

# READING THE METER

*A look inside a cleaner, safer,  
smarter auto industry.*



ALLIANCE FOR AUTOMOTIVE INNOVATION

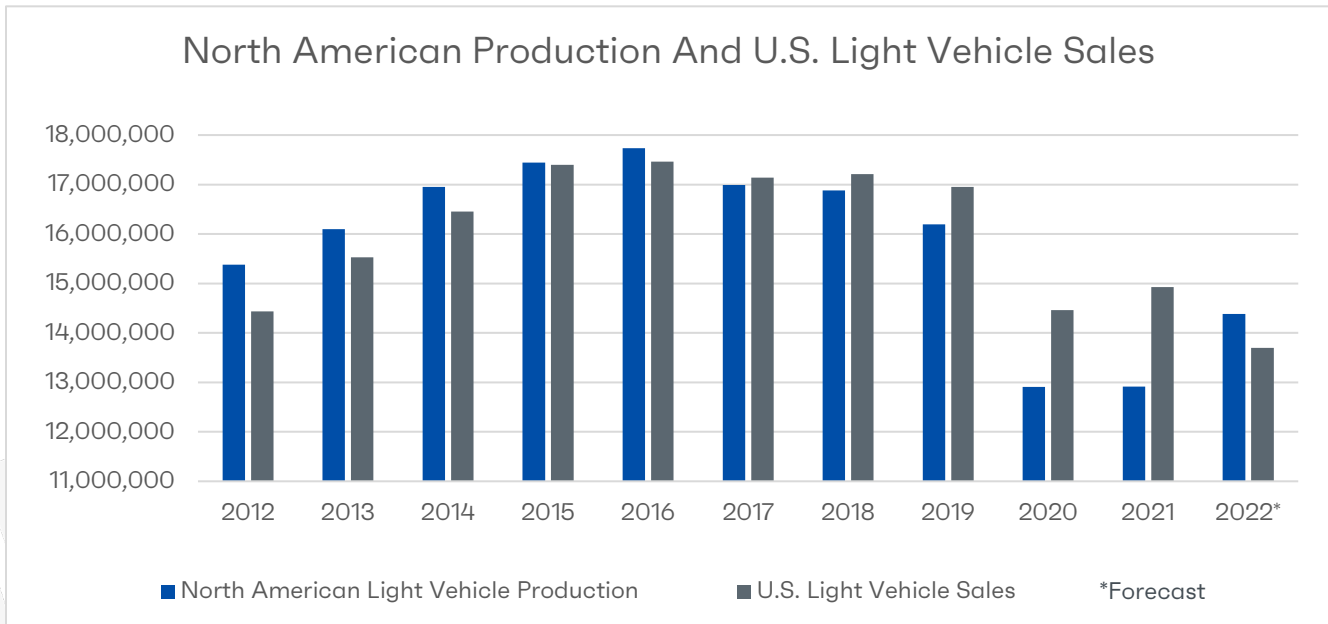
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## Forecast Meter

### Sales & Production Summary and Forecast (Updated 11/4)

<b>2021-2022 Sales, <sup>1</sup> Extended Sales Forecast <sup>2</sup> and Production Forecasts <sup>3</sup></b>		
	<b>U.S. Sales &amp; Forecasts</b>	<b>North American Production</b>
<b>January '21</b>	1,094,689 (-3.6% YoY)	1,175,940 (-14.0% YoY)
<b>February '21</b>	1,180,506 (-5.3% YoY)	1,120,200 (-22.9% YoY)
<b>March '21</b>	1,581,067 (+59.7% YoY)	1,376,904 (31% YoY)
<b>April '21</b>	1,512,186 (+111.4 YoY)	1,094,891 (-21% YoY)
<b>May '21</b>	1,577,941 (+41% YoY)	729,879 (+271% YoY)
<b>June '21</b>	1,296,517 (+17% YoY)	1,107,958 (-1.9% YoY)
<b>July '21</b>	1,288,494 (-7.9% YoY)	926,035 (3% YoY)
<b>August '21</b>	1,090,446 (-11% YoY)	1,113,327 (-19% YoY)
<b>September '21</b>	1,006,875 (-25% YoY)	907,470 (-33.4% YoY)
<b>October '21</b>	1,046,282 (-20% YoY)	1,140,383 (-22.1% YoY)
<b>November '21</b>	1,001,351, (-20% YoY)	1,168,245 (-9% YoY)
<b>December '21</b>	1,194,313 (-22.9% YoY)	1,029,501 (-13.8% YoY)
<b>January '22</b>	991,156 (-10% YoY)	1,111,390 (-4% YoY)
<b>February '22</b>	1,052,524 (-11.8% YoY)	1,112,429 (-1% YoY)
<b>March '22</b>	1,246,336 (-22% YoY)	1,350,102 (-.1% YoY)
<b>April '22</b>	1,226,950 (-22% YoY)	1,177,851 (+8% YoY)
<b>May '22</b>	1,104,993 (-23.8% YoY)	1,215,000 (+20.4% YoY)
<b>June '22</b>	1,126,724 (-16.8% YoY)	1,259,515 (+13.8% YoY)
<b>July '22</b>	1,129,371 (-8.4% YoY)	977,485 (+7% YoY)
<b>August '22</b>	1,128,200 (-.7% YoY)	1,413,262 (+29 %)
<b>September '22</b>	1,112,245 (+3.9% YoY)	1,258,501 (+38% YoY)
<b>October '22</b>	1,151,774 (+13.8% YoY)	
<b>1<sup>st</sup> Quarter '22</b>	14.01 million-unit SAAR	3,458,480 (-1.4% YoY)
<b>2<sup>nd</sup> Quarter '22</b>	13.4 million-unit SAAR	3,584,093 (+13.2% YoY)
<b>3<sup>rd</sup> Quarter '22</b>	3,358,116 (-.9% YoY)	3,636,418 (+24.6% YoY)
<b>2021 Full Year</b>	14,926,933 (+3.1% YoY)	12,919,000 (+4% YoY) (U.S. 8,871,661)
<b>2022 Full Year Estimate</b>	13.8 million units (WardsIntelligence)	14,386,000 (+11.4% YoY)



## U.S. Light Vehicle Sales Outlook (Updated 11/4)

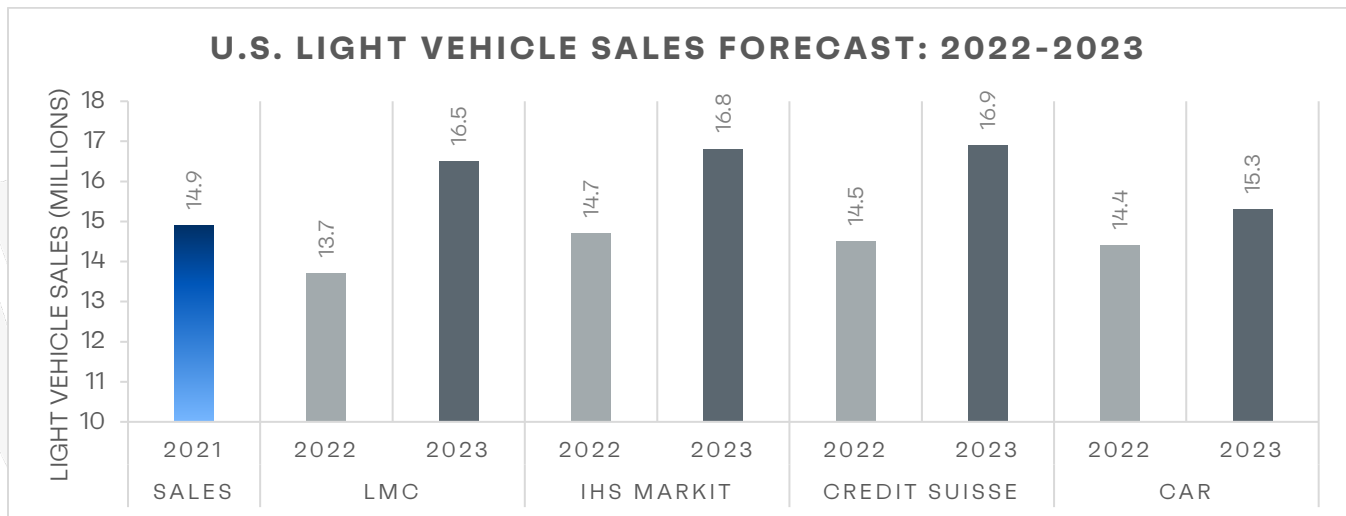
**Wards Intelligence Outlook (11/3)**<sup>4</sup>: “The immediate question is whether rising inventory means sales continue with momentum in November–December from October’s 14.9 million-unit seasonally adjusted annualized rate. October’s annualized rate was a 9-month high and well above the 13.3 million SAAR recorded in Q3. There were some temporary boosts to deliveries in October, generally volume that was delayed from Q3, that might not help in November. Initial modeling for November puts sales at a 14.7 million-unit SAAR, followed by 14.4 million in December. Fear that the economy is heading toward recession, inflation/rising interest rates and looming geopolitical tensions, are expected to tamp down demand in the final two months of 2022.

“However, inventory is expected to continue rising in November, including for more affordable vehicles. The inventory mix remains weighted toward high-priced vehicles, but the overall increase means lower-priced models are rising in availability, which could pull more consumers into the market – and probably did in October – that previously were put off by steadily escalating prices.”

**Wards Intelligence Outlook for 2022**<sup>5</sup>: “Sales could weaken over the last two months of the year from October. Wards Intelligence partner LMC Automotive has lowered its outlook for entire-2022 100,000 units to 13.7 million. The cut comes from a revised outlook calling for stiffer economic headwinds. Sales in 2023 are forecast for a significant gain but to a tepid 15.1 million units.

To meet the 12-month forecast, the fourth-quarter SAAR must total 14.2 million units, an improvement on Q2’s 13.3 million and Q3’s 13.4 million, but also meaning total November–December results will weaken from October’s outlook, if that holds firm.”

**Credit Suisse Outlook For 2022 (7/6)<sup>6</sup>:** “We reduce our 2022 US auto sales forecast to 14.5mn from 15.1mn prior. The central theme of the US auto sales market YTD (and for that matter over the past year) has been historic inventory constraints limiting sales volume. Indeed, 1H22 SAAR ended at 13.8mn, and to meet our prior forecast would have required an overly-challenging 2H ramp. Given inventory constraints are likely to linger in 2H, even if easing, we reduce our forecast; our revised forecast implies 2H SAAR of ~15.0mn, which is still below the normalized SAAR we would expect of 16-17mn.”



## North American Production & Inventory Outlook (Updated 11/4)

**“Wards Intelligence Inventory Outlook (11/3)<sup>7</sup>:** “U.S. light-vehicle inventory ended October up 7.8% from the prior month, creating more potential for sales in the final two months of the year to improve on, or at least maintain, last month’s long-time high results. . . . However, inventory is expected to continue rising in November, including for more affordable vehicles. The inventory mix remains weighted toward high-priced vehicles, but the overall increase means lower-priced models are rising in availability, which could pull more consumers into the market – and probably did in October – that previously were put off by steadily escalating prices.

“Inventory of the largest segment in sales, CUV, is up 56.9% from the same year-ago month, with the bread-and-butter subsegment, Middle CUV, up 111%. Until last month when Middle CUV accounted for 20% of the market, a dearth of inventory compared with higher margin vehicles, especially pickups and SUVs, pushed the sub-segment below its pre-pandemic market-share norms in most months over the past two years.

“Luxury-priced CUVs still dominate inventory in the CUV segment but rising inventory for Middle CUV bodes well for meeting more of the pent-up demand built up since March 2020 when the pandemic first impacted the U.S. market.”

**Wards Intelligence Production Outlook (10/20)**<sup>8</sup>: “Production in Q4 is tracking to a 12.1% year-over-year increase, with output totaling 3.784 million units, the highest for any quarter since Q4-2020’s 3.940 million. Fourth-quarter light-vehicle production is projected to total 3.651 million units, 12.8% above year-ago.

“The Q4 outlook is 7,200 units below month-ago’s expectations for the period, mostly due to nearly 11,000 units cut from cars, partially offset by a slight gain in trucks.

“Production in Q3, and the projected Q4 total, both are below 2019 levels, the final year before the pandemic and subsequent supply-chain disruptions greatly suppressed production and sales. Third-quarter output was 8.5% below Q3-2019, and Q4 is 3.2% below like-2019.

“Production for entire 2022 is estimated at 14.87 million units, 10.9% above 2021’s 13.407 million. Based on the tracking for the final three months of the year, light vehicles will end the year at 14.386 million units, 11.4% above 2021’s 12.919 million.”

**S&P Global Mobility Outlook**<sup>9</sup>: “North America: The outlook for North America light vehicle production was reduced by 109,000 units and by 234,000 units for 2022 and 2023, respectively (and was reduced by 53,000 units for 2024). The outlook for North America light vehicle production for 2022 was reduced 0.7% to 14.47 million units on continued supply chain, labor and logistic issues. A recent uptick in unplanned downtime relating to a broad array of supply chain issues has curbed production with manufacturers still challenged to produce vehicles at normal operating patterns. The near-term production forecast continues to be derived from automakers’ ability to produce remaining divorced from economic, demand and inventory conditions amid ongoing supply chain issues. Concerns surrounding ongoing supply chain challenges and demand destruction amid recessionary fears results in the outlook for 2023 being revised down 1.5% to 15.39 million units. With the outlook for US demand sharply reduced, inventory creation has entered its formative stage and is projected to reach 2.0 million units by the end of 2023. Following reductions last month due to production constraints extending into 2024 along with the effects of demand destruction, the outlook for 2024 was revised down a further 0.3% to 16.16 million units. Greater demand destruction amid a recessionary outlook results in the risk for additional cuts to the outlook for 2024 with output in 2023 serving as an inventory restocking buffer.”

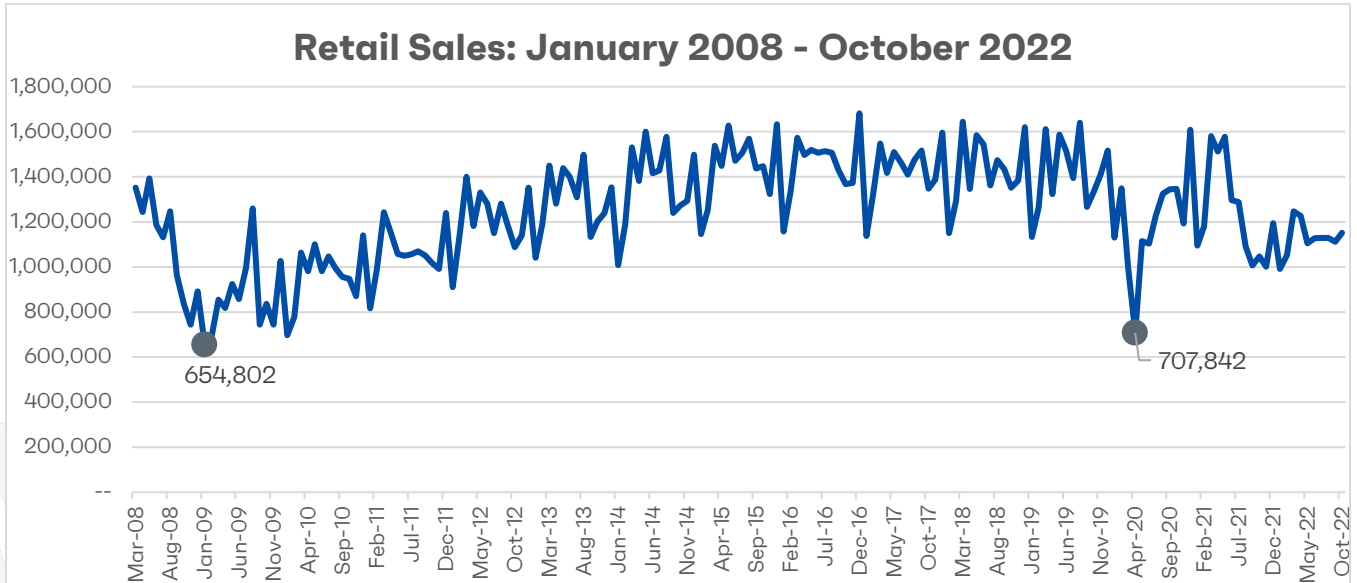
## Market Meter

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### U.S. Light Vehicle Sales (Updated 11/4)

#### **Monthly Sales (Updated 11/3)**

This chart helps to put into context the monthly retail sales due to the COVID pandemic and showing the relative drop in sales compared to the 2008 financial crisis.



### **October Sales (Updated 11/3)**

**WardsIntelligence** <sup>10</sup>: “U.S. light-vehicle sales in October posted a 9-month-best seasonally adjusted annual rate, while volume recorded a hefty increase over the year-ago month.

“The uptick comes after inventory entered the month at a long-time high, which also likely was the main cause of a month-to-month decline in average vehicle transaction prices. In fact, increased availability led to market-penetration gains of cars and non-luxury CUVs, which helped bring down the average price of all vehicles for a third straight month.

“October’s SAAR of 14.9 million units was the highest since January’s 15.1 million, and well above Q3’s 13.3 million and same-month 2021’s 13.2 million. It also marked a huge month-to-month gain from September’s 13.6 million units.

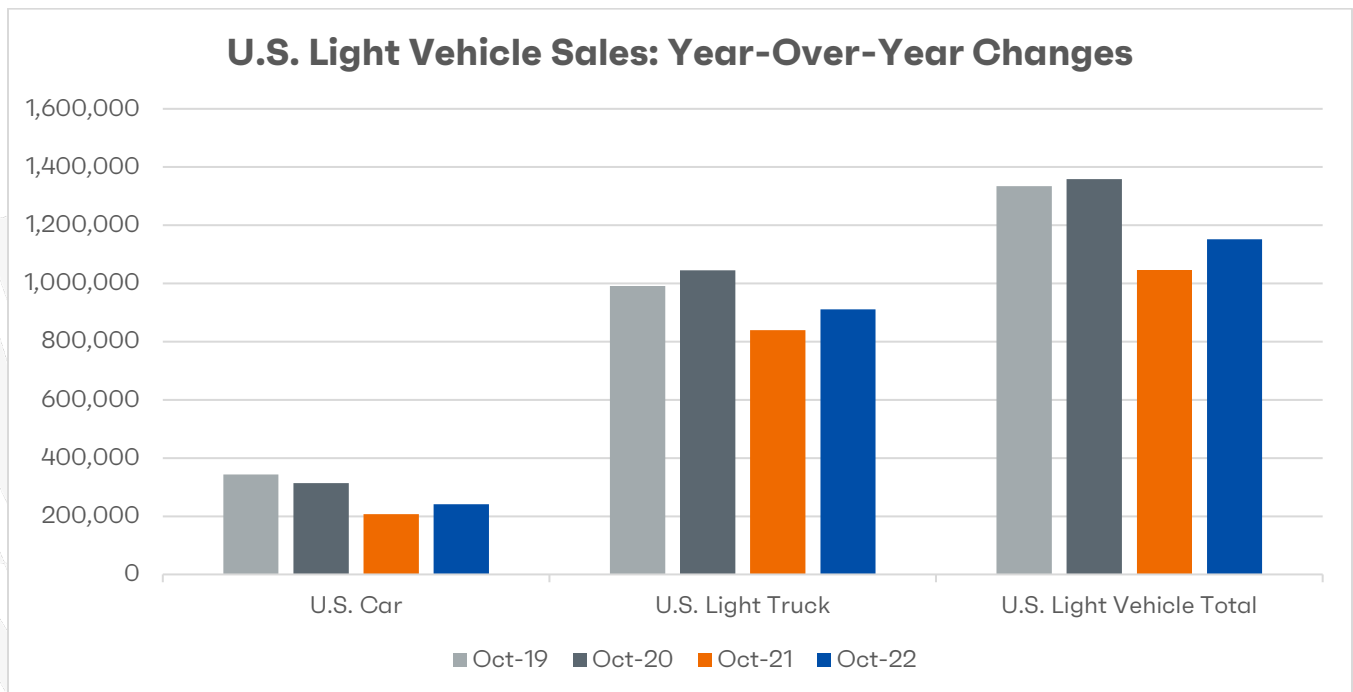
“Raw volume totaled 1.15 million units, up 9.6% from like-2021. October’s daily selling rate over 26 selling days was 44,299, 13.8% above same-month 2021’s 38,926 – 27 selling days. After 14 straight declines through August, the DSR was up year-over-year for a second consecutive month in October.

“Greater product availability and apparent easing on price increases likely were behind the improvement.

“Also propping deliveries in October were some vehicles stuck in the pipeline over the summer due to issues with shipping, which were counted in inventory but not available for customer delivery until last month. Also, some dealers were able to deliver a major portion of the partially-built vehicles – those

built but waiting for a microchip – which automakers stockpiled over the summer. Those vehicles were not counted in inventory until becoming a saleable unit.

“Another dynamic that might have slightly boosted volume was delayed purchases from September when Hurricane Ian halted deliveries in much of Florida and the states surrounding it at the end of the month, putting a small dent in last month’s results.”



### **Fleet Sales (Updated 11/3)**

**TrueCar**<sup>11</sup>: “Fleet sales for October 2022 are expected to be up 64% from a year ago and up 11% from September 2022 when adjusted for the same number of selling days.”

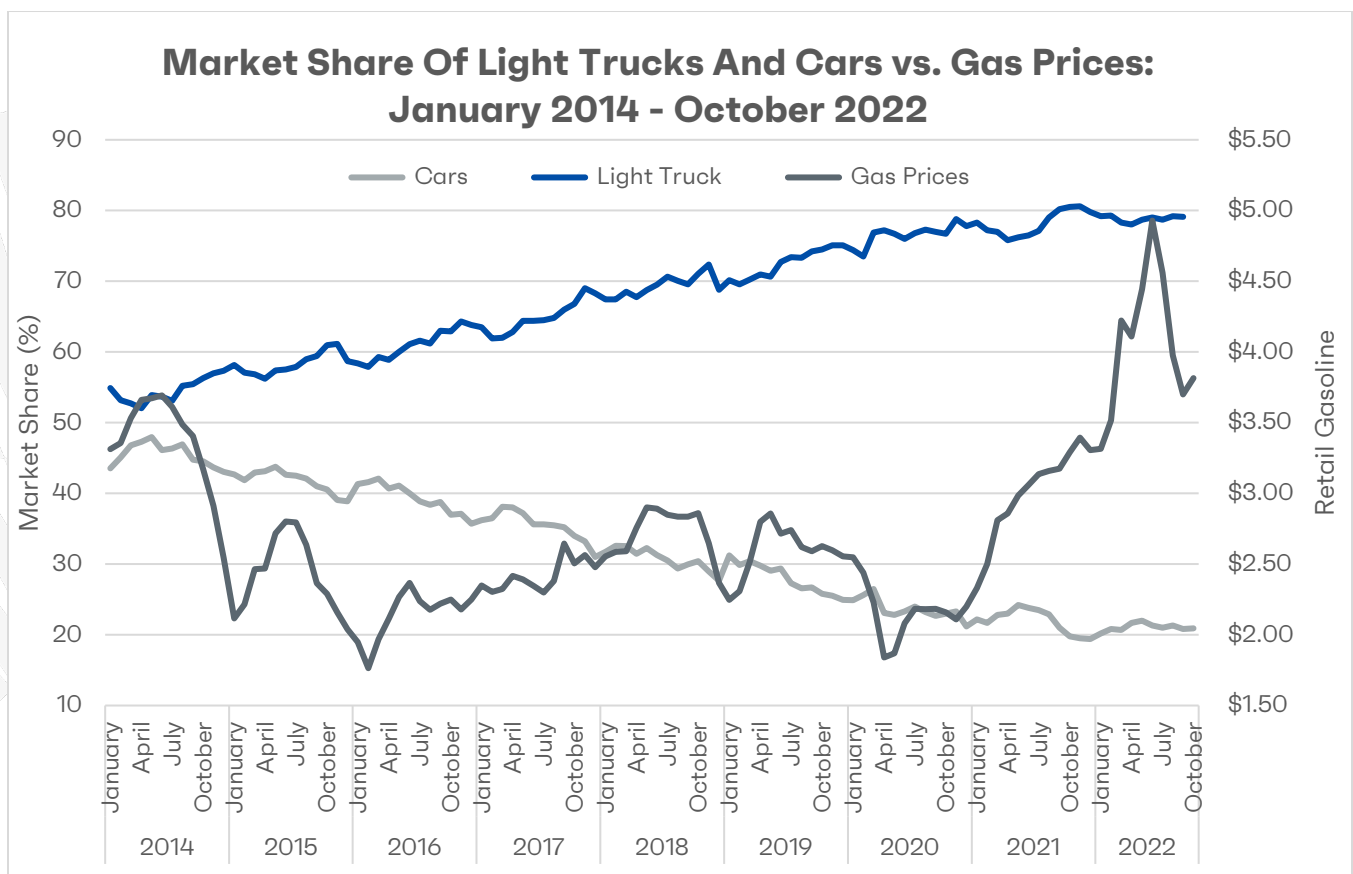
**J.D. Power**<sup>12</sup>: “Fleet sales are expected to total 149,700 units in October, up 41.6% from October 2021 on a selling day adjusted basis. Fleet volume is expected to account for 13% of total light-vehicle sales, up from 11% a year ago.”

### **Segments vs. Gas Prices (Updated 11/4)**

**Monthly Sales For September:** Light trucks accounted for nearly 79 percent of sales in October, a 1 pp decrease in market share from a year ago. Compared to the same period in 2021, sales of cars are up

nearly 34,000, and down more than 102,000 from October 2019, when cars comprised 26% of the market as opposed to the 21% of the market passenger cars have now.

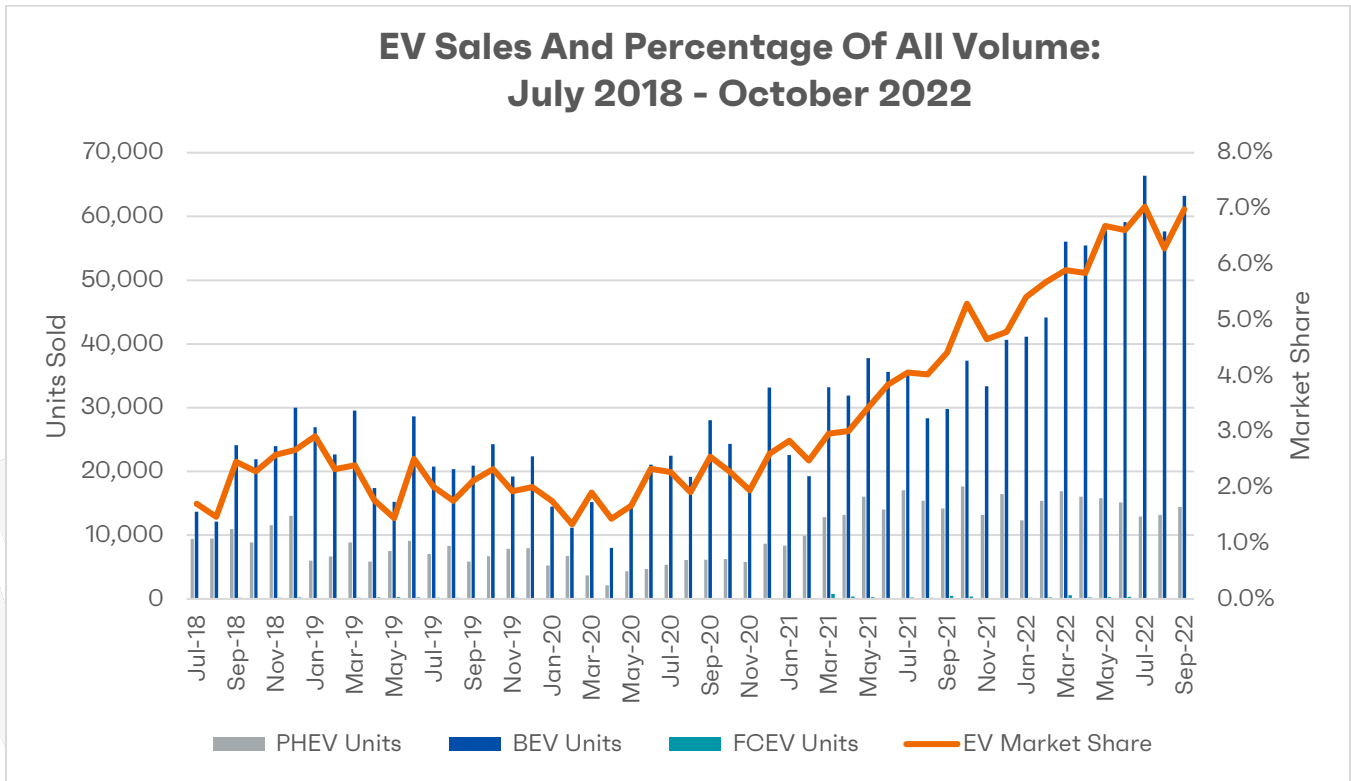
**Historic Perspective:** The upward trend in the popularity of light trucks over cars has been steady since 2013, when only 2% of annual market share separated the two segments<sup>13</sup> and gas was over \$3.00<sup>14</sup> a gallon. As fuel prices dropped below the \$3.00 mark in mid-September 2014, light truck sales began to take off. Gas prices since have averaged only \$2.80 a gallon (through August 2022) and when combined with increased fuel economy for light trucks, an increase of 4 mpg since 2013, the perfect conditions existed to continue fueling light truck market growth.<sup>15</sup>



## EV Powertrain Sales (Updated 11/4)

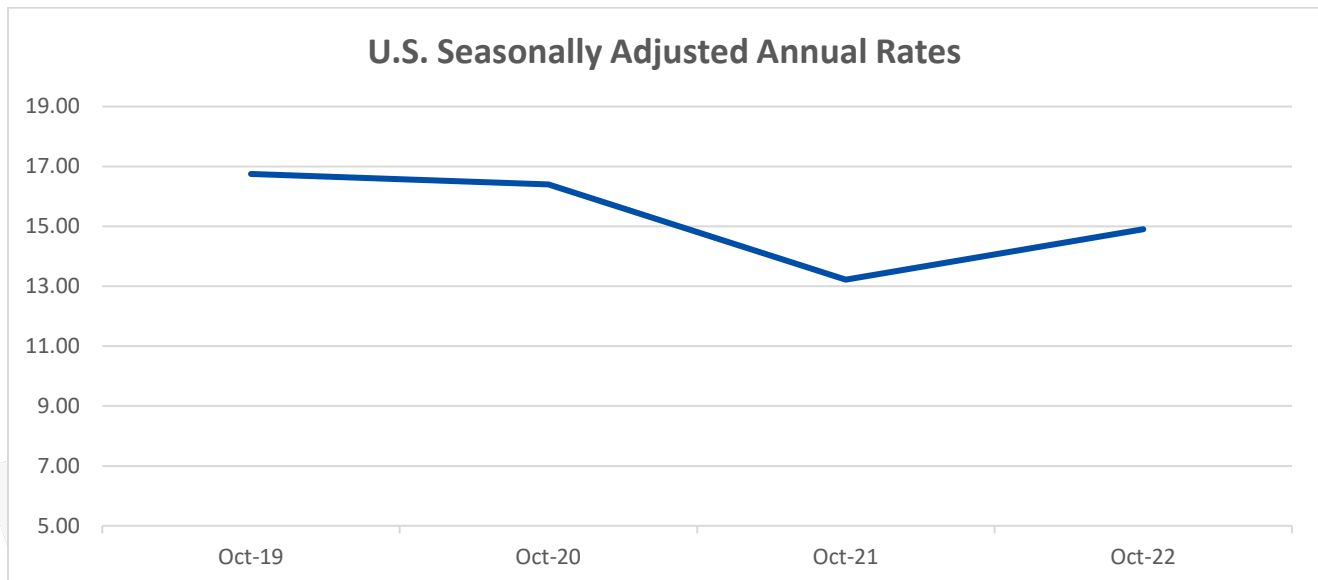
Sales of electric vehicles (BEV, PHEV, & Fuel Cell) accounted for 7.5% of total vehicle sales in October 2022 (86,102 units), the highest by market share and volume to date. October's EV market share is up 2.2 pp from a year ago and up 0.5 pp from September 2022. Sales of battery electric vehicles led the way for ZEVs, accounting for 6.1% of total sales, up 2.5 pp from October 2021. Plug-in hybrids accounted for 1.3%, down 0.34 pp than the same time last year.<sup>16</sup>





## Seasonally Adjusted Annual Rates (Updated 11/4)

**WardsIntelligence:** “U.S. light-vehicle sales in October posted a 9-month-best seasonally adjusted annual rate, while volume recorded a hefty increase over the year-ago month. . . . October’s SAAR of 14.9 million units was the highest since January’s 15.1 million, and well above Q3’s 13.3 million and same-month 2021’s 13.2 million. It also marked a huge month-to-month gain from September’s 13.6 million units.”<sup>17</sup>



## Average Transaction Price (Updated 11/4)

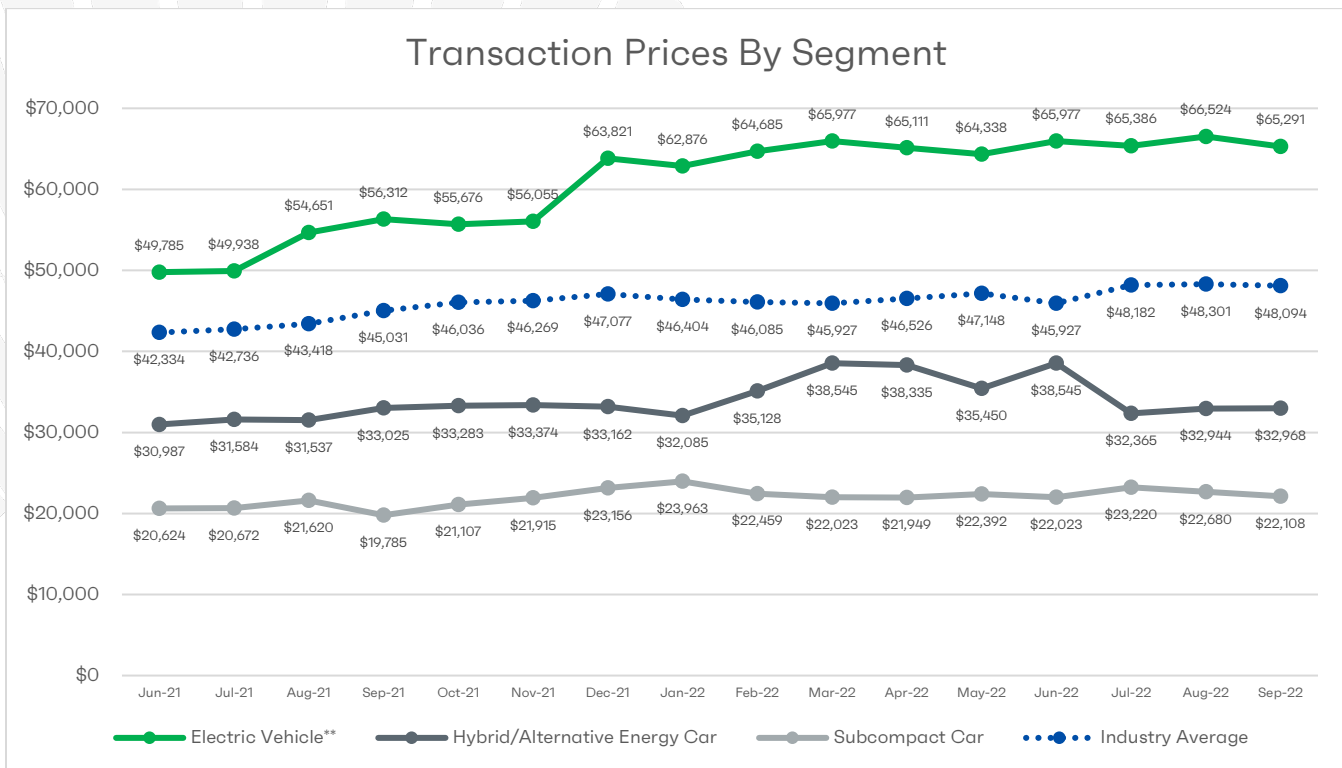
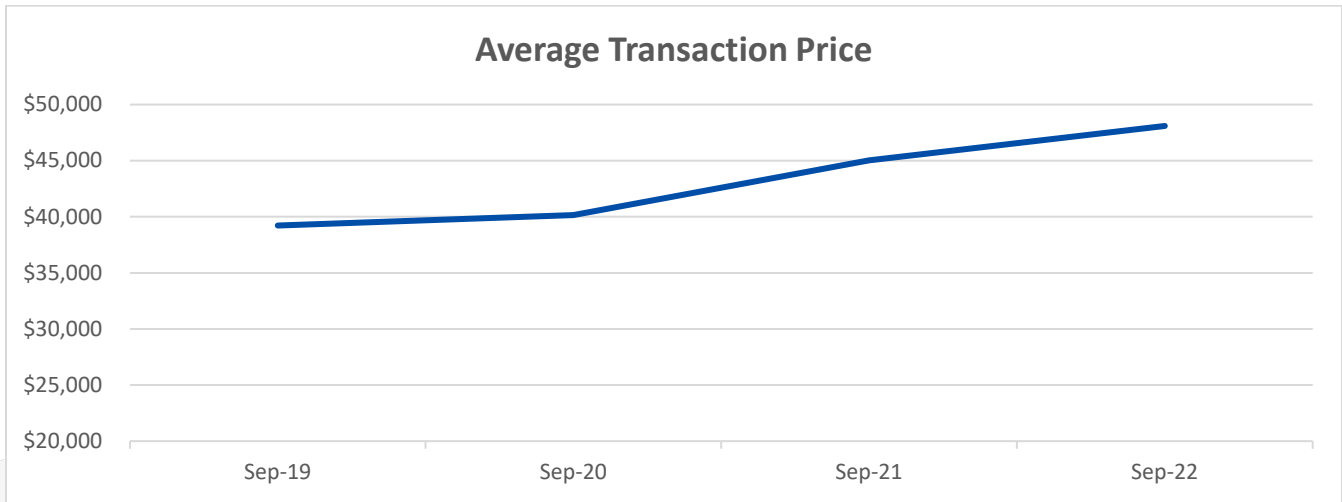
**J.D. Power (Updated 11/4)**<sup>18</sup>: “For October, new-vehicle prices remain at record levels, with the average transaction price expected to reach \$45,599—a record for October and a 2.7% increase from a year ago. The increase in sales volume and near record level transaction prices are resulting in buyers being on track to spend nearly \$46.0 billion on new vehicles this month—the highest level ever for the month of October and a 10.9% increase from October 2021.”

**Kelley Blue Book (September) (Updated 10/22)**<sup>19</sup>: “The average price paid for a new vehicle in the United States in September 2022 was down from August's record but remains solidly above the \$48,000 mark, according to new data released today by Kelley Blue Book, a Cox Automotive company.

“The Kelley Blue Book new-vehicle average transaction price (ATP) decreased to \$48,094 in September, slightly lower than the previous high of \$48,240. September prices dipped 0.3% (\$146) month over month from August, but were up 6.1% (\$2,775) year over year from September 2021.

“According to Kelley Blue Book calculations, September marks a record 16th straight month that new-vehicle ATPs were higher than the average manufacturer's suggested retail price (MSRP), also known as the sticker price.

“The average price paid for a new EV declined in September by \$1,162, or down 1.8%, compared to August, but was up by 9.7% compared to a year ago in September 2021. The average new EV price was \$65,291, according to Kelley Blue Book estimates, well above the industry average and aligning more with luxury prices versus mainstream prices.”



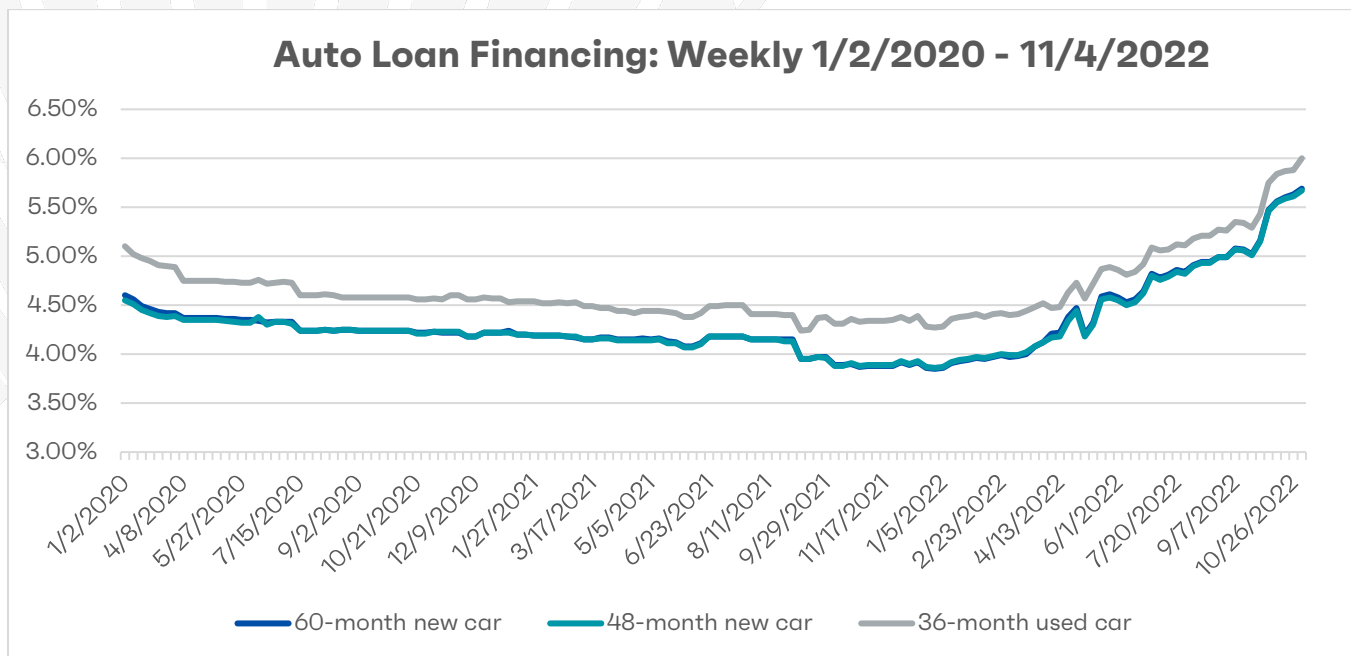
## Auto Loan Financing (Updated 11/4)

**JD Power (10/6)<sup>20</sup>:** “Elevated pricing coupled with interest rate hikes are inflating monthly loan payments. After breaking the \$700 level for the first time ever in July, the average monthly finance payment in October is on pace to be \$711, up \$47 from October 2021. That translates to an 7.0%

increase in monthly payments from a year ago. The average interest rate for new-vehicle loans is expected to increase 199 basis points from a year ago to 6.03%.”

**Interest Rates (updated 11/4):** Interest rates increased 0.06 pp for the 60-month, 48-month, and 0.12 pp for the 36-month used car. Rates now stand at 5.69%, 5.67%, and 6%, respectively. Since the beginning of 2020, 60-month rates are up 1.09 pp, and are up 1.81 pp since the same time a year ago.<sup>21</sup>

Dates	60-month new car	48-month new car	36-month used car
1/2/2020	4.60%	4.55%	5.10%
11/3/2021	3.88%	3.89%	4.34%
10/26/2022	5.63%	5.61%	5.88%
11/2/2022	5.69%	5.67%	6.00%
One Week Change	0.06%	0.06%	0.12%
Two Week Change	0.09%	0.08%	0.13%
Change since 1/3/20	1.09%	1.12%	0.90%
One Year Change	1.81%	1.78%	1.66%



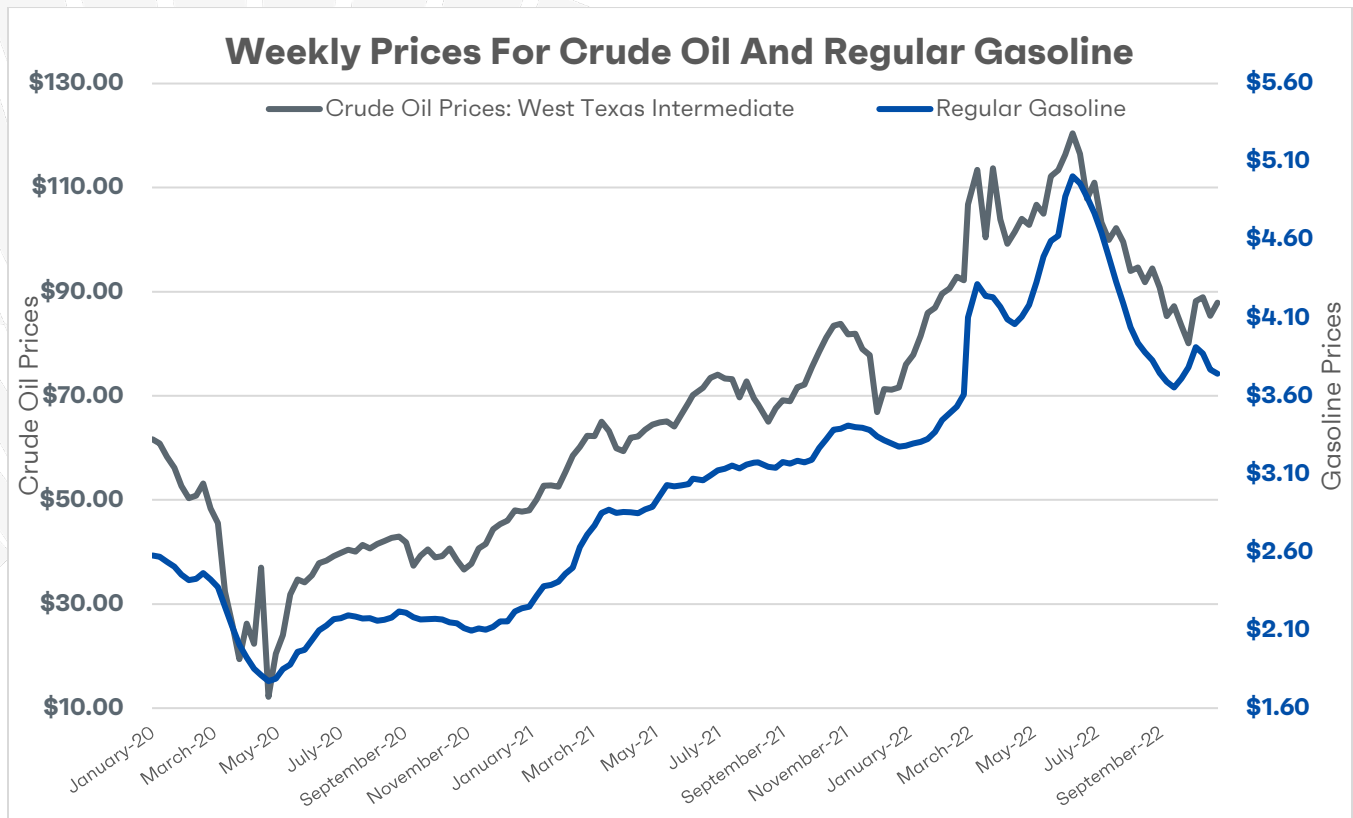
## Crude Oil and Gas Prices (Updated 11/4)

**EIA Outlook For Gasoline (10/20)**<sup>22</sup>: “U.S. retail gasoline prices in our forecast average \$3.80 per gallon (gal) in 4Q22 and \$3.57/gal in 2023. Retail diesel prices average \$4.86/gal in 4Q22 and \$4.29/gal in 2023. We expect U.S. gasoline consumption in 2022 to average 8.8 million b/d, down

40,000 b/d from 2021, and we expect it to stay near that level in 2023, with rising fuel efficiency offsetting price- and economy-driven increases in transportation demand.”

**EIA Outlook For Oil (10/20)**<sup>23</sup>: “The front-month futures price for West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, increased by \$1.84/b during the same period, settling at \$88.45/b on October 6. These price increases are mostly attributable to expectations around crude oil production cuts by OPEC+ producers, which were announced at 2 million b/d on October 5. From September 30 to October 6, the front-month futures price for Brent crude oil increased by \$6.46/b and the front-month futures price for WTI crude oil increased by \$8.96/b.”

**Gas And Oil Remain High:** Oil prices, as benchmarked at West Texas Intermediate, rose \$2.515 to \$87.87 at the end of October. Since election day 2020, oil prices are \$51.27 a barrel higher. Gas prices fell \$0.03 to \$3.74. Gas is 45% higher than the beginning of 2020.<sup>24</sup>



## Production Meter

### U.S. Light Vehicle Production (Updated 10/20)

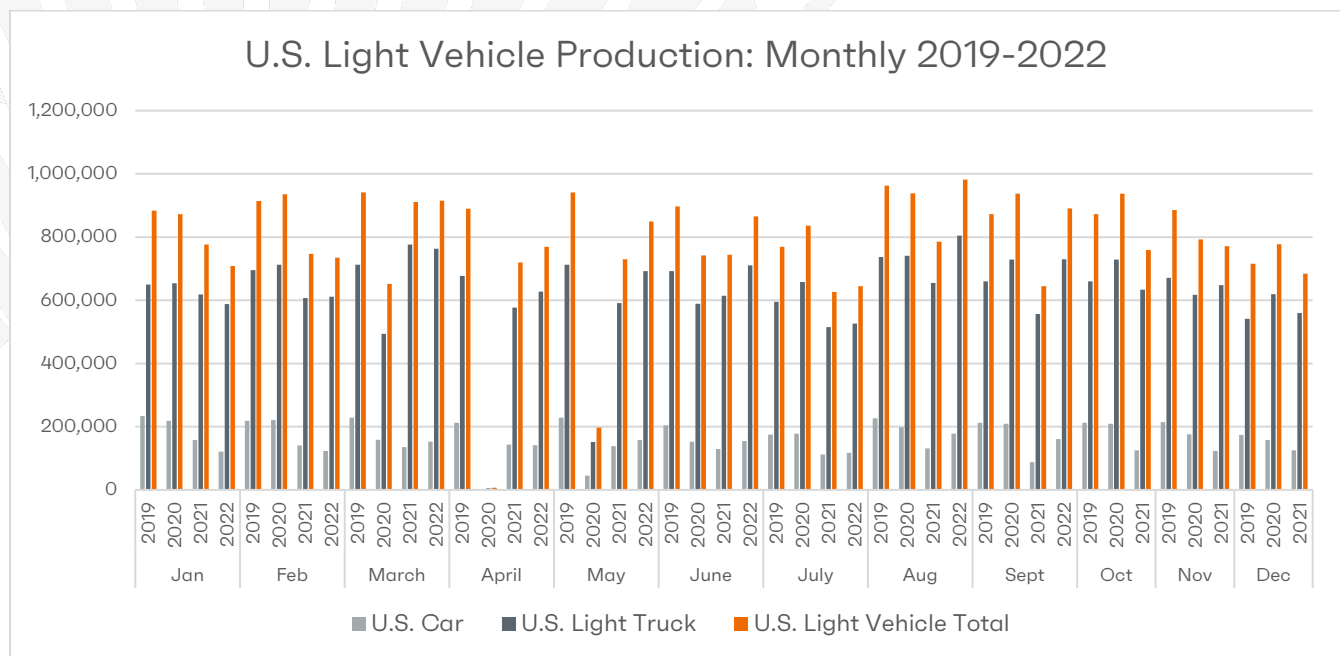
**WardsIntelligence (Updated 10/20)<sup>25</sup>:** “North America production in September finished below expectations but still close enough to projections for the month to reaffirm the supply-chain problems of the past two years, although not resolved, are stabilizing. Combined production of light vehicles and medium-/heavy-duty trucks in September totaled 1.308 million units, some 20,300 units below month-ago’s projection, but 38.0% above the same-month year-ago. Light-vehicle output totaled 1.259 million units, 38.3% above like-2021.

“Third-quarter output of all vehicles totaled 3.777 million units, 24.9% above Q3-2021. The July-September increase was the second straight quarterly rise after three consecutive declines and marks a significant improvement after production tanked in 2021 due mostly to the global shortage of semiconductors that hurt materials and parts supplies.

“Light-vehicle output in Q3 totaled 3.636 million units, 24.6% above like-2021.”

**Monthly Production** (Updated 10/20)

U.S. Light vehicle production for September 2022 decreased month-over-month by 8 percent, totaling 890,298 vehicles (160,905 cars, 729,393 light trucks), year-over-year, production is up 37.6 percent from 2021. <sup>26</sup>



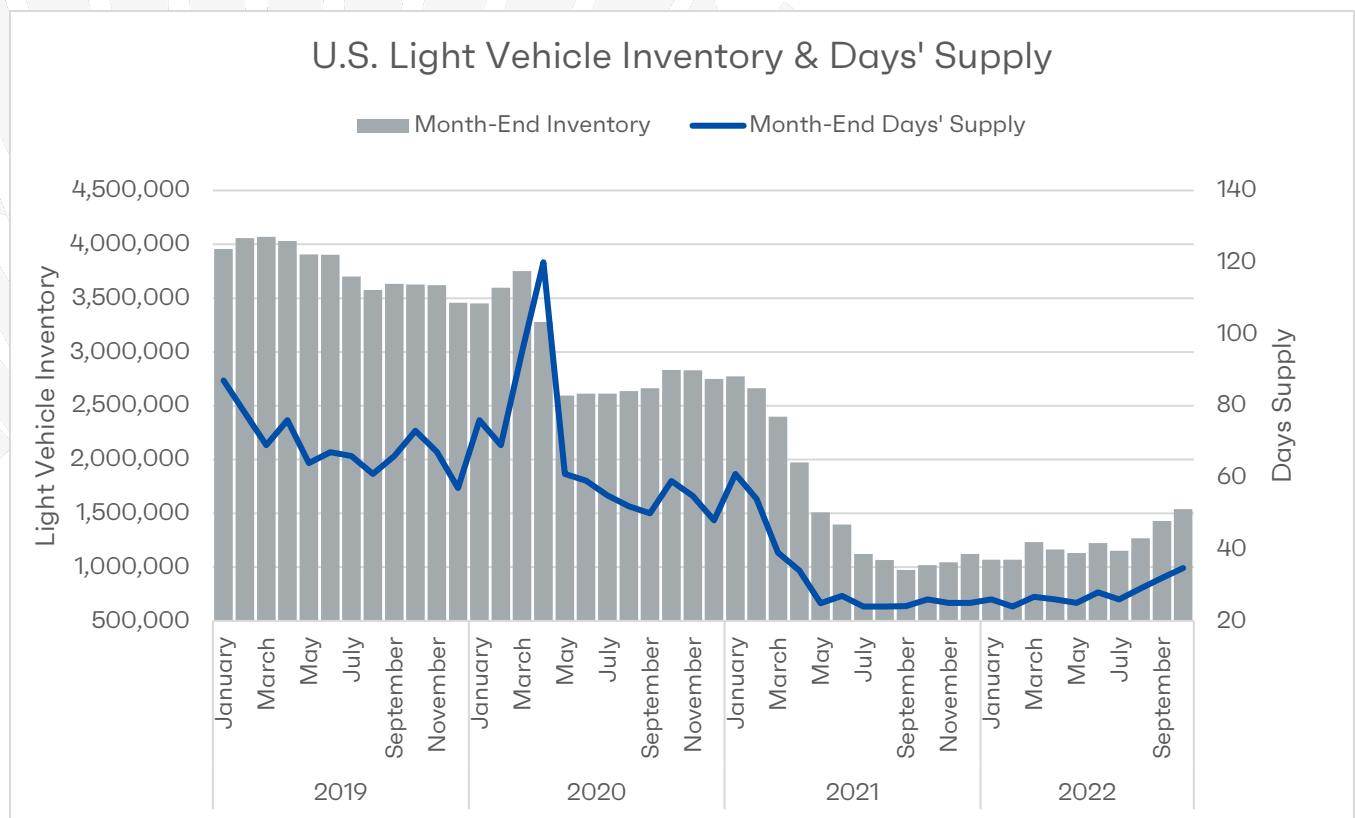
**U.S. Light Vehicle Inventory and Days’ Supply (Updated 11/4)**

**WardsIntelligence Inventory Update (9/7) <sup>27</sup>:** “U.S. light-vehicle inventory ended October up 7.8% from the prior month, creating more potential for sales in the final two months of the year to improve on, or at least maintain, last month’s long-time high results.

“The total was the third straight month-to-month gain after a stretch beginning in February 2021 when supply-chain disruptions, and their negative impact on production, caused a decline in nearly every month.

“Oct. 31 inventory of light vehicles on dealer lots or in transit totaled 1.54 million units. The total was 51.3% above like-2021’s 1.02 million units, and highest for any month since 1.97 million in April 2021. October’s total remains a far cry from the 3.75 million units typical for the month prior to the start of the pandemic in 2020, but represents more confirmation supply-chain disruptions, though still a problem, are improving.

“Days’ supply increased to 35 from September’s 32 and was well above October 2021’s 26.”

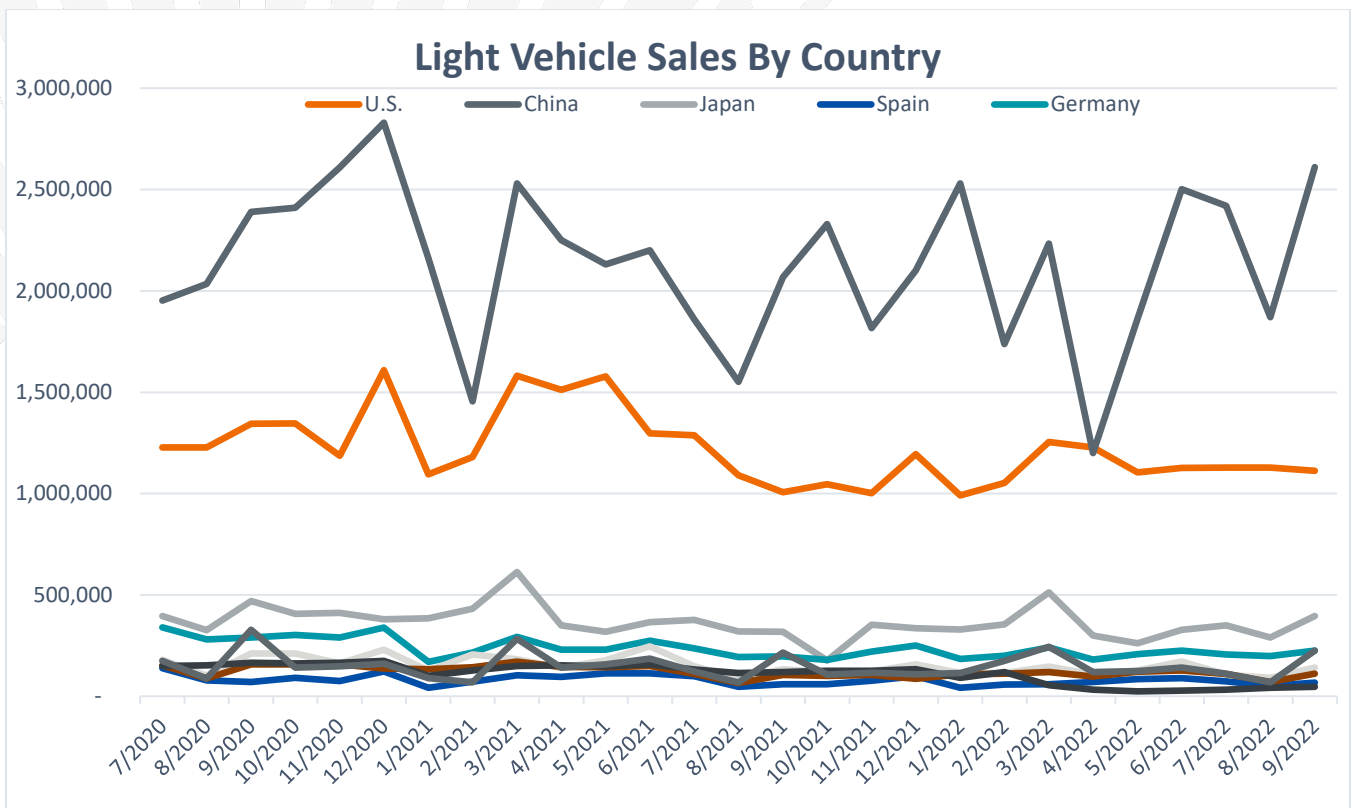


## Global Meter

### Global Light Vehicle Sales (Updated 11/4)

**Wards Intelligence**<sup>28</sup>: “Sales recorded year-over-year growth in nearly all global markets in September, with the lone regional holdout, Europe, almost flat with year-ago numbers. Global sales in September, including light vehicles and medium-/heavy-duty trucks, totaled 7.53 million units, up 17.3% from same-month 2021, and 10.2% above the prior month’s 6.83 million. September’s data includes some preliminary estimates and August’s total includes revisions. Light-vehicle volume totaled 7.27 million units, 17.6% above September 2021’s 6.18 million. Regionally, the biggest gains were in Asia/Pacific, with volume for all vehicles up 28.9% year-over-year. In A/P, September sales in China, the biggest global market, were up 24.7% year-over-year. Deliveries in India, the second largest market in A/P, was up a whopping 98.4%.

“Calendar year-to-date global volume for all vehicles through September was 61.14 million units, 3.3% below like-2021’s 63.21 million. Light-vehicle sales were down 2.3% to 58.93 million. In its most recent revision in September, Wards Intelligence partner LMC Automotive forecasted global light-vehicle sales of 81.49 million units in 2022, up slightly from 2021’s 81.44 million.”





## Global Light Vehicle Production (Updated 10/20)

**S&P Global Mobility Forecast (10/20)** <sup>29</sup>: “As ongoing supply chain challenges continue to gradually improve, markets are increasingly reckoning with the destructive forces of high inflation, rising interest rates and the specter of economic stagnation or outright contraction in key markets such as the US and West Europe pressuring fragile pent-up demand. While the immediate near-term outlook is supported by continued strong performance in Greater China and South Asia through the balance of 2022, perhaps more significant are the downward revisions for North America, Europe and other markets to reflect the impacts of heightened demand destruction. In the longer term, vehicle pricing will remain a key consideration and a potential headwind to demand, particularly as many markets shift to much higher levels of electrification. The October 2022 forecast update reflects near-term upgrades for Greater China on the strength of demand stimulus and South Asia as the region benefits from a stabilized supply chain supporting efforts to clear order backlogs. However, perhaps more important are the near-to-intermediate term downward revisions particularly focused on Europe, North America and Japan and eventually other regions. While semiconductor availability remains an important consideration, demand destruction is expected to play a more fundamental role and accelerate in 2023 in several key markets, impacting production through the intermediate term and the magnitude/need for inventory restocking. The more noteworthy regional adjustments with the latest forecast update are detailed below:

**“Europe:** The outlook for Europe light vehicle production was reduced by 163,000 units and by 316,000 units for 2022 and 2023, respectively (and reduced by 489,000 units for 2024). The extreme near-term outlook for Europe through 2022 continues to be influenced by supply-side challenges, particularly with semiconductor supplies which are improving, yet not as strongly as previously expected. Looking to 2023, the narrative shifts from supply constraints to demand destruction with recession becoming the critical watchword. The downgrade for the year is back-loaded to H2-2023 to reflect additional demand destruction impacts. For H1-2023, the forecast is largely unchanged as we continue to expect a stabilization of build rates reflecting improving supply conditions. Starting with last month’s forecast, the baseline outlook for Europe embeds production disruptions related to pressures on gas supplies and energy prices. We believe that the situation will cause rescheduling in the supply chain to save on the cost of power and will eventually impact vehicle production. However, we are not adopting our pessimistic scenario that anticipates mandatory gas rationing. This could materialize if additional adverse elements such as prolonged severe weather or failure of another source of gas arises this winter.

**“Greater China:** The outlook for Greater China light vehicle production was increased by 614,000 units for 2022 and was essentially unchanged for 2023 (and was reduced by 358,000 units for 2024). After a posting strong growth rate of over 40% in August, mainland China light vehicle production retained momentum and outperformed expectations in September. Supported by robust NEV sales and the ongoing effects of demand stimulus, production for Q3-2022 and Q4-2022 was upgraded by 362,000 and 252,000 units, respectively, and full-year 2022 production for the region now stands at

26.4 million units representing year-over-year growth of 6.3%. The outlook for 2023 was largely unchanged and continues to reflect the extension of NEV incentives supporting the domestic market despite macroeconomic headwinds. Meanwhile, the production outlook for 2024 was reduced due to economic and geopolitical uncertainties impacting the market. Consequently, Greater China light vehicle production is expected to post gains of 0.9% in 2023 and 4.4% in 2024.

**“Japan/Korea:** Full-year 2022 Japan production volume was reduced by 164,000 units relative to the September forecast. The primary focus of the downward revision was related to Toyota due to ongoing challenges in securing enough semiconductors to achieve robust production plans. Further, Honda also continues to feel the effects of semiconductor supply chain challenges impacting near-term production. Full-year 2023 and 2024 Japan production volumes were downgraded by an average of nearly 110,000 units per year compared to the prior forecast. We expect all automakers will have difficulty recovering the lost volume which has been accumulated since 2021, given fading demand as a result of higher inflation and interest rates under the Ukraine crisis. Full-year 2022 South Korea production was increased by 12,000 units relative to the previous forecast. While exports are maintaining a steady upward trend, domestic demand also turned to growth in September, supporting the recovery trend of production. The upward momentum is expected to be followed through 2023, resulting in a 14,000-unit upgrade. However, volumes were reduced by 38,000 units in 2024 as additional demand destruction from a deteriorating economic outlook, particularly in the US and the EU, is expected to affect exports. In the long-term, South Korea production was reduced primarily due to the production transfer of the Kia EV6 to the US and the lingering impacts of the global economic downturn.

**“North America:** The outlook for North America light vehicle production was reduced by 109,000 units and by 234,000 units for 2022 and 2023, respectively (and was reduced by 53,000 units for 2024). The outlook for North America light vehicle production for 2022 was reduced 0.7% to 14.47 million units on continued supply chain, labor and logistic issues. A recent uptick in unplanned downtime relating to a broad array of supply chain issues has curbed production with manufacturers still challenged to produce vehicles at normal operating patterns. The near-term production forecast continues to be derived from automakers’ ability to produce remaining divorced from economic, demand and inventory conditions amid ongoing supply chain issues. Concerns surrounding ongoing supply chain challenges and demand destruction amid recessionary fears results in the outlook for 2023 being revised down 1.5% to 15.39 million units. With the outlook for US demand sharply reduced, inventory creation has entered its formative stage and is projected to reach 2.0 million units by the end of 2023. Following reductions last month due to production constraints extending into 2024 along with the effects of demand destruction, the outlook for 2024 was revised down a further 0.3% to 16.16 million units. Greater demand destruction amid a recessionary outlook results in the risk for additional cuts to the outlook for 2024 with output in 2023 serving as an inventory restocking buffer.

**“South America:** The outlook for South America light vehicle production was reduced by 6,000 units and increased by 2,000 units for 2022 and 2023, respectively (and reduced by 31,000 units for 2024). The outlook for 2022 was downgraded modestly based weaker production results from GM in

Colombia. While production for 2023 was only modestly revised, the outlook for 2024 was downgraded primarily due to a cautious outlook for Brazil (post-election) and reduced growth expectations. The longer-term outlook was downgraded over the full forecast horizon by 1.1% (around 48,000 units per year on average). The reductions largely follow downward adjustments to demand expectations reflecting a generally more pessimistic outlook for the region, particularly given deteriorating macroeconomic conditions.

**“South Asia:** The outlook for South Asia light vehicle production was increased by 108,000 units and by 2,000 units for 2022 and 2023, respectively (and was essentially unchanged for 2024). The upgraded outlook for 2022 was largely driven by stronger actual production for the ASEAN market as recorded in Q3-2022 on easing supply chain pressures. Most major automakers in the region are ramping up the production during Q4-2022 in a bid to fulfil large backlogs which may now extend to mid-2023. However, we maintain a rather cautious outlook for the remainder of 2022 given concerns over constrained chip supply that will continue through 2023. Also, soaring inflation caused by rising energy and food costs have forced central banks across the region to hike interest rates as a response. This is likely to negatively impact automotive demand in the near-term. The outlook for 2023 is essentially intact as strong production largely driven by backorder fulfillment and inventory restocking in the first half of 2023 is offset by more challenging market conditions in the second half of the year due to ongoing macroeconomic headwinds.”

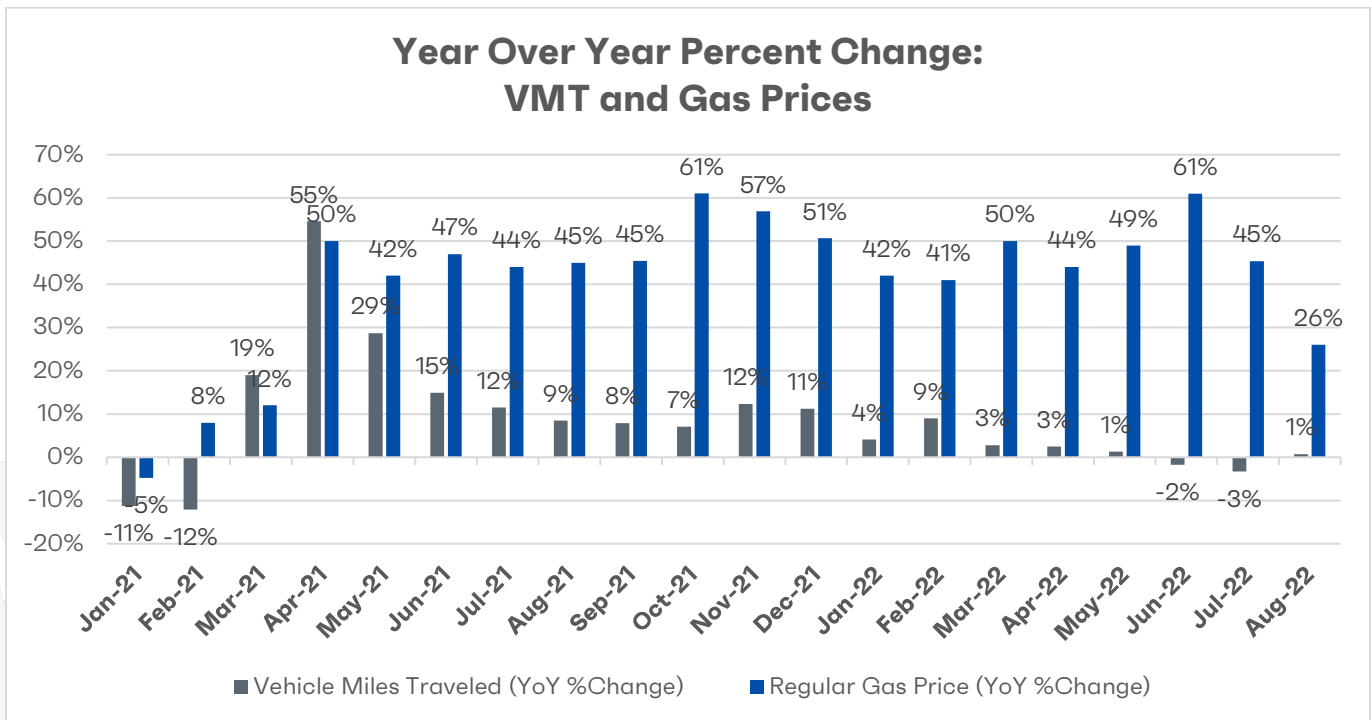
## Recovery Meter

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### Roadway Travel (Updated 10/20)

According to the U.S. Department of Transportation, seasonally-adjusted vehicle miles traveled in August increase 0.7% from the same time a year ago. The cumulative travel estimate for 2022 is 2,163.7 billion vehicle miles.<sup>30</sup>

- Travel on all roads and streets changed by +0.7% (+1.9 billion vehicle miles) for August 2022 as compared with August 2021. Travel for the month is estimated to be 289.3 billion vehicle miles.
- The seasonally adjusted vehicle miles traveled for August 2022 is 271.7 billion miles, a 0.10% (0.3 billion vehicle miles) change over August 2021. It also represents a 1.5% change (4.0 billion vehicle miles) compared with July 2022.
- Cumulative Travel for 2022 changed by +1.7% (+36.1 billion vehicle miles). The cumulative estimate for the year is 2,163.7 billion vehicle miles of travel.



## Economic News (Updated 10/20)

### **Manufacturing Gained 22,000 Jobs In September, With Motor Vehicles And Parts Gaining 8,300.**

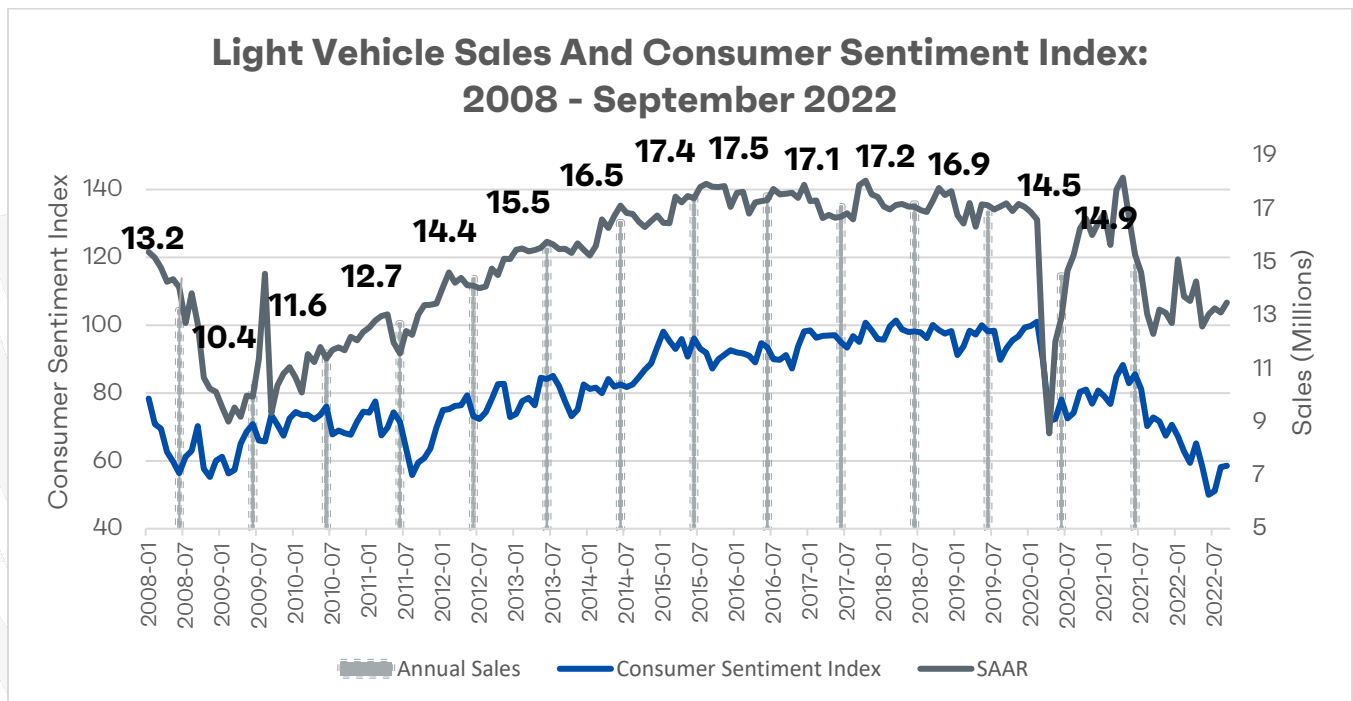
“Manufacturing employment rose in September, with durable goods doing the heavy lifting, according to data released today from the Bureau of Labor Statistics. Manufacturing added 22,000 jobs last month, with durable goods accounting for 16,000, according to a breakdown by industry released by the bureau. Within durable goods, the biggest lift came from motor vehicles and parts, accounting for a gain of 8,300 jobs.”<sup>31</sup>

**The ISM Index Softened Slightly In September.** “The manufacturing economy softened in September and may soon shift to contraction, the Institute for Supply Management said today. The Tempe, Ariz.-based group’s manufacturing index, known as the PMI, slipped to 50.9 percent last month. That was down from 52.8 percent the month before.”<sup>32</sup>

## Consumer Confidence and Sales (Updated 10/20)

**Surveys of Consumers Director Joanne Hsu**<sup>33</sup>: “Consumer sentiment is essentially unchanged at 1.2 index points above September, in spite of a 23% improvement in current buying conditions for durables owing to an easing in supply constraints. Sentiment is now 9.8 points above the all-time low reached in June, but this improvement remains tentative, as the expectations index declined by 3% from last month. Continued uncertainty over the future trajectory of prices, economies, and financial markets

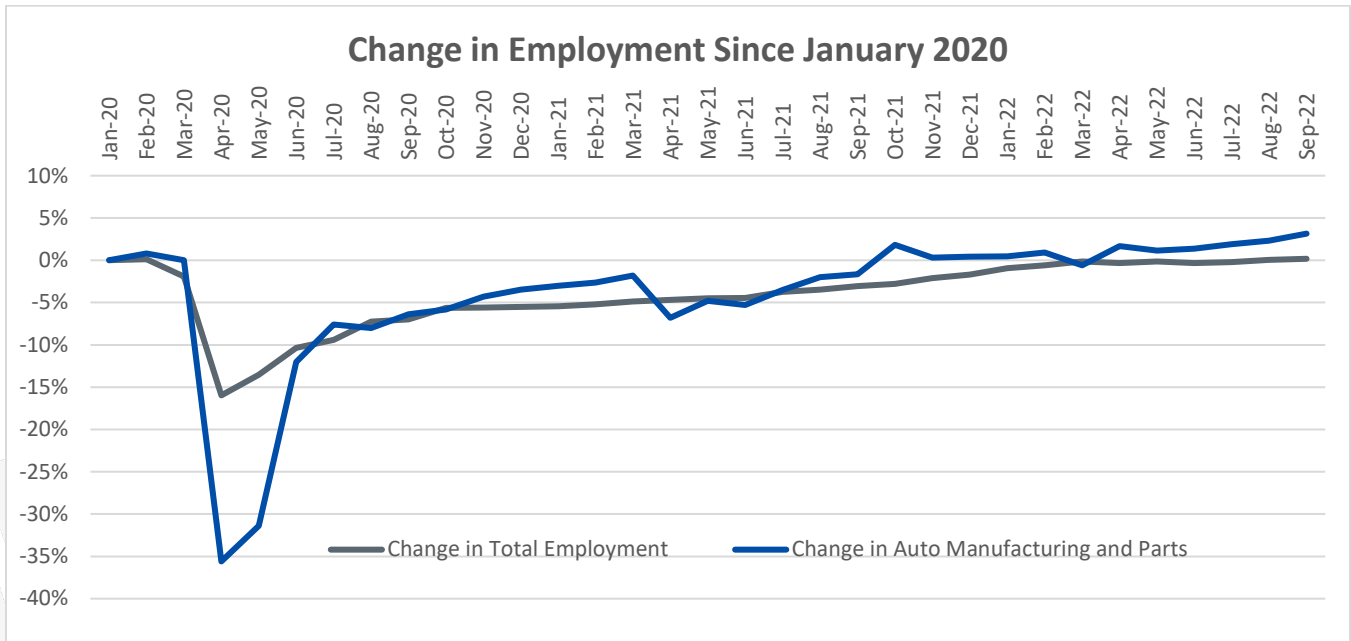
around the world indicate a bumpy road ahead for consumers. The median expected year-ahead inflation rate rose to 5.1%, with increases reported across age, income, and education. Last month, long run inflation expectations fell below the narrow 2.9-3.1% range for the first time since July 2021, but since then expectations have returned to that range at 2.9%. After 3 months of expecting minimal increases in gas prices in the year ahead, both short and longer run expectations rebounded in October.”



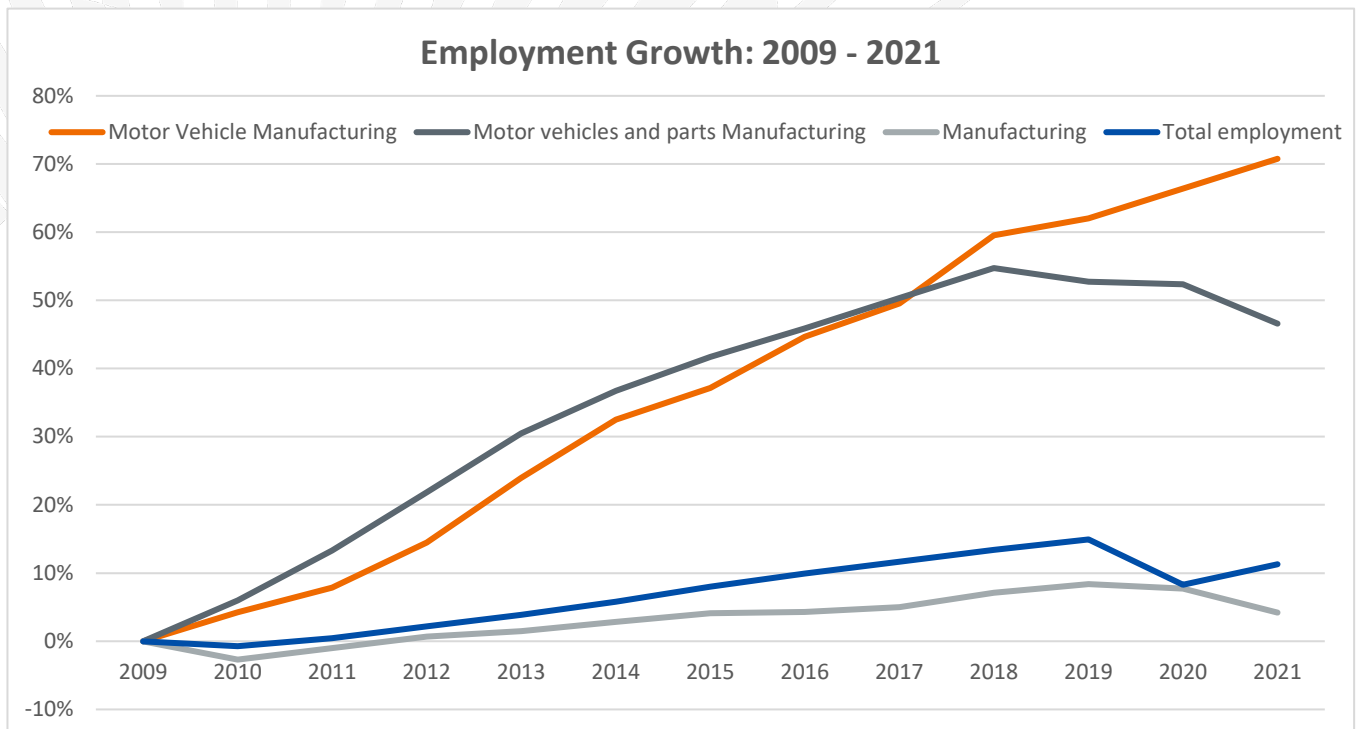
## Employment (Updated 10/20)

### Motor Vehicle And Parts Manufacturing Gained 8,300 Jobs In September.<sup>34</sup>

After a loss of nearly 350,000 employees (about 35% of the workforce) in the height of the pandemic, employment in the Automobile Manufacturing and Parts sectors raced back but is now fighting losses due to supply chain disruptions with semiconductors.<sup>35</sup>



After the recession in 2009, the auto industry was credited with being on the leading edge of the recovery, which began a ripple effect through other parts of the country.<sup>36</sup> Additionally, the chart below shows how the recovery of jobs in motor vehicle manufacturing alone and motor vehicle and parts manufacturing far outpaced the recovery of manufacturing and total jobs.



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