Goldman Sachs | Economics Research

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US Economics Analyst

Back to the Future: Forecasting Inflation When Expectations Are Evolving (Hill/Walker/Abecasis)

- Core CPI inflation has continued to surprise to the upside on net, with core CPI beats in each of the last two months and four of the last six reports. Additionally, the magnitude of these upside surprises is beginning to rival those of the 1960s overheating and 1970s stagflation. This raises the question of whether forecasters have simply been surprised by a strikingly long chain of unforeseen supply-side problems, or whether consensus inflation forecasts are missing something important.
- Analyzing consensus inflation surprises over the last 75 years using the Livingston survey, we find that forecasters on average failed to incorporate the signal from short-term consumer inflation expectations, business inflation expectations, and the jobs-workers gap. This suggests that today's models might also be underestimating the significance of these factors.
- We test these variables in our component-level inflation models, finding significance in nearly half of the categories. Our models also continue to include (1) measures of labor and product market slack; (2) indicators related to pass-through from commodity, import, and asset prices; and (3) alternative price indices available from non-government sources.
- We are raising our year-end core PCE inflation forecasts for 2022-2024 to 4.2%, 2.5%, and 2.3% respectively (vs. 4.0%, 2.3%, and 2.2% previously, and compared to 4.7% in May). This reflects additional upward pressure in cyclical services categories like household maintenance, personal care, and food services and accommodation. However, we are leaving our 2023 and 2024 shelter inflation forecasts unchanged despite the May price spike because alternative rent measures are already slowing and the May geographic cross-section is consistent with a one-off boost from the reversal of pandemic discounts.
- We also introduce a new bottom-up core CPI model, which we will update alongside our PCE forecasts in our Monthly Inflation Monitor. Unlike the PCE measure, we expect year-on-year core CPI inflation to reaccelerate in late summer—from 6.0% in May to 6.3% in September—before falling to 5.5% at year-end, 2.4% in December 2023, and 2.6% in December 2024 (vs. 5.1%, 2.6%, and 2.6% previously).
- As we highlighted last fall, the CPI-PCE gap will be much larger than usual this

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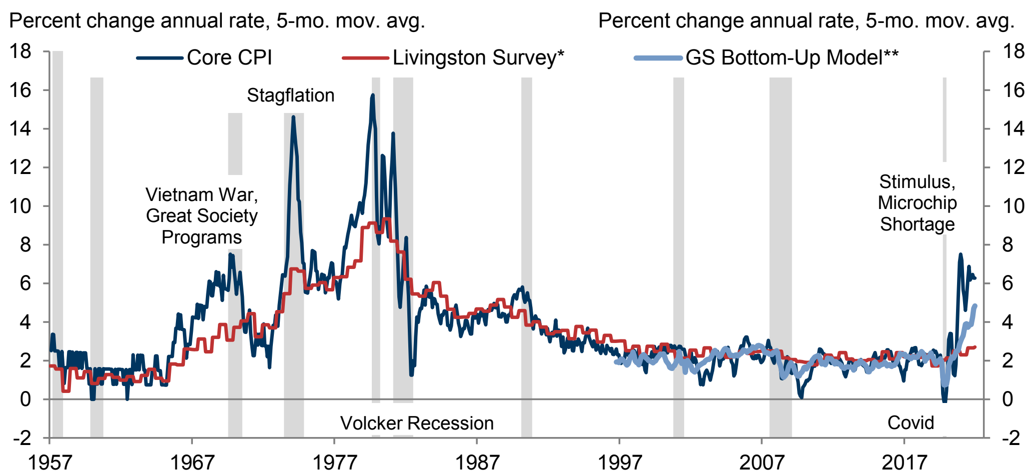
year because of the larger weights on the shelter and durable goods categories and differences in the measurement of health care inflation. However, we continue to expect the gap to narrow beyond this fall, when durable goods prices should start to normalize and the CPI's health insurance category should transition from very strong to very weak as new annual source data are incorporated.

Back to the Future: Forecasting Inflation When Expectations Are Evolving

Core CPI inflation has continued to surprise to the upside this year on net, with core CPI beats in each of the last two months and four of the last six reports. The magnitude of these surprises is beginning to rival those of the 1960s overheating and 1970s stagflation. In Exhibit 1, we plot the trend in core CPI against our bottom-up inflation model and against the median estimate from the semi-annual Livingston survey, which is perhaps the longest running measure available.[1]

Exhibit 1: Large and Persistent Core Inflation Surprises Reminiscent of the 1960s Overheating and 1970s Stagflation



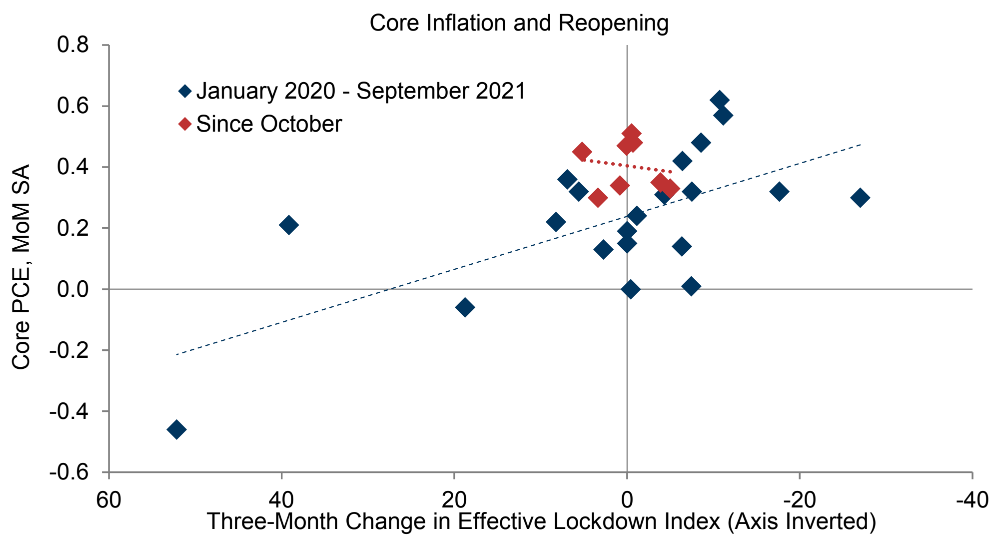
*We use headline CPI consensus for Q+3 and Q+4 as a proxy for core inflation forecasts in Q+1 and Q+2.
**GS bottom-up core PCE model, adjusted for +0.25pp average annual CPI-PCE gap.

Source: Department of Labor, Federal Reserve, Goldman Sachs Global Investment Research

Unlike in 2021, the broad-based nature of today's elevated inflation is difficult to fully ascribe to microchip shortages or reopening effects, though those factors continue to be relevant (see here and here). As shown by the blue dots in Exhibit 2, our Effective Lockdown Index tracked many of the inflections in core prices between the 2020 lockdowns and the return-to-office period last fall. But as shown by the red dots in the same exhibit, this positive relationship disappeared in Q4, and the average pace of monthly core inflation actually moved *higher*.

[1] The survey collects data only on headline inflation, and respondents generally incorporate the recent path of oil and food prices into their forecasts of near-term inflation. Accordingly, we construct a proxy for core CPI consensus using the headline CPI forecast for quarters Q+3 and Q+4—for which the recent path of commodity prices is often a secondary or minor factor from a forecasting perspective. We find broadly similar results when replicating our analysis using headline CPI consensus, except generally lower correlations with realized inflation.

Exhibit 2: Reopening Contributed to Higher Prices Last Year but Can't Explain Most of the Recent Strength



Source: Department of Commerce, Goldman Sachs Global Investment Research

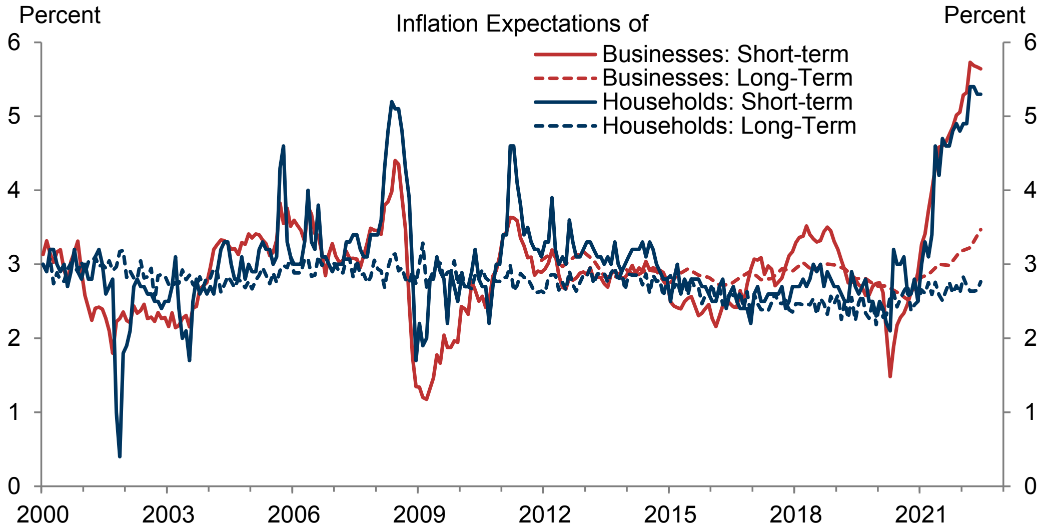
This raises the question of whether forecasters have simply been surprised by a strikingly long chain of unforeseen supply-side problems, or whether consensus inflation forecasts are missing something important.

What to Expect When You're Expecting High Inflation

Long-term inflation expectations do not currently argue for sustained upward pressure. The June reading of the University of Michigan survey edged higher but only towards the top of its range from 1995-2019, which was an era of low and stable core inflation. Our composite measures of long-term inflation expectations also remain relatively range bound, as shown by the dotted lines in Exhibit 3.

In contrast, short-term inflation expectations have returned to 1980s levels across both consumers and businesses, as shown by the solid lines in the same exhibit. Relatedly, the jobs-workers gap reached a record 2% of the population last quarter and will exert additional upward pressure on wages, prices, and possibly inflation expectations.

Exhibit 3: Short-Term Inflation Expectations Are Elevated, but Long-Term Expectations Have So Far Risen More Modestly

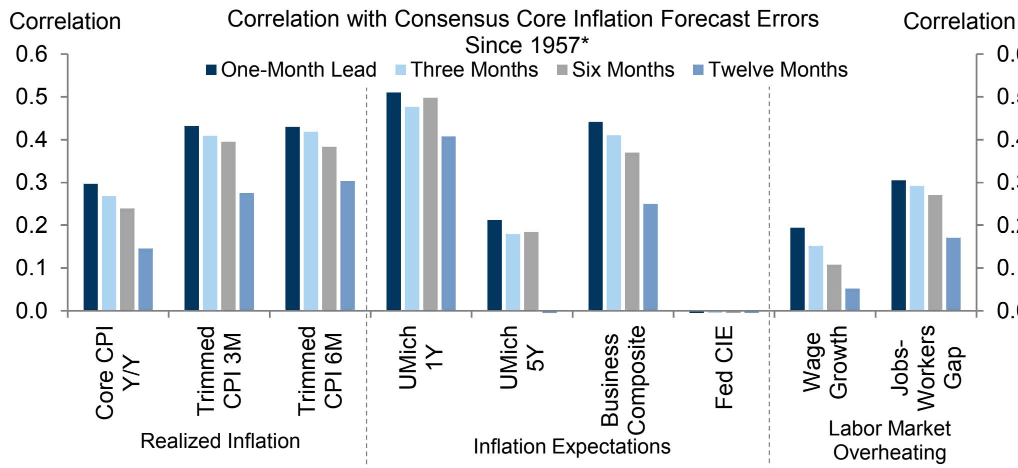


Source: University of Michigan, Federal Reserve, Haver Analytics, Goldman Sachs Global Investment Research

While including these measures in our inflation models would improve the fit over the last two years, we also want to avoid overfitting based on spurious relationships. To address this concern while also allowing for the possibility of sustained upward pressures, we ask which of these same signals would have been useful indicators over a much longer period.

In Exhibit 4, we analyze consensus inflation surprises over the last 75 years using the Livingston survey shown earlier in Exhibit 1. We find that forecasters on average failed to incorporate the signal from University of Michigan 1-year inflation expectations, business inflation expectations (GS composite measure), trimmed mean inflation, and the jobs-workers gap. In contrast, we do not find predictive power in UMich long-term inflation expectations or in the Fed's Index of Common Inflation Expectations (CIE).

Exhibit 4: Inflation Expectations Surveys Could Have Prevented Some of the Post-War Inflation Forecast Errors

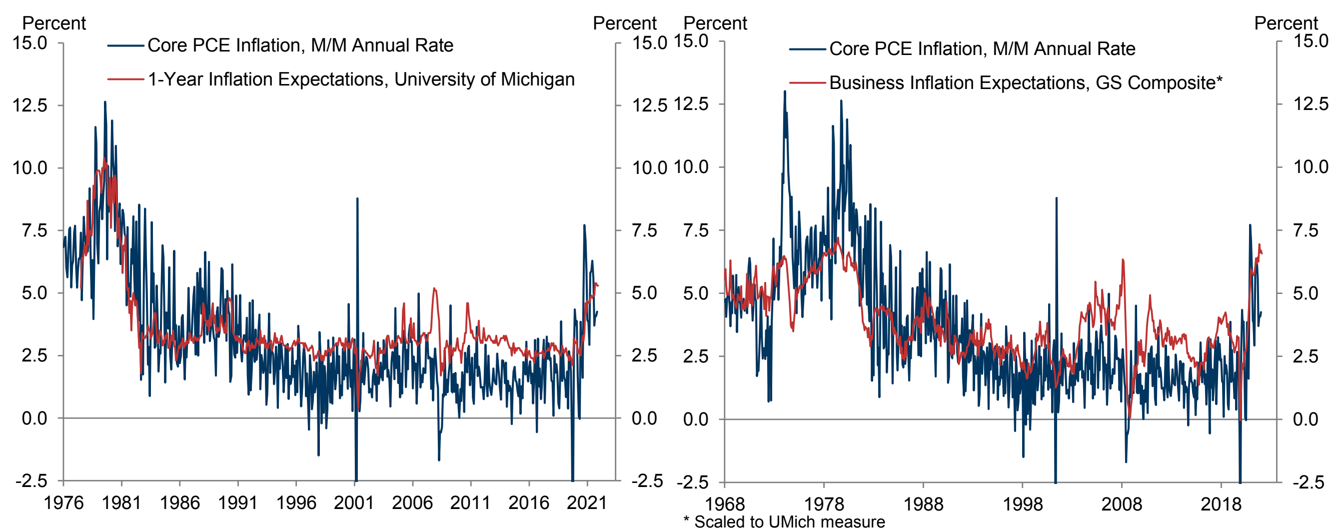


Note: Excludes recessions and first year of recovery. Negative values not shown. Consensus reflects Livingston measure shown in Exhibit 1.
*Or beginning of sample.

Source: Department of Labor, University of Michigan, Federal Reserve, Goldman Sachs Global Investment Research

This suggests a role for some of these signals in our bottom-up models—to the extent the relationships are statistically and economically significant over the full-sample period and not just in 2021-2022. To avoid overreacting to pandemic-influenced surveys, we also assume that the inflation expectations variables return to pre-pandemic levels linearly between now and the end of 2024.[2]

Exhibit 5: Inflation Expectations Surveys Are Helpful Guideposts of the Current Trend in Core Inflation



Source: Department of Commerce, University of Michigan, Federal Reserve, Goldman Sachs Global Investment Research

Updating Our Bottom-Up Core PCE Model

To better understand the implications of recent developments for the medium-term

[2] We also cannot rule out the risk that elevated realized inflation leads short-and long-term inflation expectations even higher, particularly if the labor market continues to overheat.

inflation outlook, we revisit our core PCE category-level inflation models to make sure that the lessons noted above are fully incorporated into our inflation forecasts. We disaggregate the core PCE index into 19 components: 11 measures of core goods and 8 measures of core services. We then use three types of explanatory variables to model the components: (1) measures of labor and product market slack; (2) indicators related to pass-through of various kinds, including commodity, import, and asset prices; and (3) alternative price indices available from non-government sources. We augment our models with the inflation expectations variables in the previous exhibit as well as the jobs-workers gap, which likely influences inflation and inflation expectations at a multi-year horizon.

Exhibit 6 summarizes the inputs used in each equation.[3]

Exhibit 6: Near-Term Inflation Expectations Are Additive in Nearly Half of Our Category-Level Models

		Inflation Expectations	Labor Market Slack	Product Slack	Commodity Prices	Import Prices	Dollar	Asset Prices	Alternative Prices
Core Goods	New Vehicles	X				X			X
	Used Vehicles			X					X
	Household Appliances	X				X			
	Video, Audio, Computers	X				X			
	Recreational Vehicles					X			
	Jewelry, Watches				X				
	Clothing & Footwear	X		X		X			
	Pharma & Medical	X							X
	Pets Products	X			X	X			
	Expenditures Abroad						X		
	Residual Core Goods				X	X			
Core Services	Housing		X						X
	Ground Transportation				X				
	Air Transportation				X				X
	Food Services & Accommodation	X	X		X				X
	Financial Services & Insurance							X	
	Medical Services								X
	Foreign Travel						X		
	Residual Core Services	X	X						

Source: Goldman Sachs Global Investment Research

We re-estimate the model coefficients using monthly data since 1997. We exclude the second and third quarters of 2020 from the sample to avoid distorting the coefficients with the pandemic shock. Besides incorporating the upward pressure on prices from elevated inflation expectations, our updated models now place more weight on near-term lags and alternative data and less weight on import prices and longer-term lags.

Exhibit 7 shows a breakdown of our year-over-year core PCE forecasts. We now expect somewhat higher core services inflation in December 2022 (+4.7% vs. +4.5% previously) and in December 2023 (+3.9% vs. +3.8% previously), as well as higher core goods inflation in December 2023 (-1.6% vs. -2.1% previously) and in December 2024 (-0.6% vs. -1.0% previously). Taken together, we expect year-over-year core PCE inflation of +4.2% at the end of this year, +2.5% at the end of 2023 (vs. 2.3% previously), and +2.3% at the end of 2024 (vs. 2.2% previously).

3 The lag structure for dependent variables differs by category based on statistical and economic significance.

Exhibit 7: We Forecast Core PCE to Remain Above 4% Throughout 2022 Before Falling to 2.5% in December 2023 and 2.3% in December 2024

		May 2022	GS Forecasts End 2022		End 2023		End 2024	
	Weight	YoY	YoY	Contribution to Change	YoY	Contribution to Change	YoY	Contribution to Change
Core PCE	*100.0*	**4.7**	**4.2**	**-0.5**	**2.5**	**-2.1**	**2.3**	**-2.4**
Core Goods	*27.6*	**5.5**	**2.6**	-0.8	**-1.6**	**-1.7**	**-0.6**	**-1.5**
New Vehicles	*2.7*	13.1	7.7	-0.1	-2.0	**-0.3**	-1.2	**-0.3**
Used Vehicles	*1.6*	10.5	-7.0	-0.3	-17.0	**-0.3**	-5.8	**-0.2**
Household Appliances	*0.5*	10.0	2.9	0.0	0.4	**0.0**	-1.6	**-0.1**
Video, Audio, Computers	*2.3*	-3.2	-5.3	0.0	-5.2	**0.0**	-6.5	**-0.1**
Recreational Vehicles	*0.7*	3.2	3.2	0.0	1.1	**0.0**	1.1	**0.0**
Jewelry, Watches	*0.9*	-1.5	-0.9	0.0	0.8	**0.0**	1.1	**0.0**
Clothing & Footwear	*3.3*	5.2	3.3	-0.1	0.3	**-0.2**	0.3	**-0.2**
Pharma & Medical	*4.2*	2.4	3.4	0.0	-0.2	**-0.1**	1.2	**0.0**
Pets Products	*0.6*	8.3	8.0	0.0	3.3	**0.0**	2.4	**0.0**
Expenditures Abroad	*0.1*	0.2	-2.2	0.0	-2.3	**0.0**	-1.5	**0.0**
Residual Core Goods	*10.6*	6.5	4.1	-0.3	-0.4	**-0.6**	0.0	**-0.6**
Core Services	*72.4*	**4.4**	**4.7**	0.2	**3.9**	**-0.4**	**3.3**	**-0.8**
Housing	*17.0*	5.1	5.9	0.1	4.4	**-0.1**	3.7	**-0.2**
Ground Transportation	*0.3*	-0.3	3.4	0.0	2.4	**0.0**	2.5	**0.0**
Air Transportation	*0.9*	32.5	26.2	-0.1	0.1	**-0.3**	-0.4	**-0.3**
Food Services & Accommodation	*8.0*	7.8	6.4	-0.1	4.4	**-0.3**	3.4	**-0.3**
Financial Services & Insurance	*8.8*	0.6	1.4	0.1	3.5	**0.3**	3.4	**0.3**
Medical Services	*17.8*	1.9	1.7	0.0	3.1	**0.2**	2.8	**0.2**
Foreign Travel	*1.1*	8.9	11.7	0.0	3.6	**-0.1**	3.2	**-0.1**
Residual Core Services	*18.5*	5.4	6.0	0.1	4.4	**-0.2**	3.6	**-0.4**

Source: Department of Commerce, Goldman Sachs Global Investment Research

A Hot Summer for Core Inflation and the CPI-PCE Gap

We also introduce a bottom-up CPI model to complement our existing bottom-up PCE model, shown in Exhibit 8. Going forward, we will publish regular updates of our new model in our Monthly Inflation Monitor. Unlike the PCE measure, we expect year-on-year core CPI inflation to reaccelerate in late summer—from 6.0% in May to 6.3% in September—before falling to 5.5% at year-end. We expect core CPI inflation to fall more sharply next year (Dec. 2023 +2.4%), reflecting a negative swing in health insurance prices and shrinking contributions from across nearly every category but especially from normalizing auto prices, which have a larger weight in the CPI measure.

Exhibit 8: We Forecast Core CPI at 5.5% in December 2022, 2.4% in December 2023, and 2.6% and in December 2024

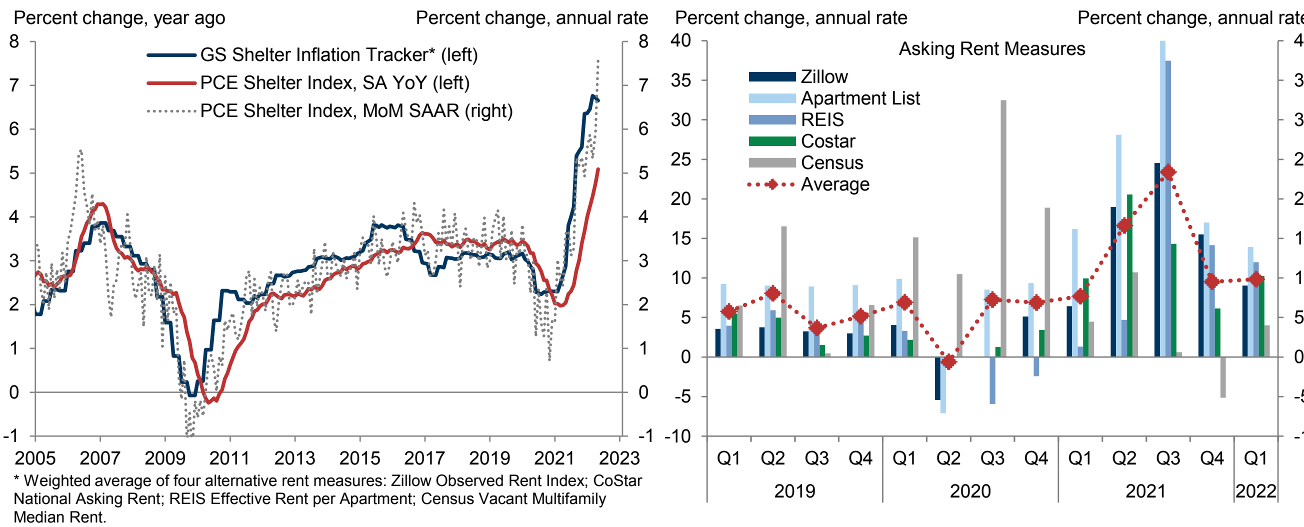
		May 2022	GS Bottom-up CPI Forecast					
			End 2022		End 2023		End 2024	
	Weight	YoY	YoY	Contribution to Change	YoY	Contribution to Change	YoY	Contribution to Change
Core CPI	***100.0***	**6.0**	**5.5**	-0.5	**2.4**	-3.6	**2.6**	-3.4
Apparel	*3.2*	5.0	2.9	-0.1	0.3	-0.1	0.3	-0.1
New Cars	*5.2*	12.6	7.7	-0.3	-2.0	-0.8	-1.2	-0.7
Used Cars	*5.1*	16.1	-1.2	-0.9	-14.6	-1.6	-5.0	-1.1
Medical Care Commodities	*1.9*	2.4	3.7	0.0	-0.2	-0.1	1.2	0.0
Health Insurance	*1.1*	13.8	13.4	0.0	-15.4	-0.3	6.4	-0.1
Medical Services ex Insurance	*7.7*	2.7	2.9	0.0	3.7	0.1	3.6	0.1
Pets	*1.4*	8.1	7.3	0.0	3.3	-0.1	2.4	-0.1
Household Furnishings + Ops.	*6.1*	8.9	7.4	-0.1	3.3	-0.3	2.3	-0.4
Personal Care	*2.8*	5.9	6.9	0.0	3.9	-0.1	3.1	-0.1
Rent + OER	*39.7*	5.1	5.9	0.3	4.4	-0.3	3.7	-0.6
Public Transportation	*1.3*	26.3	45.9	0.3	5.5	-0.3	3.5	-0.3
Private Transportation Services	*6.2*	5.2	8.0	0.2	8.1	0.2	6.8	0.1
Miscellaneous goods and services	*18.4*	4.8	5.1	0.1	4.0	-0.1	3.2	-0.3
Headline CPI	***100.0***	**8.5**	**6.9**	-1.6	**2.6**	-5.9	**2.5**	-6.0
Core CPI	*77.9*	6.0	5.5	-0.4	2.4	-2.8	2.6	-2.6
Food	*13.4*	10.1	10.0	0.0	5.1	-0.7	3.3	-0.9
Energy	*8.7*	34.4	16.0	-1.6	0.6	-2.9	0.5	-2.9

Source: Department of Labor, Goldman Sachs Global Investment Research

We conclude with a few bottom-up component considerations and their implications for the CPI-PCE gap. As we highlighted last fall, the CPI-PCE gap will be much larger than usual this year because of the larger weights on the shelter and durable goods categories and differences in the measurement of health care inflation.

As shown by the dotted line in the left panel of Exhibit 9, the large and persistent shelter inflation category spiked to a 32-year high in May (PCE housing +0.61% mom sa). This pace overshot our shelter tracker (blue line) after underperforming it in early spring. The alternative rent measures constituting our tracker—which are much more volatile than the CPI and PCE measure—slowed sequentially in both Q4 and Q1, suggesting the possibility that the official May reading overstates the near-term trend.

Exhibit 9: Monthly Shelter Inflation Overshot Alternative Measures in May—and Those Measures Were Already Decelerating

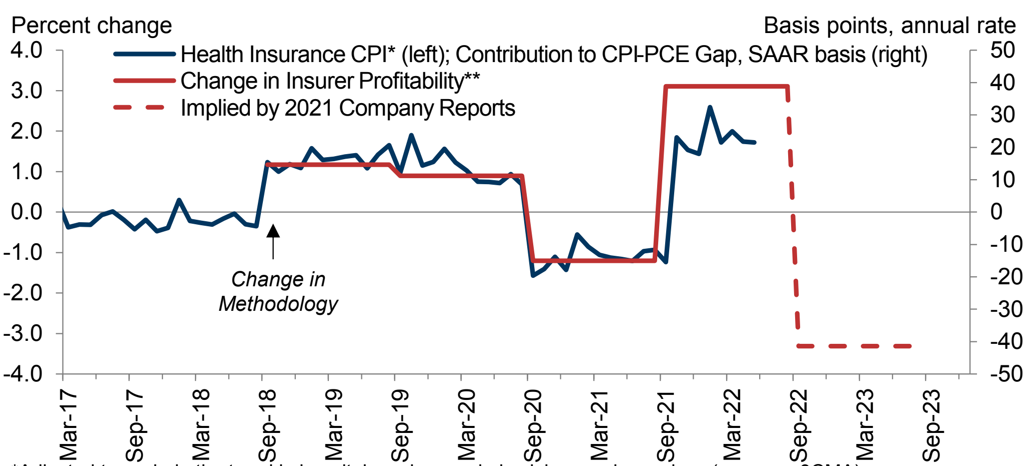


Source: Department of Commerce, Zillow, CoStar, REIS, Census Bureau, Goldman Sachs Global Investment Research

What could have driven the May strength? One possibility is a temporary boost from normalizing rent levels—perhaps related to deep one-time discounts— "months free"— during the pandemic. If a larger-than-usual share of units "reset" higher in the May sample, that would produce a temporary outsized gain in monthly shelter inflation.

We also update our model of health insurance CPI to reflect the 2021 financial results of publicly traded insurance carriers, which will begin to flow through the CPI measure this fall. As shown in Exhibit 10, the sharp increase in carrier profitability during the 2020 pandemic mostly reversed in 2021, setting the stage for outright declines in the health insurance CPI in Q4 and for most of 2023 (we assume -2.0% per month).

Exhibit 10: Health Insurance CPI Tailwind to Reverse Starting This Fall

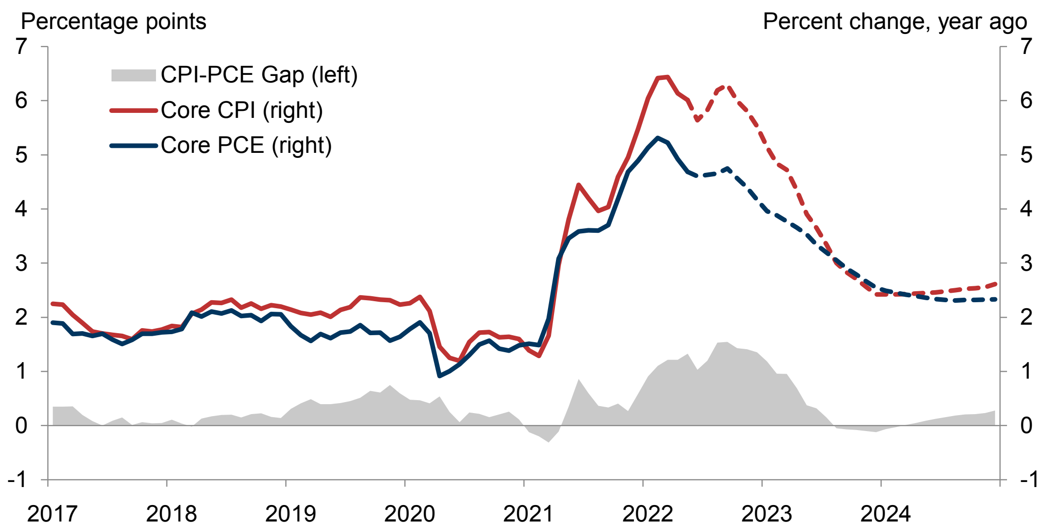


*Adjusted to exclude the trend in hospital services and physician services prices (average, 3CMA).
**Annual data on retention-benefit ratios, lagged additional 9 months and transformed to CPI-equivalent basis. Dotted line averages across United Health, Cigna, Humana, Centene, WellPoint, and Molina.

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

Exhibit 11 summarizes our updated core inflation forecasts for the CPI and PCE measures. The core CPI-PCE inflation gap was +1.3pp in May (core CPI 6.0%, core PCE 4.7%), well above the 0.25pp historical average. As we flagged last October, three drivers underpin this outsized gap: the higher shelter weight in the CPI, the larger CPI weight on durable goods categories such as new and used cars, and sharp upward pressure on the health insurance CPI (the PCE does not include this component). Unlike the PCE measure, we expect year-on-year core CPI inflation to reaccelerate in late summer—from 6.0% in May to 6.3% in September—before falling to 5.5% at year-end, 2.4% in December 2023, and 2.6% in December (vs. our previous forecasts of 5.1%, 2.6%, and 2.6%).

Exhibit 11: CPI-PCE Gap to Widen Further This Summer, Disappear in December 2023 as Health Insurance CPI Swings Negative and Auto Prices Fall



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

In terms of policy implications, while core PCE is the Fed's preferred inflation gauge, Fed officials monitor several measures, and the CPI is probably more important than usual because it represents only consumer-paid prices—which should in principle be more relevant for inflation expectations—and because it is heavily featured by the financial and popular press. The CPI reacceleration we forecast this summer therefore represents another reason to expect the Fed to continue hiking expeditiously through the September meeting. Looking further ahead, we expect slowing growth and sequentially lower inflation to persuade the Fed to conclude its tightening campaign at the end of the year, after the funds rate reaches 3.25-3.5%.

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The US Economic and Financial Outlook

THE US ECONOMIC AND FINANCIAL OUTLOOK

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

	2020	2021	2022 (f)	2023 (f)	2024 (f)	2025 (f)	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
OUTPUT AND SPENDING														
Real GDP	**-3.4**	**5.7**	*2.2*	*1.3*	*1.8*	*1.9*	**-1.6**	*1.9*	*1.8*	*0.8*	*1.0*	*1.5*	*1.5*	*1.8*
Real GDP (annual=Q4/Q4, quarterly=yoy)	**-2.3**	**5.5**	*0.7*	*1.4*	*1.9*	*1.9*	**3.5**	*2.3*	*2.2*	*0.7*	*1.4*	*1.2*	*1.2*	*1.4*
Consumer Expenditures	**-3.8**	**7.9**	*2.4*	*1.3*	*1.7*	*1.9*	**1.8**	*1.5*	*1.6*	*1.0*	*1.0*	*1.5*	*1.4*	*1.5*
Residential Fixed Investment	**6.8**	**9.2**	*-3.9*	*-1.7*	*2.0*	*2.0*	**0.5**	*-7.3*	*-7.5*	*-5.0*	*0.0*	*2.0*	*2.0*	*2.0*
Business Fixed Investment	**-5.3**	**7.4**	*4.1*	*2.3*	*3.5*	*3.6*	**10.0**	*0.6*	*1.3*	*1.2*	*2.8*	*3.0*	*3.2*	*3.4*
Structures	**-12.5**	**-8.0**	*-4.5*	*-1.1*	*2.4*	*3.0*	**-0.9**	*-7.0*	*-4.0*	*-2.0*	*0.0*	*0.0*	*1.0*	*2.0*
Equipment	**-8.3**	**13.1**	*3.2*	*0.7*	*2.8*	*3.0*	**14.1**	*-4.2*	*-2.0*	*-1.0*	*2.0*	*2.5*	*2.5*	*2.5*
Intellectual Property Products	**2.8**	**10.0**	*9.5*	*5.6*	*4.7*	*4.5*	**11.2**	*10.0*	*7.5*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
Federal Government	**5.0**	**0.6**	*-4.6*	*-1.6*	*-0.1*	*0.0*	**-6.8**	*-3.0*	*-3.0*	*-3.0*	*-1.0*	*-1.0*	*0.0*	*0.0*
State & Local Government	**0.9**	**0.4**	*0.6*	*1.0*	*1.0*	*1.0*	**-0.5**	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Net Exports ($bn, '12)	**-943**	**-1,284**	*-1,430*	*-1,341*	*-1,330*	*-1,349*	**-1,545**	*-1,419*	*-1,390*	*-1,367*	*-1,357*	*-1,345*	*-1,336*	*-1,327*
Inventory Investment ($bn, '12)	**-42**	**-33**	*149*	*100*	*63*	*60*	**189**	*133*	*140*	*135*	*120*	*105*	*95*	*80*
Industrial Production, Mfg.	**-6.3**	**5.7**	*4.0*	*2.2*	*3.0*	*3.2*	**3.9**	*4.3*	*2.4*	*1.2*	*1.7*	*2.4*	*2.8*	*2.9*
HOUSING MARKET														
Housing Starts (units, thous)	**1,395**	**1,605**	*1,691*	*1,720*	--	--	**1,720**	*1,687*	*1,658*	*1,699*	*1,719*	*1,765*	*1,703*	*1,692*
New Home Sales (units, thous)	**831**	**769**	*651*	*818*	*887*	*887*	**779**	*548*	*570*	*707*	*748*	*812*	*838*	*873*
Existing Home Sales (units, thous)	**5,638**	**6,127**	*5,641*	*5,629*	*5,740*	*5,852*	**6,057**	*5,505*	*5,465*	*5,537*	*5,587*	*5,615*	*5,643*	*5,670*
Case-Shiller Home Prices (%yoy)*	**9.5**	**18.8**	*9.0*	*2.7*	*3.5*	*3.8*	**19.9**	*11.3*	*10.1*	*9.0*	--	--	--	--
INFLATION (% ch, yr/yr)														
Consumer Price Index (CPI)**	**1.3**	**7.1**	*6.9*	*2.6*	*2.5*	*2.4*	**8.0**	*8.4*	*8.6*	*7.3*	*5.7*	*4.0*	*2.8*	*2.7*
Core CPI **	**1.6**	**5.5**	*5.5*	*2.4*	*2.6*	*2.5*	**6.3**	*5.9*	*6.1*	*5.8*	*4.9*	*4.0*	*3.1*	*2.6*
Core PCE** †	**1.5**	**4.9**	*4.2*	*2.5*	*2.3*	*2.2*	**5.2**	*4.7*	*4.7*	*4.4*	*3.9*	*3.5*	*3.1*	*2.7*
LABOR MARKET														
Unemployment Rate (%)^	**6.7**	**3.9**	*3.6*	*3.8*	*4.0*	*4.0*	**3.6**	*3.5*	*3.5*	*3.6*	*3.7*	*3.7*	*3.8*	*3.8*
U6 Underemployment Rate (%)^	**11.7**	**7.3**	*8.4*	*7.3*	*6.8*	*6.7*	**6.9**	*8.7*	*8.9*	*8.4*	*8.0*	*7.6*	*7.4*	*7.3*
Payrolls (thous, monthly rate)	**-774**	**562**	*285*	*57*	*69*	*55*	**539**	*359*	*158*	*83*	*47*	*47*	*63*	*70*
Employment-Population Ratio (%)^	**57.4**	**59.5**	*60.3*	*60.1*	*59.9*	*59.7*	**60.1**	*60.2*	*60.3*	*60.3*	*60.3*	*60.2*	*60.1*	*60.1*
Labor Force Participation Rate (%)^	**61.5**	**61.9**	*62.6*	*62.5*	*62.4*	*62.2*	**62.4**	*62.4*	*62.5*	*62.6*	*62.6*	*62.5*	*62.5*	*62.5*
Average Hourly Earnings (%yoy)	**4.9**	**4.2**	*5.0*	*4.1*	*3.7*	*3.3*	**5.4**	*5.3*	*4.9*	*4.5*	*4.2*	*4.2*	*4.1*	*3.9*
GOVERNMENT FINANCE														
Federal Budget (FY, $bn)	**-3,129**	**-2,772**	*-1,050*	*-1,100*	*-1,150*	*-1,300*	--	--	--	--	--	--	--	--
FINANCIAL INDICATORS														
FF Target Range (Bottom-Top, %)^	**0-0.25**	**0-0.25**	*3.25-3.5*	*3.25-3.5*	*3.25-3.5*	*3.25-3.5*	**0.25-0.5**	**1.5-1.75**	*2.75-3*	*3.25-3.5*	*3.25-3.5*	*3.25-3.5*	*3.25-3.5*	*3.25-3.5*
10-Year Treasury Note^	**0.93**	**1.52**	*3.30*	*3.15*	*3.15*	*3.15*	**2.32**	**2.98**	*3.25*	*3.30*	*3.20*	*3.15*	*3.15*	*3.15*
Euro (€/$)^	**1.22**	**1.13**	*1.08*	*1.20*	*1.25*	*1.25*	**1.11**	**1.04**	*1.05*	*1.08*	*1.11*	*1.14*	*1.17*	*1.20*
Yen ($/¥)^	**103**	**115**	*125*	*115*	*107*	*107*	**121**	**135**	*129*	*125*	*123*	*120*	*118*	*115*

* 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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Economic Releases

Date		Time (ET)	Indicator	Estimate GS	Estimate Consensus	Last Report
Tue	**Jul 05**	**10:00**	**Factory Orders (May)**	**+0.6%**	**+0.5%**	**+0.3%**
Wed	**Jul 06**	9:45	S&P Global US Services PMI (June final)	n.a.	51.6	51.6
		10:00	JOLTS Job Openings (May)	n.a.	11,000k	11,400k
		10:00	**ISM Services (June)**	**54.4**	**54.0**	**55.9**
Thu	**Jul 07**	**8:30**	**Trade Balance (May)**	**-$84.7bn**	**-$84.9bn**	**-$87.1bn**
		8:30	Initial Jobless Claims	**225k**	**230k**	**231k**
		8:30	Continuing Claims	n.a.	1,330k	1,328k
Fri	**Jul 08**	**8:30**	**Nonfarm Payrolls (June)**	**+250k**	**+273k**	**+390k**
		8:30	**Private Payrolls (June)**	**+200k**	**+240k**	**+333k**
		8:30	**Unemployment Rate (June)**	**3.6%**	**3.6%**	**3.6%**
		8:30	**Average Hourly Earnings (June)**	**+0.3%**	**+0.3%**	**+0.3%**
		8:30	Labor Force Participation (June)	n.a.	62.4%	62.3%

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

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We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Joseph Briggs, Ronnie Walker, Tim Krupa and Manuel Abecasis, 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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