US Autos & Industrial Tech

Key auto industry themes post 1Q24 earnings; auto inventory database

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Post earnings reports from the majority of the auto OEMs and tier 1 suppliers, and amidst recent regulatory news, we frame key themes and debates for our autos coverage. Specifically: **1) Net pricing —** Net pricing in the US has remained relatively solid for ICE/hybrid vehicles, although incentives have been picking up and mix has shifted slightly towards smaller/less premium vehicles; EV pricing has been competitive; **2) Global production trends —** tier 1 suppliers generally expect flat to modestly lower yoy global auto production with somewhat varied views by region (and some companies reported incremental headwinds in Europe); **3) EV growth —** we expect slower EV growth the next few years as EV volumes meaningfully decelerated in 1Q in the US and Europe, consumer demand indicators (such as Google Search traffic and per HundredX surveys) imply moderate EV growth, and as the finalized EPA emissions standards for 2027-2032 allow for a higher level of hybrids to comply than initially proposed; **4) Tariffs —** The US has proposed raising the incremental tariff on EVs imported from China to 100% from 25%, and on lithium-ion batteries for EVs to 25% from 7.5%, while Europe is also exploring raising tariffs on vehicle imports from China per media reports; and **5) ADAS/AVs —** OEMs continue to focus on autonomy technology, especially with growing GPU capabilities, and Tesla has characterized autonomy/AI as its largest opportunity.

We are generally most positive on stocks with company-specific growth potential as we expect overall auto industry production/sales volume increases to be relatively limited in 2024/2025/2026. Among our OEM coverage, we are Buy-rated on GM (with its sizable buyback supporting EPS growth, and the company has the opportunity to sustain solid EBIT margins in its North America auto business), and we also now have modest upside to our price target on Neutral-rated Ford (with the company's Pro business and hybrid product set supporting growth, and our 2024/2025 EBIT estimates are above the Street). We continue to see more investing opportunities among our broader 'supplier' coverage which can benefit from increased content per vehicle from applications such as electrification, autonomy, and electronics. This includes select connectors/components companies (e.g. TEL, APH), tier 1/solution providers (e.g. APTV, LEA, VC, MBLY), and EMS (FLEX, JBL).

Separately, we found it interesting that the recent US consumer surveys per

HundredX on Tesla showed that respondents have had a directionally more negative opinion about Tesla pricing vs. competitors this year, even as some Tesla models have become more affordable with price reductions and IRA point of sale credits. This trend lower in sentiment comes after a sharp positive spike in 2023 when Tesla first began to lower prices. This decline in sentiment could be for a combination of reasons (including consumers being unaware about improved EV affordability especially with IRA credits, consumers being unwilling to pay a higher upfront price for an EV vs. ICE vehicle even if the gap is narrowing, and/or concerns about residual values). Consumers continue to view Tesla as a leader on technology (and Tesla has consistently received positive scores on this front over the last several years). Overall net future purchase intentions for Tesla remain below the other major auto brands and are down from a year ago, although have increased somewhat over the last few months. We show the HundredX survey data on Tesla in the EV section of this note.

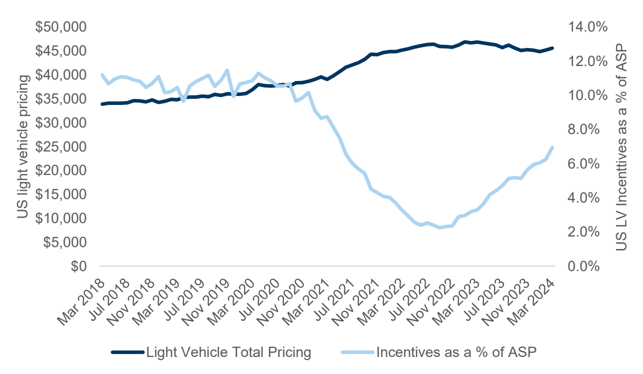
Finally, we lower our 2024/2025 EPS estimates on Tesla reflecting slower vehicle delivery datapoints QTD, and raise estimates on APTV reflecting the closure of the Motional transaction with Hyundai (which lowers Aptiv's ownership stake from about 50% to 15%).

1) Net pricing — Net pricing in the US has remained relatively solid for ICE/hybrid vehicles, although incentives have been picking up and mix has shifted slightly towards smaller/less premium vehicles

Net prices for new ICE/hybrid vehicles have been relatively solid YTD, with incentives normalizing but MSRPs remaining at high levels. We show ASP and incentive trends in Exhibit 1 and Exhibit 2 respectively, with incentives back to ~$3K per vehicle on average, up from a low of about $1K in 2022 but below the historical $3.5-$4K range per Motor Intelligence.

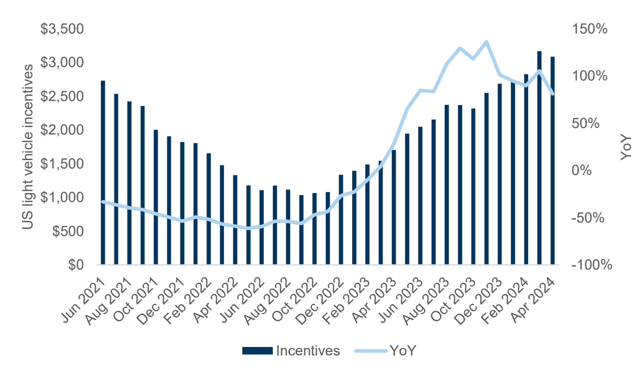
We attribute the normalizing incentives to rising vehicle inventory levels, with finished vehicles on dealer lots/in-transit in the US at 2.7 mn at the end of April. This is below historically typical levels of 3-4 mn finished vehicles but up from a low of ~900K. Please see the next section of this report for our 1Q24 auto inventory analysis.

Exhibit 1: US light vehicle ASP and incentives as a % of ASP



Source: Autodata, US Bureau of Economic Analysis (BEA)

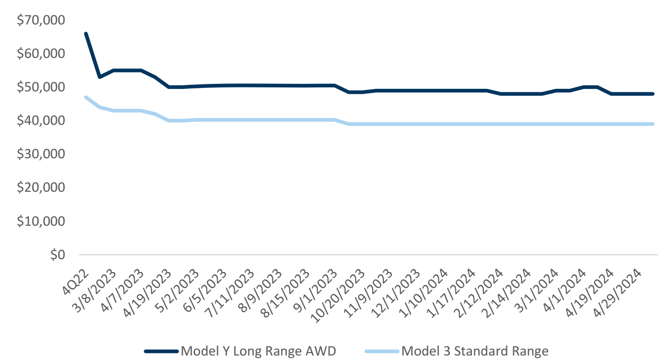
Exhibit 2: US light vehicle incentives



Source: Autodata

For EVs, pricing has remained broadly pressured. Per Cox Automotive, EV transaction prices in April 2024 were down by 8.5% yoy (and essentially flat sequentially). Cox noted several popular models posted significant yoy price reductions, with Ford F-150 Lightning transaction prices down 23%, Ford Mustang Mach-e down 15%, Tesla Model Y down 12%, and Hyundai Ioniq 6 down 10%, with most other EVs transacting for prices 4-5% lower yoy. Ford commented on its 1Q24 earnings call that Mach-E prices came down ~17% in February, and based on media reports, Chevrolet Blazer EV pricing came down 9-11% in early March. Additionally, Rivian introduced an additional trim (Standard+ pack) and created a lower priced entry trim in February. After several recent changes in pricing by Tesla, pricing on the Model 3 and Y remains down by a low to mid single digit percentage yoy, and we show Tesla list pricing over time in the US for the Model Y Long Range AWD variant and Model 3 Standard Range variant in Exhibit 3.

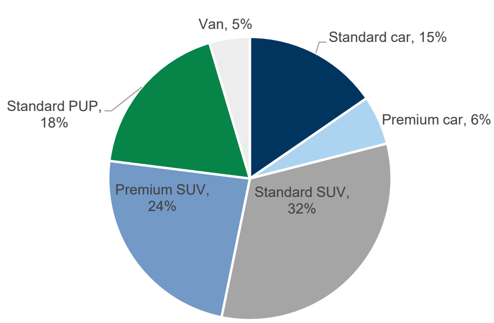
Exhibit 3: Tesla Model Y and 3 pricing over time in the US



Source: Company data, Goldman Sachs Global Investment Research

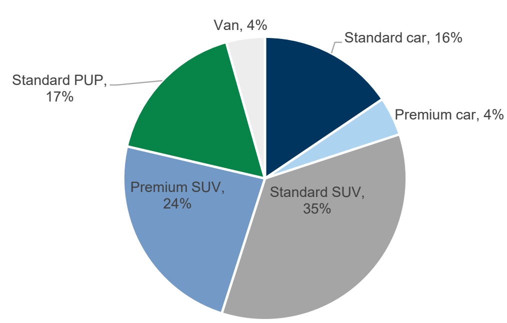
There has been some modest YTD moderation in mix. Based on data from Motor Intelligence, there has been a shift in mix toward more affordable (e.g. non-premium SUVs) as we show in Exhibit 4 and Exhibit 5. Notably, the standard SUV segment is up about 3 percentage points YTD compared to the prior year, while pickups and premium sedans have slightly declined. The pickup mix shift could be temporary owing to the F-150 launch and Ford taking some additional time for quality controls, and Ford expects those vehicles to wholesale in 2Q24, as discussed on its 1Q24 earnings call.

Exhibit 4: January-April 2023 US vehicle deliveries mix



Source: Autodata

Exhibit 5: CY2024 YTD US vehicle delivery mix (through April)



Source: Autodata

2) Global production trends — Tier 1 suppliers generally expect flat to modestly lower yoy global auto production with somewhat varied views by region; some companies reported incremental headwinds in Europe

Several of the tier 1s in our coverage provided updated auto production outlooks with their 1Q24 earnings reports. We show tier 1 expectations post 1Q reports compared to initial assumptions for CY24 auto production in Exhibit 6. We note that some tier 1s provide regional production assumptions weighted for the OEM exposure they have, rather than the market in total. This has been especially important in China, where domestic OEMs (e.g. BYD, Nio) have generally been taking share from multinational brands.

Exhibit 6: Revised tier 1 production outlooks vs intial expectations

	Auto suppliers light vehicle production outlook vs. prior guide			
	Company	**CY24 LVP initial outlooks (YoY)**	**CY24 LVP outlook post 1Q24 earnings (YoY)**	**Δ**
	Aptiv			
^*	North America	+1%	0%	-1 pp
^*	Europe	-2%	-2%	0 pp
^*	China	0%	+3%	3 pp
^*	Global	0%	-1%	-1 pp
	BorgWarner			
^*	North America	+1%	+2%	1 pp
^*	Europe	-2%	-3%	-1 pp
^*	China	0%	+2%	2 pp
^*	Global	-1%	0%	1 pp
	Lear			
^	North America	+1%	+2%	1 pp
^	Europe and Africa	-2%	-2%	0 pp
^	China	0%	+2%	2 pp
^	Global	-1%	0%	1 pp
	Magna			
	North America	+1%	+1%	0 pp
	Europe	0%	0%	1 pp
	China	-1%	-1%	0 pp
	Visteon			
*	Global	-1%	-2%	-1 pp

*Adjusted for market exposure
^Midpoint of outlook

Source: Company data, Goldman Sachs Global Investment Research

Moreover, we compiled commentary from key European companies on regional trends, especially as several reported softer 1Q results.

VW: The company noted on its 1Q24 EPS call that mix in the quarter reflected relatively weaker performance in Europe. Growth in deliveries was primarily driven by a strong increase in China (deliveries were +8% yoy) as well North America, where deliveries increased by 5% yoy. Deliveries in South America grew 14% yoy, with a particularly strong increase in Brazil from a relatively low base. Europe deliveries were flat to slightly down yoy, largely due to weaker BEV deliveries.

VW also called out that demand for BEVs was muted at the beginning of the year in Europe and North America, but there was substantial growth in China. BEV deliveries were down in Europe/US by 24%/16%, respectively, while BEV volumes in China almost doubled.

Mercedes: The company noted that Europe and the US were relatively stable in 1Q. In China, Mercedes said that the constrained E-Class availability, model year changeovers, and product launches impacted the quarter. Overall, Mercedes noted that it saw market weakness in the first quarter, which also impacted its top-end vehicle products.

On its 2024 outlook, Mercedes commented that sentiment in Europe is unchanged overall (recall the company's guidance assumed China and Europe to be flattish and some upside potential from the US as of the 4Q23 call). With regard to China, the company said on its 1Q call that there is growth potential given its product portfolio, availability, and acceptance but the company remains cautious on the overall China market. For the US, Mercedes still sees solid momentum with a positive yoy development, particularly on the SUV side.

Stellantis: The company reported that 1Q consolidated shipments declined by 10% yoy, which was impacted by inventory management actions. In North America, shipments declined 20%, largely due to the portfolio transitions including vehicle refreshes. Stellantis noted that there was positive nameplate mix and net pricing from carryover actions and reduced incentive spend in the quarter in North America. Stellantis also said that there has been a lot of noise in different parts of the US market.

In Europe, where the market has been tougher per the company, shipments were down 6% yoy, largely due to inventory reduction efforts. Stellantis commented that this market has been very volatile, including with regulatory uncertainty. Middle East & Africa/South America/Asia Pacific shipments were +42%/-7%/-46% yoy in 1Q. Stellantis noted that the Asian market has been challenging due to economic conditions and increasing competition.

Continental: The company commented that its soft 1Q results (consistent with its April pre-release) was largely due to weak markets, especially in Europe as European production was particularly weak in 1Q (-3%) with key customer vehicle launches delayed further. Continental still expects European production for passenger cars and light trucks to be down 3% to down 1% for the year, but it now expects commercial vehicle production in Europe to be down 10% to down 8% (vs. down 9% to down 7% prior).

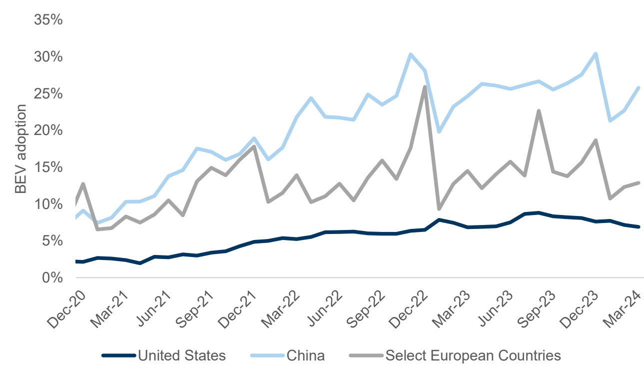
In North America, Continental called out the negative ramp up/ramp down dynamic, as well as the challenge of customer affordability, where the combination of pricing, interest rates and credit levels are affecting vehicle equipment. Continental still expects North American production for passenger cars and light trucks to be flat to up 2% for the year, but it now expects commercial vehicle production in North America to be down 1% to up 1% (vs. down 6% to down 4% prior).

Valeo: Valeo noted that 1Q was impacted by lower EV car production for specific programs in Europe. Like for like, Europe OEM sales/production were -3%/-2% while North America OEM sales/production were +9%/+1% and China were +6%/+4%.

3) EVs - Adjusting for slower BEV and increased PHEV growth rates

As we wrote in our 1Q24 preview note, EV (BEV) volume growth slowed to just 2% yoy in 1Q in the US (compared to 47% yoy growth for the full year of 2023) per Motor Intelligence, and 1% in Europe (compared to 17% in 2023), while BEV growth remained relatively strong at 13% in China (compared to 24% in 2023). EV penetration as a percent of new vehicle sales remains stronger in China at >25%, compared to 10-15% in Europe and 7-8% in the US (Exhibit 7).

Exhibit 7: BEV adoption as a perecent of new vehicle sales volumes by region December 2020-March 2024



Source: Autodata, CPCA, ACEA, Goldman Sachs Global Investment Research

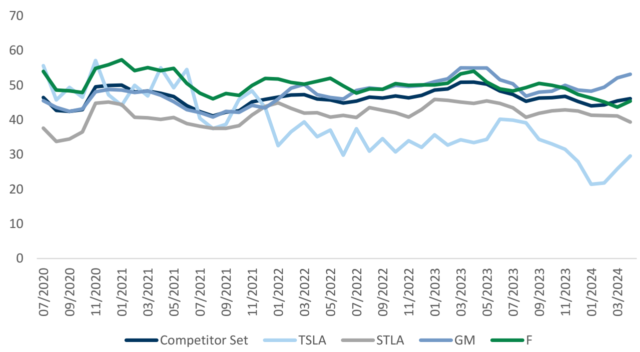
Hybrids have grown faster than BEVs this year. NEVs (including BEVs and PHEVs) grew 32% in China with 43% penetration in 1Q24. In the US, hybrids were up 45% yoy in 1Q24 (reaching 9% penetration of new vehicle sales) and plug-in hybrids have grown by 52% (reaching 2% penetration).

In the US, consumer interest has increased somewhat more yoy for hybrids (up 4% yoy over the last 3-months on average) than EVs (up 2% yoy over the same period) and consumers continue to search for hybrids more than EVs based on Google Trends data.

Surveys of US consumers per HundredX show lower net future purchase intentions for Tesla than a year ago (although this metric has increased somewhat in the last few months), and net future purchase intentions for Tesla continue to trail other OEMs. We consider this as consistent with our view that EV growth will decelerate, given Tesla's >50% share of EVs in the US market.

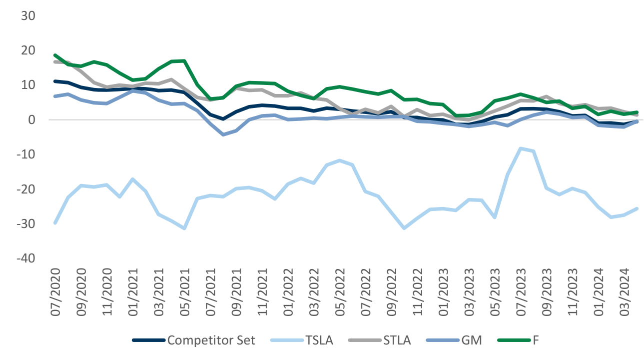
Separately, we found it interesting that the recent US consumer surveys per HundredX on Tesla showed that respondents have had a directionally more negative opinion about Tesla pricing vs. competitors this year, even as some Tesla models have become more affordable with price reductions and IRA point of sale credits. This trend lower in sentiment comes after a sharp positive spike in 2023 when Tesla first began to lower prices. This decline in sentiment could be for a combination of reasons (including consumers being unaware about improved EV affordability especially with IRA credits, consumers being unwilling to pay a higher upfront price for an EV vs. ICE vehicle even if the gap is narrowing, and/or concerns about residual values). Consumers continue to view Tesla as a leader on technology (and Tesla has consistently received positive scores on this front over the last several years). Overall net future purchase intentions for Tesla remain below the other major auto brands and are down from a year ago, although have increased somewhat over the last few months.

Exhibit 8: Net Future Purchase Intention for Tesla vs Competitors



Source: HundredX

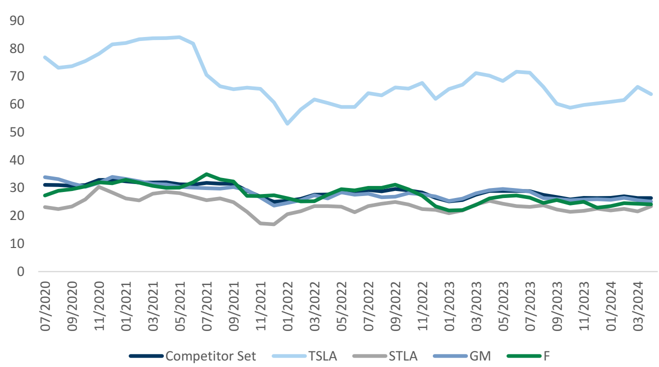
Exhibit 9: Net Price Positivity for Tesla vs Competitors



A negative net price positive indicator means that more respondants responded negatively on pricing than positively

Source: HundredX

Exhibit 10: Net Tech/Features Positivity for Tesla vs Competitors

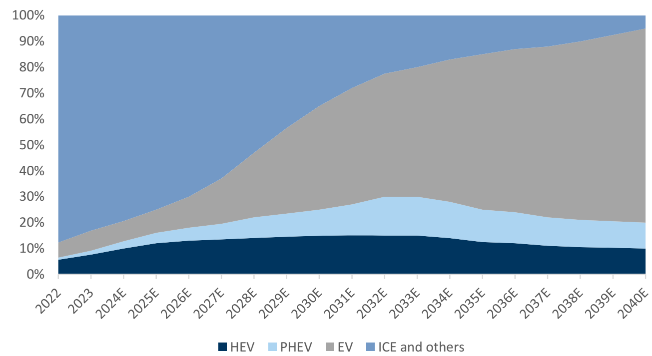


Source: HundredX

Regulations in the US continue to support a longer-term shift toward BEVs, but recent EPA guidelines for MY27-32 would allow for a higher level of plug-in hybrids to still comply than initially proposed. For example in 2030 an OEM could now comply with ~40% BEV mix (from 50% under a preliminary proposal) and 9-27% PHEV mix. There are different compliance pathways, as articulated in our report from 3/25. Importantly, OEMs like Ford and GM stated that they would offer increased hybrid options in the coming years.

Overall, as articulated in our 4/8 report we believe these datapoints suggest a slower EV market outlook for the US than we previously assumed, with 2024 US EV growth tracking to 5-10% growth (and for 2025 we expect mid teens yoy EV growth in the US). We now expect BEV penetration in the US to reach 40% in 2030, up from 7-8% currently but lower than our prior 50% view. We show an updated powertrain mix graph for the US in Exhibit 11.

Exhibit 11: US powertrain adoption 2022-2040E



Source: DOE, Autodata, Goldman Sachs Global Investment Research

4) Tariffs - US and Europe considering higher tariffs on vehicle imports from China

On 5/14 the Biden administration proposed tariff increases under Section 301 on China-made EVs (to 102.5% from 27.5%, including the 2.5% tariff on all foreign made vehicles imported to the US), and on imported lithium-ion batteries for EVs and battery parts (to 25% from 7.5%, to take effect in 2024). Lithium ion batteries that aren't used for EVs would also face an increase in tariffs to 25% in 2026.

Further, the EU opened a probe in late 2023 targeted around potentially needing to increase tariffs on Chinese-made EVs from the existing 10%, with provisional duties imposed as early as July 2024 per media reports; per these reports these tariffs would apply to any EV made in China regardless of OEM which would negatively impact global OEMs who produce products in China for export to Europe. Other media reports have noted some OEM concerns around imposing EU import duties on Chinese automakers given many of the major European automakers both sell into the China market and source parts from China, and concerns about potential risk from retaliatory tariffs.

We see mixed to negative implications for our coverage. While the proposed increase in US tariffs would make it harder for Chinese based auto OEMs to compete in the US market longer-term all else equal, the current incremental 25% tariff in place, as well as the IRA, already had limited vehicle imports from China into the US to a very low level (we estimate based on media reports and data from the United States International Trade Commission that ~1% of LV sales were Chinese imports). Moreover, Mexico is reportedly limiting incentives for auto production from Chinese OEMs in Mexico, per media reports. Even with higher tariffs, Chinese auto OEMs could still enter the US market longer-term, potentially with partnerships and/or regional production. In addition, OEMs like Tesla and Ford that use LFP batteries for their EVs could face higher prices unless they can adjust their supply chains. At a more macro level tariffs would also likely lead to higher prices for consumers (hurting demand) and raise the risk of retaliatory tariffs.

We show exposure to the China market for our companies in Exhibit 12.

Exhibit 12: China exposure for auto OEMs and tier 1s in our coverage

	China Exposure
Company	**Revenue**
Auto OEMs	
Ford	11% (wholesales)
General Motors	34% (wholesales)
Tesla	22% of revenue; 30-40% of deliveries
Auto Tier 1 Suppliers	
Aptiv	20%
Lear	13%
Magna	11%
Visteon	24%
BorgWarner	21%
Gentex	~10%

Source: Company 10-K filings, Company data, Goldman Sachs Global Investment Research, CPCA

5) ADAS/AVs - OEMs continue to focus on autonomy/ADAS technology

OEMs continue to focus on autonomy technology, especially with growing GPU capabilities, and Tesla has characterized autonomy/AI as its largest opportunity.

We detail key strategies and recent commentary below:

Tesla: Tesla highlighted progress it has made with ADAS/autonomy on its 1Q24 EPS call. On FSD, Tesla commented that it has rolled out V12 to all vehicles with cameras and Hardware 3 (and is on ~1.8 mn vehicles). Moreover, over 300 mn miles have been driven so far with FSD V12 with about half of the ~1.8 mn vehicles using it so far. Tesla said it is in discussion with one major auto OEM on potentially licensing FSD, and believes it could potentially sign one or more deals by the end of the year (but noted that it would still take multiple years for another OEM to deploy the FSD technology). Tesla also suggested that progress on licensing could track with FSD technology.

Tesla is also currently working on unsupervised FSD and a ride-hailing functionality that will be available in the future. Tesla commented that it expects to own and operate a portion of a robotaxi fleet with some vehicles also owned by end users. Tesla's CEO posted on 4/5/2024 on X that the company will unveil its Robotaxi on 8/8/24. Please see our Initial framing of robotaxi opportunity, and updated FSD scenarios note for more details.

On AI compute, Tesla commented that the company has been actively working on expanding Tesla's core AI infrastructure. The company commented that it is no longer training-constrained and has installed and commissioned ~35K H100s and expects that to grow to roughly 85K by the end of this year.

GM: On its 1Q24 earnings call, GM commented that its making progress at Cruise (its self-driving subsidiary) and is mapping/gathering road information in Phoenix. GM noted that Cruise is frequently engaging with regulators and stakeholders and building trust as it regains momentum. Since Cruise paused operations last fall, it has continued to work on improving its core tech stack and strengthening the safety of the system by evaluating low probability but higher severity type issues. Cruise plans to demonstrate that the model works in one city before expanding from there. GM also said it is exploring a few options for funding Cruise, including potentially taking outside investments. In a blog post on its website on 5/13, Cruise stated it had commenced autonomous driving in Phoenix with a safety driver in the vehicle and plans to gradually expand this supervised testing to several adjacent cities in Arizona over time.

Recall Cruise paused operations after the California DMV suspended Cruise's permit for autonomous driving in October 2023, and Cruise paused operations of its fleet to redesign its approach to safety following two pedestrian injuries that involved Cruise vehicles, per press releases. Cruise had been testing/operating in 15 cities, and GM stated that Cruise had eclipsed > 5mn driverless miles as of its 3Q23 earnings call.

On Super Cruise (GM's hands-free driver assistance technology for compatible roads), GM continues to roll out the technology to more vehicles.

Ford: BlueCruise**,** Ford's advanced driver assistance system, is available in Great Britain, Germany and Spain, in addition to the US and Canada. The company commented that as of 4Q23, more than 290K BlueCruise-equipped Ford and Lincoln vehicles were on the road, with customer use exceeding 2.3 mn hours and 156 mn hands-free miles. On its 3Q23 EPS call, Ford commented that it launched version 1.3 of BlueCruise, which helps customers stay engaged longer in hands-free mode by improving performance, with greater ability to navigate narrow lanes and curves, per the company.

On its broader ADAS strategy, Ford commented at its 2023 capital markets day that ADAS is one of its most important horizontals that extends across the whole portfolio. L3 autonomy (i.e. hands-off and eyes-off), is expected to launch on Ford's Gen 2 EVs (not right at the point of the platform launch, but as soon as Ford can get the technology working). Recall Ford believes that the opportunity in L2+ and L3 autonomy is nearer-term, higher growth, and more profitable.

Mercedes: Mercedes DRIVE PILOT is certified as an L3 system in the US (e.g., hands and eyes off, and with the OEM liable for accidents the system could cause), but with restrictions (e.g., select highways, clear weather, at certain speeds). As of 4Q23, Mercedes highlighted that automatic lane change functionality was introduced in the US and it expects China and Europe to follow. Additionally, Mercedes aims to extend DRIVE PILOT speeds to ~90 km/h in Germany by the end of 2024. Mercedes is cooperating with NVIDIA on the joint development of future driving systems.

VW: In March 2024, VW and Mobileye announced an expanded collaboration in automated driving for L2/L3/L4 capabilities (i.e. hands-free, eyes-on driving/hands-free, eyes-off systems/fully autonomous vehicles) across multiple VW brands. In the long term, Volkswagen aims to rely on its own in-house system (Cariad), and the company continues to focus on partnerships with Bosch and Qualcomm.

Waymo: Waymo currently operates in several areas, including San Francisco, Los Angeles, and Phoenix and plans to expand to Austin later this year. Per a post on the company's X page, Waymo is now providing more than 50k paid rides per week across three major cities as of 5/10/24. Waymo also has a partnership with Uber, and has started providing driverless delivery for select Uber Eats restaurants in the Phoenix area per the company.

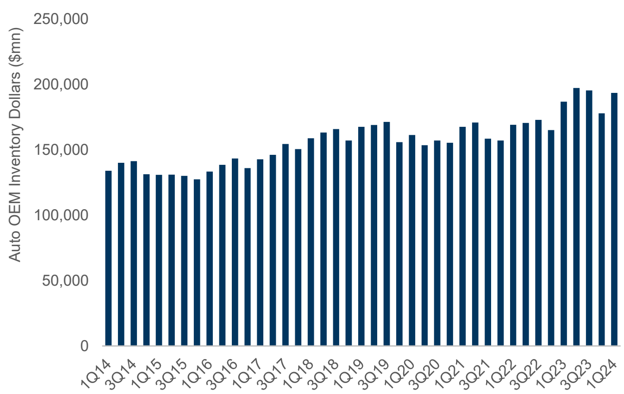
Auto inventory analysis

We believe investors remain focused on auto supply chain inventory, including at auto suppliers, OEMs, and dealers. To help assess this situation, in this note we: **1)** aggregate inventory on the balance sheets of key automotive OEMs and tier 1 suppliers on a bottom-up basis, and we find that in 1Q24 inventory at key auto OEMs and at tier 1 suppliers increased qoq. Tier 1 inventory remains elevated relative to history; and **2)** examine finished vehicle inventory, which remains low in the US relative to history, but has trended higher since late 2021. We also show dealer inventory in China.

Inventory levels at key auto OEMs and tier 1 suppliers increased in 1Q; tier 1 inventory remains somewhat elevated relative to history

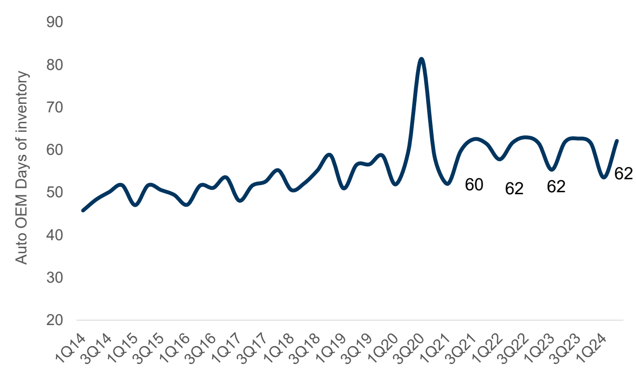
Inventory dollars at key auto OEMs increased by approximately 9% qoq in 1Q24, and increased on both a dollars and days basis after declining in 4Q23 (Exhibit 13 & Exhibit 14).

Exhibit 13: Inventory dollars at key auto OEMs increased 9% qoq



Source: Company data, Goldman Sachs Global Investment Research, FactSet

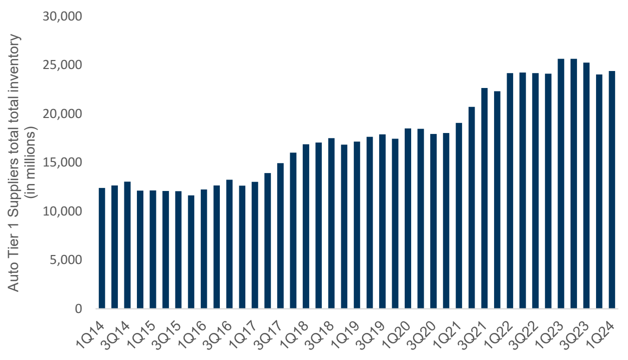
Exhibit 14: Auto OEM DOI increased qoq to 62 days in 1Q



Source: Company data, Goldman Sachs Global Investment Research, FactSet

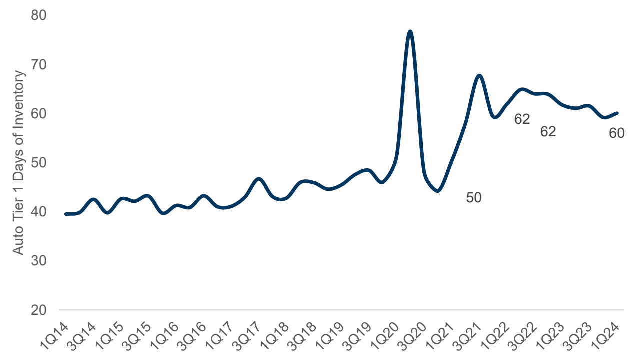
Inventory dollars at tier 1 suppliers were up about 1% sequentially in 1Q on a dollars basis and up slightly on a days basis to 60 days, and inventory continues to remain higher than historical levels Exhibit 15 & Exhibit 16.

Exhibit 15: Auto tier 1 inventory dollars were up about 1% in 1Q



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 16: Auto tier 1 DOI was up slightly in 1Q, and remains elevated relative to history

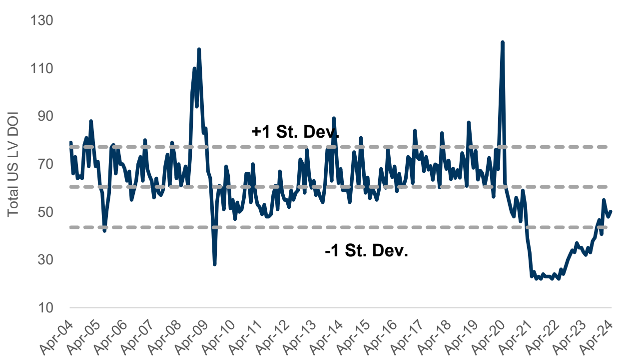


Source: Company data, Goldman Sachs Global Investment Research

Finished vehicle inventory in the US remains low vs. history, but has been increasing

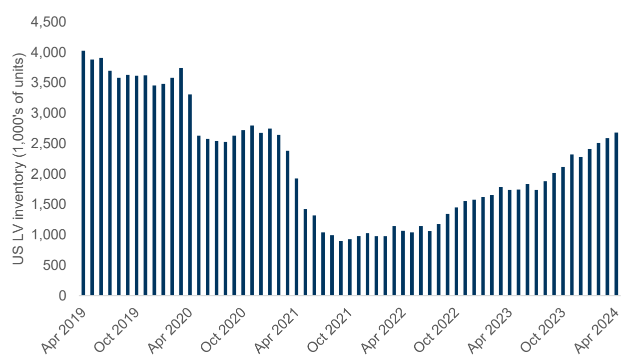
Finished vehicle inventory in the US remains low relative to history, but has been trending higher. Vehicle supply now sits at ~2.7 mn units, up from a low of ~0.9 mn in late 2021, but still below the historical range of 3-4 mn units.

Exhibit 17: Total US light vehicle DOI was 50 days in April, below historical levels but up 48 days in March 2024 and up from 33 days in April 2023



Source: Goldman Sachs Global Investment Research, Autodata

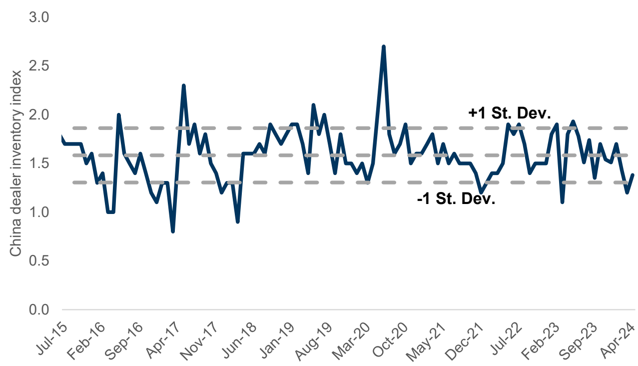
Exhibit 18: Finished vehicle inventory levels in US remains relatively low vs. history



Source: Autodata

Inventory at dealers in China increased slightly in April, but is low overall (Exhibit 19).

Exhibit 19: China dealer inventory increased in April



Source: CADA

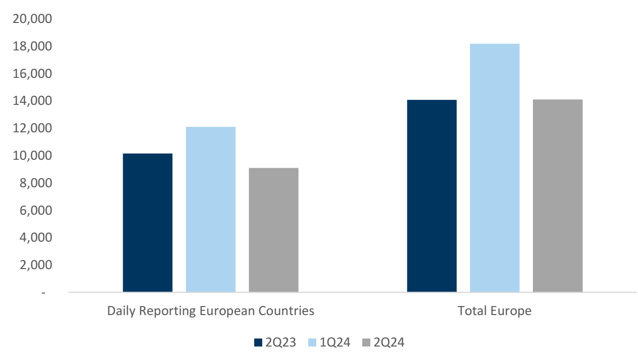
Stock implications, plus estimate changes for TSLA, APTV

We are generally most positive on stocks with company-specific growth potential as we expect overall auto industry production/sales volume increases to be relatively limited in 2024/2025/2026. Among our OEM coverage, we are Buy-rated on GM (with its sizable buyback supporting EPS growth, and the company has the opportunity to sustain solid EBIT margins in its North America auto business), and we also now have modest upside to our price target on Neutral-rated Ford (with the company's Pro business and hybrid product set supporting growth, and our 2024/2025 EBIT estimates are above the Street). We continue to see more investing opportunities among our broader 'supplier' coverage which can benefit from increased content per vehicle from applications such as electrification, autonomy, and electronics. This includes select connectors/components companies (e.g. TEL, APH), tier 1/solution providers (e.g. APTV, LEA, VC, MBLY), and EMS (FLEX, JBL).

On Tesla, April deliveries for Europe were flat yoy although down 22% vs. the first month of 1Q24, and deliveries in Europe are tracking lower for the QTD period on both a yoy (~10% lower) and qoq (~25% lower) basis for countries where registrations data is available daily (as we show in Exhibit 20). In China, weekly insurance registrations are also down slightly for the first 6 weeks of 2Q24 vs. the first 6 weeks of 1Q24. April China retail deliveries are also down compared to the first month of 1Q24 and 2Q23 (Exhibit 21). In April, per Motor Intelligence, Tesla deliveries in the US are down ~17% yoy and Wards data indicates a ~21% decline yoy (although the US data is an estimate from these third parties). While half the quarter remains, these datapoints suggest to us that 2Q deliveries are currently tracking to 390K-415K, below Visible Alpha consensus at 456K and GS prior at 445K.

We lower our Tesla delivery assumptions for 2Q24/2024/2025 to 400k/1.78 mn/2.10 mn from 445k/1.83 mn/2.12 mn prior, below Visible Alpha at 456k/1.84 mn/2.14 mn. We maintain our 2026 assumption of 2.40 mn. As a result, we lower our 2024/2025E EPS estimates including SBC to $2.00/$3.20 from $2.20/$3.25 on lower revenue partly offset by lower opex, and maintain our 2026E EPS estimate of $4.45. Excluding SBC we model $2.50/$3.75/$5.00 for 2024/25/26 respectively. Our 12-month price target remains $175, still based on 50X Q5-Q8E EPS, and we maintain our Neutral rating on the stock.

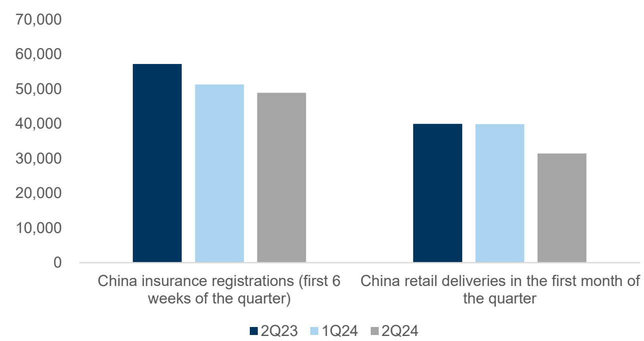
Exhibit 20: Tesla deliveries in Europe



Daily reporting countries are: Denmark, Netherlands, Norway, Spain, Sweden, and the UK

Source: EU-EVs, Goldman Sachs Global Investment Research

Exhibit 21: Tesla weekly insurance data (first 6 weeks of the quarter) and retail deliveries (first month of the quarter) in China



Source: CPCA, CnEVPost

Separately, we update our estimates for Aptiv to reflect the closing of the Motional equity transaction with Hyundai on 5/16. We now model 2024/25/26 EPS of $6.35/$8.05/$9.25 from $5.80/$7.85/$9.05 prior, reflecting lower equity income losses and a lower sharecount (as we now model additional repurchases with the additional cash).

We maintain our 12-month price target of $118, which is based on a 15X multiple applied to our normalized EPS estimate.

For illustrative purposes, we show an upside/downside scenario analysis for select companies in our coverage below.

Exhibit 22: Upside/downside scenario analysis

Upside/Downside Scenario	Current Price (5/16/2024)	Downside Multiple (NTM P/E)	NTM EPS (GSe)	Downside Valuation (Downside Multiple on NTM	Downside %	Upside Multiple (NTM P/E)	FY2026 EPS (GSe)	Upside Valuation (Upside Multiple on FY26 EPS)	Upside %
Tier-1 Suppliers									
BWA	$38	7X	$4.00	$28	**(26%)**	12X	$4.90	$59	**56%**
GNTX	$35	12X	$2.20	$26	**(24%)**	18X	$2.50	$45	**30%**
LEA	$131	7X	$15.70	$110	**(16%)**	11X	$22.75	$250	**91%**
MGA	$48	7X	$6.05	$42	**(12%)**	11X	$8.25	$87	**81%**
VC	$116	10X	$9.05	$91	**(22%)**	17X	$13.00	$221	**91%**
APTV	$82	10X	$6.85	$69	**(17%)**	17X	$9.25	$157	**91%**
Component Suppliers									
APH	$132	19X	$3.40	$65	**(51%)**	40X	$4.20	$168	**27%**
BDC	$93	9X	$6.50	$59	**(37%)**	16X	$8.45	$135	**45%**
ST	$43	8X	$3.85	$31	**(28%)**	13X	$4.80	$62	**46%**
TEL	$151	14X	$7.85	$110	**(27%)**	25X	$9.50	$237	**57%**
EMS									
* FLEX	$29	9X	$2.35	$21	**(27%)**	17X	$2.75	$47	**61%**
* JBL	$115	9X	$9.00	$81	**(30%)**	17X	$11.50	$195	**69%**
Test & Measurement									
* KEYS	$157	15X	$6.20	$93	**(41%)**	25X	$8.85	$221	**41%**
Power & Thermal Management									
VRT	$97	20X	$2.50	$50	**(49%)**	35X	$4.10	$144	**48%**

* EPS estimates exclude SBC

Upside/Downside Scenario	Current Price (5/16/2024)	Downside Multiple	NTM GSe	Downside Valuation	Downside %	Upside Multiple	2026 GSe	Upside Valuation	Upside %
Auto OEMs		**Downside NTM P/E**	**NTM EPS**	**Downside Multiple on NTM**		**Upside P/E View**	**2026 EPS**	**Upside Multiple on 2026 EPS**	
F	$12	4X	$2.30	$9	**(26%)**	7X	$2.60	$18	**47%**
GM	$46	4X	$9.45	$38	**(18%)**	7X	$10.75	$75	**64%**
TSLA	$175	30X	~$2.25-$2.80	~$65-$85	**~(65%)-(50%)**	60X	~$4.45-$5.00	~$265-$300	**~50-75%**

The range on Tesla EPS reflects estimates incl. and ex. SBC

Source: FactSet, Goldman Sachs Global Investment Research

Price targets and key risks for our coverage is shown in Exhibit 23.

Exhibit 23: Price targets and key risks

Company	Ticker	GS Rating	Price Target	Key upside/downside risks
Auto OEMs				
Tesla	TSLA	Neutral	$175	EV adoption, margins, market share, the auto cycle, operational execution, key person risk
General Motors	GM	Buy	$52	The auto cycle, market share, margins, FCF, and the ability to pivot to growth areas such as EVs and AVs
Ford	F	Neutral	$14	The auto cycle, market share, margins, and the ability to pivot to growth areas such as EVs and AVs
Rivian	RIVN	Neutral	$11	Pre-orders/sales volumes, production ramp, market share, margins, software/services mix, the auto cycle, and EV adoption
Tier 1 Suppliers				
BorgWarner	BWA	Neutral	$36	Revenue growth including ability to outgrow market due to EV portfolio, diesel exposure, the auto cycle, margins, and market share
Gentex	GNTX	Neutral	$35	Revenue growth, margins, and multiple expansion
Lear	LEA	Buy	$164	The auto cycle, ability to benefit from increasing EV industry mix, margins, market share
* Magna	MGA	Neutral	$48	The auto cycle, market share, ability to outgrow production and capitalize on secular growth themes, capital allocation, and FCF
Visteon	VC	Buy	$161	Ability to capitalize on EVs and AVs, margins, revenue, market share, general macroeconomic risk, multiple expansion/contraction
Aptiv	APTV	Buy	$118	Ability to grow CPV, the auto cycle, market share, margins, debt
Electronic Components				
Amphenol	APH	Buy	$140	Sales trends, margins, capital allocation
TE Connectivity	TEL	Buy	$186	Revenue growth and auto demand, margins, and M&A
Belden	BDC	Buy	$104	Industrial/macro trends, margins, leverage, and M&A
Sensata	ST	Neutral	$41	Auto production, margins, leverage, tax rate, FX, and ability to increase CPV in EVs and hybrids
Lidar and Autonomy				
Aurora	AUR	Sell	$2.00	Time to market, industry pricing per mile, ability to expand geographic reach
Innoviz	INVZ	Buy	$2.25	Lidar adoption and ASPs, margins, market share, M&A, balance sheet
Luminar	LAZR	Sell	$1.50	Lidar adoption and ASPs, margins, market share, M&A, balance sheet
Mobileye	MBLY	Buy	$40	ADAS/AV adoption, competition, geopolitics, market share, supply constraints and supplier/partner readiness
EMS				
Flex	FLEX	Buy	$34	Tariff and geopolitical uncertainty, global macroeconomic demand, and margin and cash flow trends
Jabil	JBL	Buy	$151	Revenue growth, trends at Apple and in key end markets, macroeconomic trends, margins, M&A, capital allocation
Test and Measurement				
Keysight	KEYS	Buy	$172	Revenue growth (especially in 5G), margins, M&A, and the impact the US/China trade relations on fundamentals
Power and Thermal Management				
Vertiv	VRT	Buy	$116	Revenue growth, margins
Voice Technology				
Cerence	CRNC	Neutral	$6	Industry and macro environment, competition, margins, natural ASP degradation, mature contract with Toyota
EV Battery				
QuantumScape	QS	Sell	$4.50	Ability to hit its targeted battery specs and ramp production, technological breakthroughs in today's lithium-ion batteries
Charging Infrastructure				
ChargePoint	CHPT	Sell	$1.50	EV adoption/driver charging habits, margins, market share, European expansion, ASPs
Warehouse Automation				
Symbotic	SYM	Neutral	$46	Customer concentration, industry competition, warehouse automation investment trends, revenue growth

*Our 12-month PT for MG.TO listed in Canada is 66 CAD

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Mark Delaney, CFA, Will Bryant, Morgan Leung and Aman Gupta, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

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Amphenol Corp. (Buy, $131.96), Aptiv Plc (Buy, $81.73), Aurora Innovation Inc. (Sell, $2.92), Belden Inc. (Buy, $95.15), BorgWarner Inc. (Neutral, $37.50), Cerence Inc. (Neutral, $4.85), ChargePoint Holdings (Sell, $1.89), Flex (Buy, $29.33), Ford Motor Co. (Neutral, $12.31), General Motors Co. (Buy, $45.49), Gentex Corp. (Neutral, $34.98), Innoviz Technologies (Buy, $1.22), Jabil Circuit Inc. (Buy, $115.47), Keysight Technologies Inc. (Buy, $155.70), Lear Corp. (Buy, $131.06), Luminar Technologies Inc. (Sell, $1.77), Magna International Inc. (Neutral, C$65.44), Magna International Inc. (Neutral, $48.11), Mobileye Global Inc. (Buy, $28.91), QuantumScape Corp. (Sell, $6.02), Rivian Automotive Inc. (Neutral, $10.20), Sensata Technologies Holding (Neutral, $43.02), Symbotic Inc. (Neutral, $46.68), TE Connectivity Ltd. (Buy, $151.46), Tesla Inc. (Neutral, $173.99), Vertiv Holdings (Buy, $104.60) and Visteon Corp. (Buy, $116.72).

The rating(s) for Aptiv Plc and Tesla Inc. is/are relative to the other companies in its/their coverage universe: Amphenol Corp., Aptiv Plc, Aurora Innovation Inc., Belden Inc., BorgWarner Inc., Cerence Inc., ChargePoint Holdings, Flex, Ford Motor Co., General Motors Co., Gentex Corp., Innoviz Technologies, Jabil Circuit Inc., Keysight Technologies Inc., Lear Corp., Luminar Technologies Inc., Magna International Inc., Mobileye Global Inc., QuantumScape Corp., Rivian Automotive Inc., Sensata Technologies Holding, Symbotic Inc., TE Connectivity Ltd., Tesla Inc., Vertiv Holdings, View Inc., Visteon Corp.

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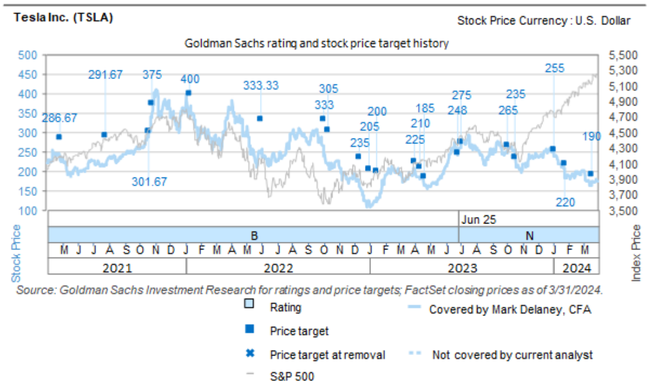

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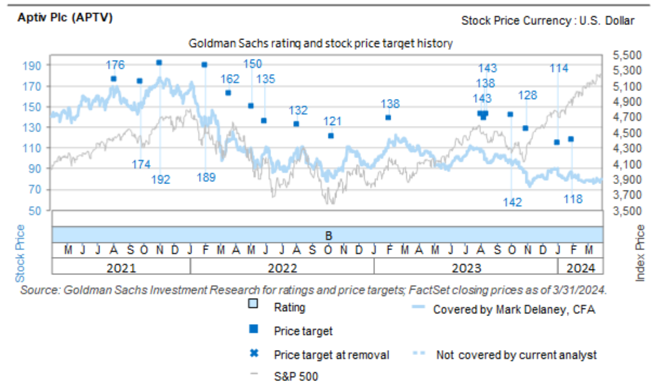

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