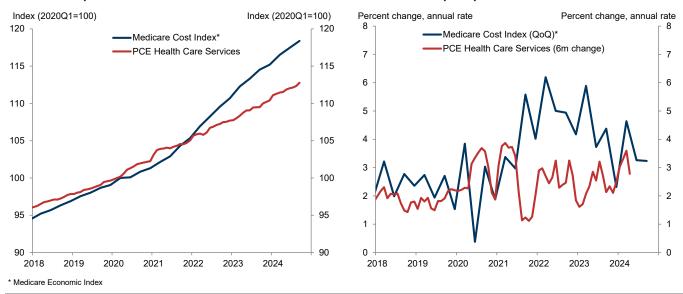
Exhibit 5: Most of the Remaining Overshoot of the 2% Target Just Reflects Lagged Catch-up Effects That Should Continue to Fade Naturally Next Year Because the Catch-Up Is Now Nearly Complete



Source: Department of Commerce, Goldman Sachs Global Investment Research

We expect health care to be the one exception to slowing catch-up effects in 2025. The left panel of Exhibit 6 shows that health care services costs have increased by 18% since 2020Q1, reflecting higher supply and labor costs (for example, hospital wages rose 13% over 2021-2022), while consumer prices have increased 13%. We expect health care service inflation to accelerate from 2.8% in 2024 to 3.1% in 2025, though the precise timing of catch up in the category is uncertain, in part because the industry has particularly long contract lengths and government policy plays a particularly important role in price setting.

Exhibit 6: We Expect Health Care Inflation to Remain Elevated as Consumer Prices Catch Up to Input Costs



Source: Department of Health and Human Services, Department of Commerce, Goldman Sachs Global Investment Research

With wage pressures cooling, inflation expectations back to normal, and the catch-up inflation that accounts for much of the remaining overshoot of the target fading, we expect core PCE inflation net of tariff effects to fall to 2.1% by the end of 2025 (Exhibit

7). However, discussed below in greater detail, tariff increases are likely to prevent inflation from converging to its underlying trend next year.

Exhibit 7: Absent Tariffs, We Would Expect Core PCE Inflation to Slow to 2.1% Next Year

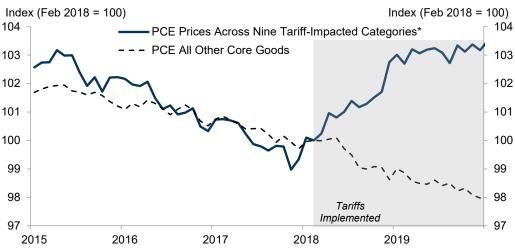
		GS Bottom-up Core PCE Model, Excluding Tariff Effects									
		Sep. 2024	Dec	. 2024	Dec. 2025						
	Weight	YoY	YoY	Contribution to Change	YoY	Contribution to Change -0.5					
Core PCE	100.0	2.7	2.8	0.2	2.2						
Core Goods	24.6	-0.4	-0.1	0.1	-0.8	-0.1					
New Vehicles	2.2	-1.3	-1.1	0.0	-0.6	0.0					
Used Vehicles	1.2	-7.5	-6.1	0.0	-3.3	0.0					
Household Appliances	0.5	-2.3	-3.6	0.0	-0.9	0.0					
Video, Audio, Computers	2.3	-2.2	-1.3	0.0	-6.7	-0.1					
Recreational Vehicles	0.5	-2.0	-0.1	0.0	1.0	0.0					
Jewelry, Watches	0.6	5.9	2.3	0.0	2.7	0.0					
Clothing & Footwear	3.0	1.4	1.5	0.0	-0.1	0.0					
Pharma & Medical	3.9	1.9	1.5	0.0	1.3	0.0					
Pets Products	0.6	-0.3	-0.2	0.0	0.6	0.0					
Expenditures Abroad	0.1	1.9	1.0	0.0	-1.6	0.0					
Residual Core Goods	9.7	-0.5	0.0	0.0	-0.6	0.0					
Core goods ex. autos	21.2	0.2	0.3	0.0	-0.7	-0.2					
Core Services	75.4	3.7	3.8	0.1	3.2	-0.4					
Housing	17.7	5.1	4.7	-0.1	3.4	-0.3					
Ground Transportation	0.6	-2.9	-0.6	0.0	2.3	0.0					
Air Transportation	1.1	4.1	-0.3	0.0	-0.8	-0.1					
Food Services & Accommodation	8.2	2.8	3.1	0.0	3.2	0.0					
Financial Services & Insurance	8.8	4.9	5.7	0.1	3.0	-0.2					
Medical Services	18.7	3.0	2.8	0.0	3.1	0.0					
Foreign Travel	1.5	-0.9	2.0	0.0	1.5	0.0					
Residual Core Services	19.0	3.3	4.0	0.1	3.5	0.0					
Core services ex. housing	57.8	3.2	3.5	0.2	3.1	-0.1					

Source: Department of Commerce, Goldman Sachs Global Investment Research

Tariffs to Delay a Return to 2%

Tariffs are likely to delay a return to 2% inflation in 2025. The <u>experience</u> of the first Trump administration shows that tariffs are largely passed on to consumer prices. This is visible in the fact that prices in tariffed PCE categories rose by almost exactly the tariff amount, while prices in non-tariffed categories remained on their prior trend.

Exhibit 8: Tariffs Boosted Consumer Prices During the Last Trade War



*Includes laundry equipment and other appliances, furniture, bedding, and floor coverings, auto parts, motorcycles, and sport vehicles, housekeeping supplies, and sewing equipment and materials. Weighted by relative importance to headline index.

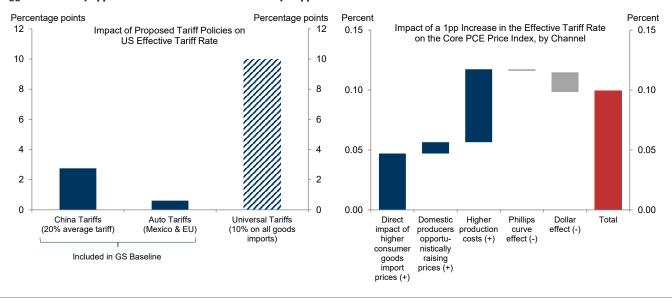
Source: Department of Commerce, Goldman Sachs Global Investment Research

We expect President-elect Trump to increase <u>tariff rates</u> on imports from China by average of 20pp—less for consumer goods and as much as 60pp for non-consumer goods—and to impose some additional tariffs on auto imports. The China-focused tariffs are likely to draw from the lists of goods created during his first term and could be imposed fairly quickly. While Trump has also proposed a universal 10-20% tariff on all imports, we see this as a serious risk but not the baseline.

How much will tariffs change the inflation outlook? The tariffs on China and autos that we expect would raise the effective tariff rate by 3-4pp, while a universal 10% tariff would have roughly triple that effect. Our <u>analysis</u> of the impact of the tariffs imposed during the first Trump administration suggests that every 1pp increase in the effective tariff rate would raise core PCE prices by 0.1pp.¹ Our estimate rests on the following assumptions. First, the costs of future tariffs would fall 15% on foreign exporters, 15% on US wholesalers or retailers, and 70% on US consumers. Second, domestic producers of items subject to tariffs would raise their own prices to a degree proportionate to what occurred last time. Third, 70% of the increase in the cost of imported intermediate inputs would be passed through to consumer prices. And fourth, the dollar would appreciate to a degree proportional to the moves observed in windows around tariff announcements in the last trade war, providing a partial deflationary offset.

¹ We would expect a more moderate boost to headline prices (about 0.07% per 1pp increase in the effective tariff rate), as analysis by our energy strategists suggests that oil prices would decline in response to an escalation in tariff policy.

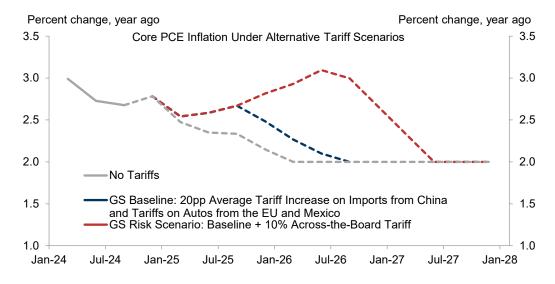
Exhibit 9: The Tariffs on Imports from China and Autos in Our Baseline Would Raise the Effective Tariff Rate by 3-4pp, and Lessons from 2019 Suggest That Every 1pp Increase Raises Core PCE Prices by 0.1pp



Source: Goldman Sachs Global Investment Research

Taken together, this implies that the tariffs in our baseline would raise core PCE inflation by about 0.3-0.4pp next year, leaving it at 2.4% in December 2025. Tariffs would have only a moderate and one-time effect that should not prevent inflation from continuing to fall on net. However, a 10% universal tariff would have a more pronounced impact, pushing inflation just above 3% and further delaying a return to 2%.

Exhibit 10: Tariffs on Imports from China and Autos Would Provide a One-Time 0.3-0.4pp Boost to Core PCE Inflation on Top of a Falling Underlying Trend, While a Universal Tariff Would Have a Larger Impact

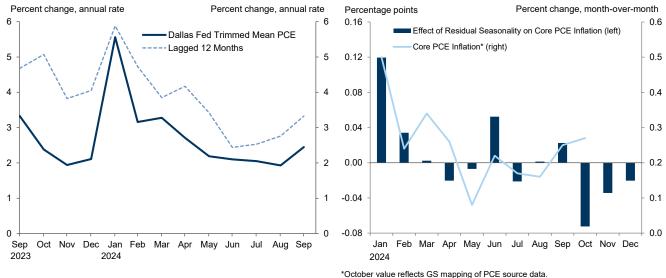


Source: Goldman Sachs Global Investment Research

Less Scope for a January Effect

Firm inflation readings at the start of the year sparked fear of reacceleration. With inflation slowing sharply thereafter and mirroring the sequential pattern of the prior year, that reacceleration now looks instead more like <u>residual seasonality</u> (Exhibit 11).

Exhibit 11: High Inflation Prints Earlier This Year Now Look More Like Residual Seasonality Than Reacceleration



Source: Federal Reserve Bank of Dallas, Department of Commerce, Goldman Sachs Global Investment Research

Should we expect an equally large surge at the start of 2025? We think not, for two reasons. First, there is less scope for a boost from outsized start of the year price increases (i.e., what we've dubbed the "January effect"), both because price pressures have moderated over the last year and because the bar for a seasonally adjusted January jump has been raised as the seasonal factors have come to expect larger January increases.² Second, a portion of the January jump in 2024 reflected idiosyncratic factors that are less likely to repeat: a spurious spike in OER, an outsized contribution from financial services reflecting a runup in equity prices, and the reversal of unusually generous holiday discounting in consumer electronics. However, we are still penciling in a January effect-driven acceleration in January core PCE inflation because the level of inflation has yet to fully normalize. We forecast 0.30% month-over-month, above the 0.19% average of the last six months but well below the 0.47% and 0.50% increases of January 2023 and 2024.

For example, the January seasonal hurdle for core CPI was 0.16pp this year vs. 0.07pp in 2017 in real-time.

Percent change, month ago, SA Percent change, month ago, SA Core CPI, First Vintage 1.0 1.0 January Reading 0.8 8.0 0.6 0.6 0.4 0.4 0.2 0.2 0.0 0.0 -0.2-0.2 1998 2001 2004 2007 2010 2013 2016 2019 2022

Exhibit 12: January Inflation Readings Tend to Be Cyclical and Volatile

Source: Department of Commerce, Goldman Sachs Global Investment Research

A Narrower CPI-PCE Wedge

CPI inflation is likely to exceed PCE by less than usual next year, for three main reasons. First, shelter inflation, which has a much larger weight in the CPI, will slow further. Second, the insurance categories that are unique to the CPI are likely to run cooler next year (Exhibit 13). The profit margins of health insurance companies—which inform the CPI index with a lag—have narrowed over the last year, while auto insurance premiums have closed most of the gap with repair and replacement costs. Third, health care services inflation (ex. insurance), which has a much larger weight in PCE, will remain elevated.

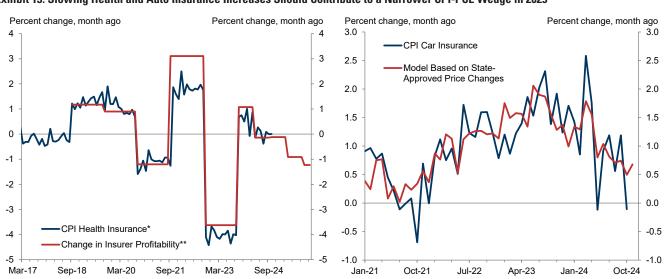


Exhibit 13: Slowing Health and Auto Insurance Increases Should Contribute to a Narrower CPI-PCE Wedge in 2025

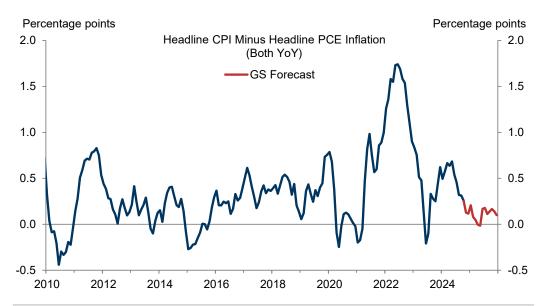
Source: Department of Labor, Bloomberg, Goldman Sachs Global Investment Research

^{*} Adjusted to exclude the trend in hospital services and physician services prices (average, 3MCMA).

^{**} Data on retention-benefit ratios transformed to CPI-equivalent basis. Methodology switches in October 2023. Forecasts average across United Health, Cigna, Humana, Centene, WellPoint, and Molina, and use company guidance for future quarters when available.

Taken altogether, we expect headline CPI inflation of 2.4% next year, just 0.1pp above our headline PCE forecast of 2.3% (vs. a historical norm of 0.3pp).

Exhibit 14: We Expect a Narrower Than Usual Gap Between Headline CPI and PCE Inflation in 2025

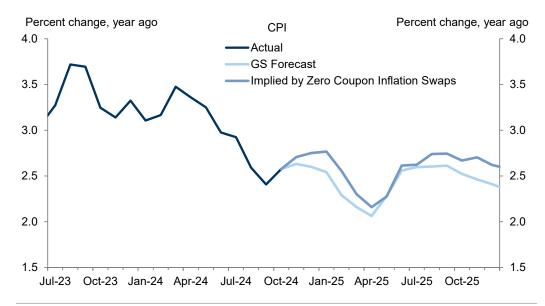


Source: Department of Labor, Department of Commerce, Goldman Sachs Global Investment Research

Inflation Risk: How Elevated?

Our 2.4% headline CPI forecast for Dec. 2025 sits moderately below market pricing of 2.7%. The difference over the next year appears to mostly reflect differing views on core prices: if we use the futures curve for our oil and natural gas assumptions instead of our energy strategists' forecast, the gap between our forecast and market pricing is roughly the same.

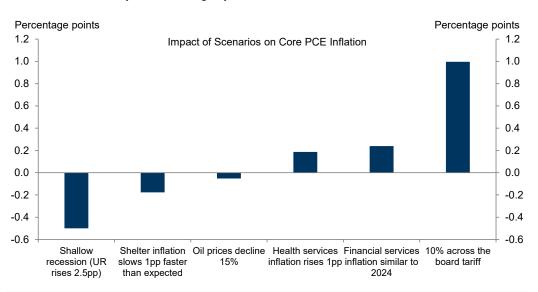
Exhibit 15: We Expect Headline CPI Inflation to Fall as Low as 2.0% Early Next Year Before Ending the Year Around 2.4%, Below Market Pricing of 2.7%



Source: Department of Labor, Goldman Sachs FICC and Equities, Goldman Sachs Global Investment Research

While potentially meaningful for the path of monetary policy, a 0.3pp surprise—the gap between our forecast and market pricing—would be well within the bounds of typical inflation surprises. Even in the pre-pandemic era of low and anchored inflation expectations, fairly large surprises to consensus core inflation forecasts were <u>normal</u>—about 0.4pp at a one-year horizon and 0.5pp at a two-year horizon—and <u>inflation-at-risk models</u> would suggest that inflation risks remain elevated relative to the pre-pandemic period, albeit well below the last few years. While the greatest downside risks to our inflation forecasts for 2025 appear cyclical, the greatest upside risks appear policy related. In particular, as discussed previously, we would expect the implementation of a 10% across-the-board tariff to boost core prices by roughly 1%.

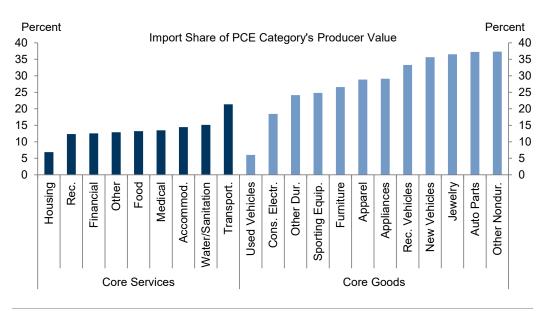
Exhibit 16: While a Weaker-Than-Expected Economy Would Weigh Moderately on Inflation, Further Escalation in Tariff Policy Could Meaningfully Boost Inflation



Source: Goldman Sachs Global Investment Research

Ronnie Walker

Exhibit 17: Appendix: Auto, Jewelry, and Appliance Consumption Are Particularly Exposed to Imported Goods



Source: Department of Commerce, Goldman Sachs Global Investment Research

The US Economic and Financial Outlook

THE US ECONOMIC AND FINANCIAL OUTLOOK

(% change on previous period, annualized, except where noted)

								202	24		2025			
	2022	2023	2024	2025	2026	2027	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
OUTPUT AND SPENDING							1				1			
Real GDP	2.5	2.9	2.8	2.5	2.3	2.1	1.6	3.0	2.8	2.4	2.4	2.4	2.4	2.4
Real GDP (annual=Q4/Q4, quarterly=yoy)	1.3	3.2	2.5	2.4	2.2	2.1	2.9	3.0	2.7	2.5	2.6	2.5	2.4	2.4
Consumer Expenditures	3.0	2.5	2.7	2.5	2.3	2.1	1.9	2.8	3.5	2.8	2.0	2.3	2.3	2.4
Residential Fixed Investment	-8.6	-8.3	3.7	1.7	3.0	2.4	13.7	-2.8	-5.2	-0.6	5.5	4.0	3.0	2.5
Business Fixed Investment	7.0	6.0	3.7	3.6	5.3	4.0	4.5	3.9	3.3	-0.9	4.0	5.3	6.1	6.1
Structures	3.6	10.8	3.2	-1.6	2.2	3.0	6.2	0.2	-4.1	-3.6	-2.0	-0.5	1.0	1.0
Equipment	4.4	3.5	3.9	7.0	6.7	3.6	0.3	9.9	11.1	-0.9	7.5	9.0	9.0	8.5
Intellectual Property Products	11.2	5.8	3.6	3.3	5.7	4.9	7.5	0.7	0.6	0.6	4.0	5.0	6.0	6.5
Federal Government	-3.2	2.9	2.4	1.5	0.0	0.6	-0.4	4.3	9.7	0.0	0.2	0.0	0.0	0.0
State & Local Government	0.2	4.4	3.8	1.4	1.0	1.3	3.1	2.3	2.3	2.1	1.0	1.0	1.0	1.0
Net Exports (\$bn, '17)	-1,042	-933	-1,036	-1,080	-1,129	-1,174	-977	-1,036	-1,077	-1,055	-1,069	-1,074	-1,083	-1,095
Inventory Investment (\$bn, '17)	119	33	53	73	63	61	18	72	60	61	80	75	70	65
Nominal GDP	9.8	6.6	5.2	4.9	4.2	4.0	4.7	5.6	4.7	4.7	5.1	5.1	4.7	4.0
Industrial Production, Mfg.	2.7	-0.5	-0.3	2.8	3.4	2.9	-0.9	1.4	-0.7	2.4	3.8	3.8	3.7	3.6
HOUSING MARKET							ı				ı			
Housing Starts (units, thous)	1.552	1.421	1,353	1,413	1,479	1,491	1.407	1.340	1,331	1,334	1,365	1.403	1.431	1.454
New Home Sales (units, thous)	637	666	701	748	757	800	663	693	724	722	734	737	757	763
Existing Home Sales (units, thous)	5.087	4.101	3.977	4.091	4.188	4,570	4.200	4.050	3.890	3.768	3,920	4,038	4.161	4,244
Case-Shiller Home Prices (%yoy)*	7.5	5.3	3.2	4.4	4.8	4.8	6.4	5.9	3.9	3.2	3.2	3.7	4.1	4.4
							<u>'</u> I				<u>. </u>			<u>'</u>
INFLATION (% ch, yr/yr)				0.5										
Consumer Price Index (CPI)** Core CPI **	6.4	3.3	2.6	2.5	2.3	2.2	3.2	3.2	2.6	2.6	2.4	2.4	2.7	2.6
Core CPI ^^ Core PCE** †	5.7 5.0	3.9 3.0	3.2 2.8	2.7 2.4	2.3 2.0	2.3 2.0	3.8 3.0	3.4 2.7	3.2 2.7	3.2 2.8	2.9 2.6	2.9 2.6	3.0 2.7	2.7 2.4
Core PCE T	5.0	3.0	2.8	2.4	2.0	2.0	3.0	2.1	2.1	2.8	2.0	2.0	2.1	2.4
LABOR MARKET														
Unemployment Rate (%)^	3.5	3.7	4.1	3.9	3.8	3.7	3.8	4.1	4.1	4.1	4.0	4.0	3.9	3.9
U6 Underemployment Rate (%)^	6.5	7.1	7.7	7.3	7.1	6.9	7.3	7.4	7.7	7.7	7.5	7.4	7.4	7.3
Payrolls (thous, monthly rate)	377	251	167	150	128	98	267	147	148	104	150	150	150	150
Employment-Population Ratio (%) [^]	60.1	60.1	60.1	60.1	60.1	60.0	60.0	59.8	60.0	59.8	60.1	60.1	60.1	60.1
Labor Force Participation Rate (%)^	62.3	62.5	62.6	62.5	62.5	62.3	62.7	62.6	62.7	62.6	62.6	62.6	62.6	62.5
Average Hourly Earnings (%yoy)	5.4	4.5	3.9	3.4	3.3	3.2	4.2	3.9	3.8	3.7	3.5	3.5	3.4	3.3
GOVERNMENT FINANCE											I			
Federal Budget (FY, \$bn)	-1,376	-1,694	-1,833	-1,800	-1,950	-2,100					<u> </u>	-		
FINANCIAL INDICATORS											I			
FF Target Range (Bottom-Top, %)^	4.25-4.5	5.25-5.5	4.25-4.5	3.25-3.5	3.25-3.5	3.25-3.5	5.25-5.5	5.25-5.5	4.75-5	4.25-4.5	3.75-4	3.5-3.75	3.25-3.5	3.25-3.5
10-Year Treasury Note^	3.88	3.88	4.30	4.25	4.35	4.45	4.20	4.36	3.81	4.30	4.30	4.25	4.25	4.25
Euro (€/\$)^	1.07	1.11	1.05	1.03	1.06	1.10	1.08	1.07	1.11	1.05	1.05	1.05	1.06	1.03
Yen (\$/¥)^	132	141	156	159	145	132	151	161	143	156	158	157	158	159

^{*} Weighted average of metro-level HPIs for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey. Annual numbers are Q4/Q4.

** Annual inflation numbers are December year-on-year values. Quarterly values are Q4/Q4.

† PCE = Personal consumption expenditures. ^ Denotes end of period.

Note: Published figures in bold.

Source: Goldman Sachs Global Investment Research.

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Disclosure Appendix

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We, Jan Hatzius, Alec Phillips, David Mericle, Ronnie Walker, Manuel Abecasis, Elsie Peng and Jessica Rindels, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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