Global Automobiles

Navigating cyclical and secular changes in the broader ecosystem; prefer brand, balance sheet, BEV-tech leaders

In this report we analyze how different segments of the broader auto ecosystem are being impacted by the combination of what has been a multi-year supply shortage (and in turn pent-up demand), muted macroeconomic growth, and the secular shift to battery electric vehicles (BEVs or simply EVs). With pricing for new vehicles in the US running near all-time highs and production volumes rising yoy but still below historical average levels, profits have shifted downstream to OEMs and dealers while most suppliers have seen margins pressured. Given the tepid macro environment (and higher rates) and the potential for moderating vehicle supply/demand as chip shortages ease, valuations are below historical averages for many parts of the broader industry.

Adding to these cross-currents is the fact that auto sales in the US while below historical averages have been better than expected YTD, and we are raising our 2023/2024 US SAAR estimates to 15.75 mn/16.25 mn from 14.5 mn/16.0 mn, even though we expect this growth to be driven in part by higher incentives and discounting by OEMs/dealers. Our new 2023 SAAR forecast implies a relatively similar SAAR in 2H23 as in the last few months, and is consistent with the recent improvement in key indicators like housing starts and consumer sentiment, but still below the long-term average of 16-16.5 mn.

Separately, we expect EVs to continue to disrupt the industry, with BEV sales in the US comprising 7-8% of sales YTD (and up ~50% yoy in 1H23) vs. 6% in 2022, and EV affordability continuing to improve (Tesla's blended global average vehicle pricing is now roughly at parity with the average price of a new vehicle in the US, and that is prior to considering potential government credits like the IRA as well as savings on fuel and maintenance vs. an internal combustion engine or ICE vehicle). We expect EVs to be 20% of the US market in 2025 and 50% in 2030, and for global EV adoption to reach 17%/35% in 2025/2030 compared to 9% in 2022.

The bottom line is that we generally prefer brand, balance sheet and BEV/auto-tech leaders when it comes to investing opportunities, especially in what is a choppy fundamental and trading backdrop. In particular, we see several opportunities among the auto tech enablers of the BEV transition in our

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broader supplier coverage, which is one of the portions of the industry that is still under-earning vs. past cycles and select companies (such as **TE Connectivity** and **Aptiv**) have significantly higher content per vehicle on BEVs and sell to a wide range of OEMs (and we see both as a 'picks and shovels' type way to invest in the EV transition). Other tier 1s that we believe can benefit from content per vehicle growth and a trend higher in production are more powertrain agnostic (e.g. **Autoliv** and **Visteon,** although VC has an emerging EV specific portfolio and its digital cockpit products have good attach-rates on EVs).

Among OEMs, we see the best investing opportunities in the stocks of companies that are brand leaders (especially **Porsche** and **Mercedes**) and/or where there is an ability to navigate macro headwinds while investing for new technologies and have attractive valuations (such as **GM, Toyota,** and **Stellantis**). We believe that OEMs will need strong balance sheets to invest for the BEV transition, where we see **Tesla as the market leader**, and we are in general more cautious on the stocks of EV OEM start-ups given the cost of the transition and competitive landscape.

We have a screen in Exhibit 7 that shows what EPS would be for companies in 2024 if we adjusted margins to the historical average (and left other variables unchanged), and what stocks would be if we applied historical average multiples to earnings at historical average profits. **Several of the auto dealers screen negatively on this analysis, while this approach suggests that many traditional auto OEMs are already pricing in cyclical/macro risk**.

Finally, while our economists put a below average probability on a US recession, Exhibit 17 - Exhibit 23 show that auto parts retailers and insurance providers have been more resilient than dealers and OEMs in past downturns. Importantly, we see opportunities in stocks like **Autozone, O'Reilly**, **Ally Financial,** and **Allstate** which we believe generally also have good brands and/or strong/strengthening balance sheets.

Auto Tech Enablers
Increased content and/or solutions providers
for applications including EVs and ADAS/AVs
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Seven key charts from our report

Auto vehicle pricing has increased faster than disposable income.

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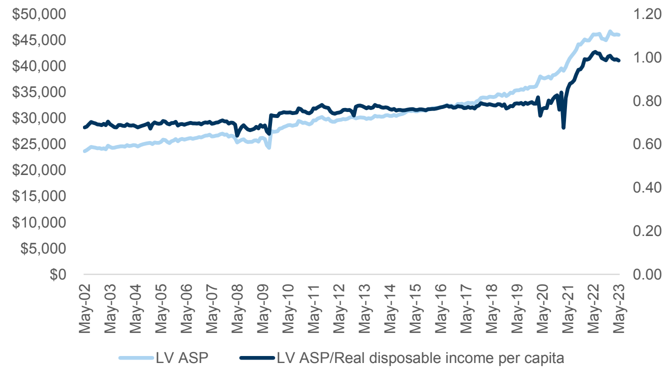
Exhibit 1: Vehicle average selling prices have increased, and at a faster pace than real disposable income

Light vehicle ASP and light vehicle ASP/Real disposable income per capita ratio



Source: Goldman Sachs Global Investment Research, Federal Reserve Economic Data

EBIT margins for most parts of the auto universe are above long-term averages, except for auto suppliers which are still under-earning vs. historical averages.

Exhibit 2: Median EBIT margins vs. Historical average (difference in bps) by subsector

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

Finished vehicle inventory in the US has increased to ~1.8 mn units in June from a low of less than 1 mn, but inventory remains well below the historical 3-4 mn range.

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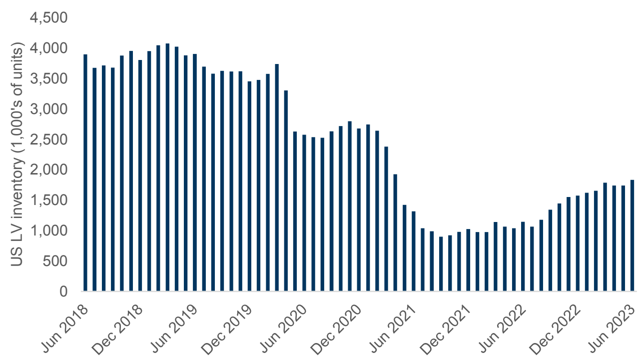
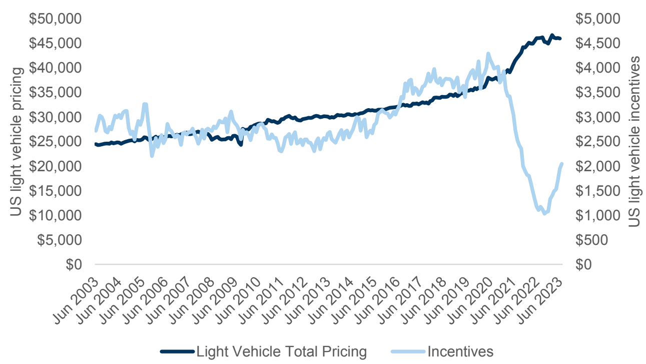
Exhibit 3: Finished vehicle inventory remains below historical levels
US light vehicle inventory



Source: Autodata

Vehicle incentives in the US are rising as supply/demand comes into balance.

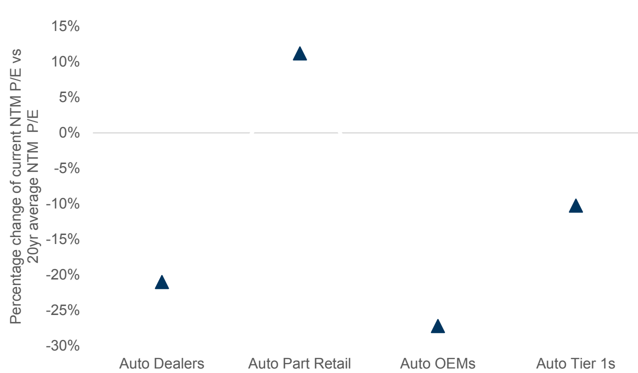
Exhibit 4: US light vehicle incentives are rising, albeit from low levels relative to history
US light vehicle pricing and incentives



Source: Autodata, Bureau of Economic Analysis

Auto dealers, OEMs, and tier 1 suppliers are currently trading at lower NTM P/E multiples than the long-term historical averages.

Exhibit 5: % change of current NTM P/E multiples vs. 20 year average



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

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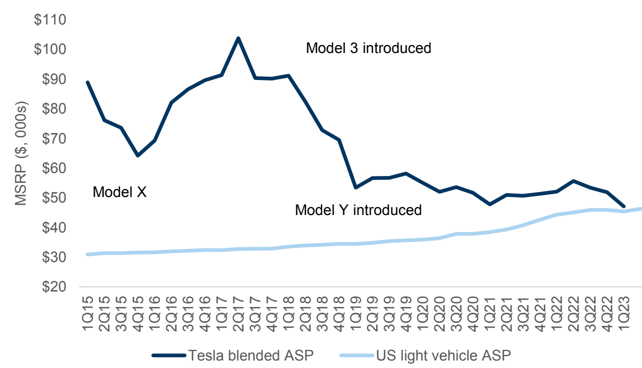
Tesla's blended global pricing is now roughly at parity with the average price of a new vehicle in the US even without factoring in savings opportunities like the $7,500 IRA tax credit.

Exhibit 6: Tesla's blended global ASP is now similar to the price of a new vehicle in the US



Source: US Bureau of Economic Analysis (BEA), Company data, Goldman Sachs Global Investment Research

In Exhibit 7 we show implied prices using historical median EBIT margins and forward P/E multiples vs. current stock prices for select stocks. Based on this screen, we see potential upside for tier 1 supplier stocks as 2024 EBIT margins are below historical averages for the majority of companies in this cohort. However, dealer stocks screen as having the most risk based on this analysis.

Exhibit 7: We show potential upside/downside scenarios given 2024 EPS at historical median margins and implied stock price at historical median NTM P/E multiples

		EBIT margin scenarios		2024 EPS scenarios						
Company name	Ticker	2024 EBIT margin	Historical median EBIT margin	2024E EPS	2024 EPS at historical median margin	Current NTM P/E multiple	Historical median NTM P/E multiple	Current stock price	Implied stock price at historical median margin and multiple	% upside / downside
OEMs										
Ford	F	6.0%	5.9%	$1.85	$1.80	8.4X	7.6X	$15.19	$13.64	-10%
General Motors	GM	6.6%	6.3%	$6.65	$6.40	6.0X	6.4X	$40.50	$40.99	1%
Stellantis	STLA	10.5%	4.1%	$5.24	$2.05	3.5X	7.1X	$18.91	$14.56	-23%
Volkswagen	VOW.DE	8.0%	6.5%	$36.74	$29.25	4.8X	7.8X	$172.73	$228.48	32%
Hyundai	005380.KS	6.5%	7.5%	$25.35	$28.95	4.9X	6.8X	$159.73	$197.86	24%
Nissan	7201.T	4.1%	5.4%	$0.57	$0.75	6.5X	8.4X	$8.24	$6.30	-24%
Toyota	7203.T	10.1%	8.1%	$1.94	$1.60	9.6X	10.2X	$16.00	$16.37	2%
Honda	7267.T	6.7%	5.1%	$4.25	$3.20	7.8X	9.5X	$30.31	$30.42	0%
Tier 1s										
Magna	MGA	5.7%	6.8%	$6.30	$7.75	10.4X	9.6X	$59.94	$74.72	25%
Lear	LEA	5.6%	6.3%	$15.50	$17.85	10.8X	10.0X	$153.72	$178.09	16%
Aptiv	APTV	12.4%	12.5%	$6.40	$6.50	21.0X	20.2X	$112.37	$131.20	17%
Gentex	GNTX	23.3%	27.0%	$2.10	$2.45	15.9X	16.0X	$30.93	$39.20	27%
Autoliv	ALV	11.4%	10.1%	$9.12	$8.00	11.3X	12.2X	$93.31	$97.80	5%
Dealers										
* Group 1 Automotive	GPI	4.6%	3.3%	$38.07	$25.70	6.6X	9.2X	$264.65	$236.89	-10%
* Sonic Automotive	SAH	3.3%	2.5%	$6.98	$4.60	7.4X	9.9X	$51.67	$45.55	-12%
* AutoNation	AN	5.3%	4.1%	$20.97	$15.70	8.2X	12.0X	$178.16	$187.96	5%
Lithia Motors	LAD	4.9%	4.1%	$36.34	$29.00	9.2X	11.2X	$320.21	$325.41	2%
* Penske Automotive	PAG	4.4%	2.9%	$15.43	$10.75	11.4X	10.3X	$177.09	$110.83	-37%
* Asbury Automotive	ABG	6.4%	4.6%	$30.15	$20.15	8.2X	10.2X	$248.30	$204.76	-18%
Auto Part Retail										
AutoZone	AZO	19.9%	19.1%	$140.84	$134.40	17.8X	15.0X	$2,538.18	$2,021.21	-20%
Advance Auto Parts	AAP	5.4%	9.9%	$6.70	$13.30	11.1X	16.3X	$70.66	$216.44	206%
O'Reilley Automotive	ORLY	20.9%	18.3%	$41.88	$36.30	24.4X	19.6X	$956.06	$712.79	-25%

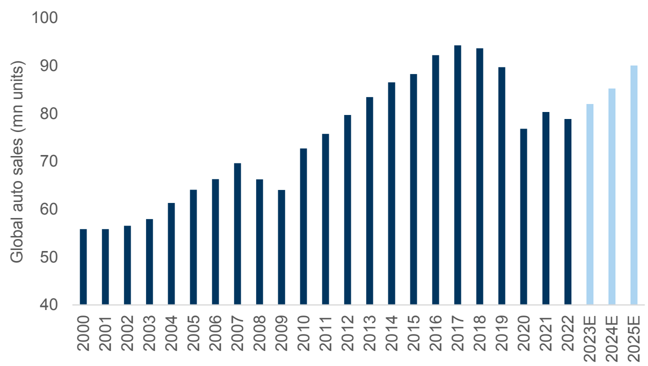
*FactSet estimates (all others are GS estimates)

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

Update on the cyclical backdrop

We believe that auto sales and production will trend higher in 2023 and 2024 from a low base as supply chain constraints ease, driven in part by pent-up demand and aided by increased vehicle incentives.

Exhibit 8: We expect CY23-25 global auto sales of 81.9 mn/85.3 mn/90.0 mn
Global auto sales



Source: Goldman Sachs Global Investment Research, IHS

US SAAR is tracking to the mid to high 15 mn range, with sales up 13% yoy YTD, but sales still below the historical average of 16-16.5 mn. Similarly, European sales are up 17% YTD yoy, and China passenger car sales were up 3% yoy in 1H23 per the CPCA (with 2Q showing improvement after a weak 1Q, although sales in June were -3% yoy).

Exhibit 9: US Light vehicle SAAR

Source: Wards, Goldman Sachs Global Investment Research

Our auto monthly indicators index that tracks key metrics that correlate with auto demand in the US, such as housing starts and consumer sentiment, has shown signs of improvement (Exhibit 10).

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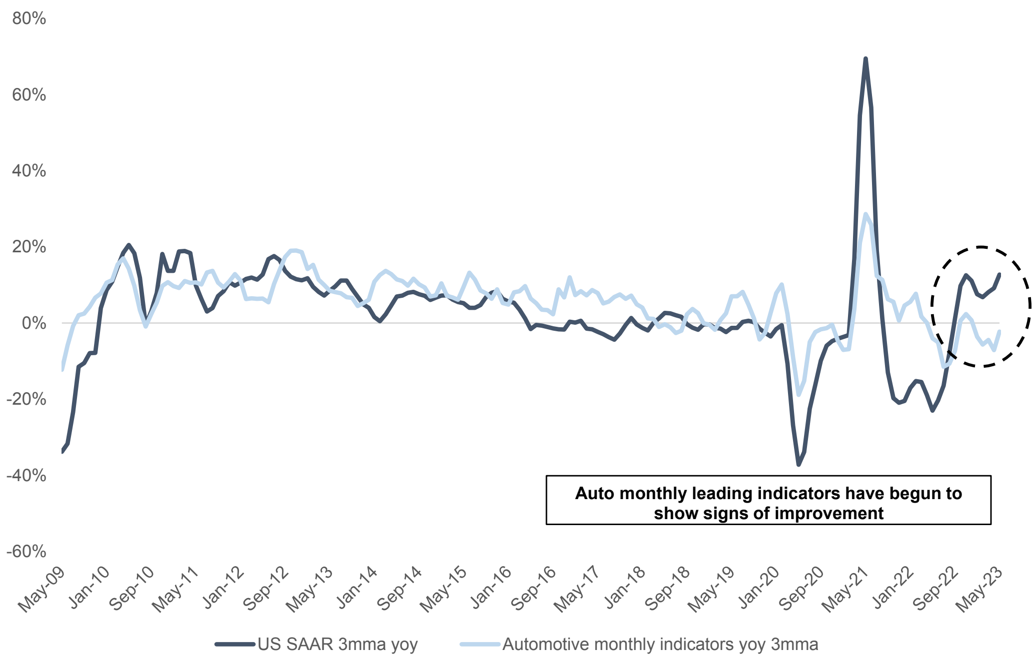
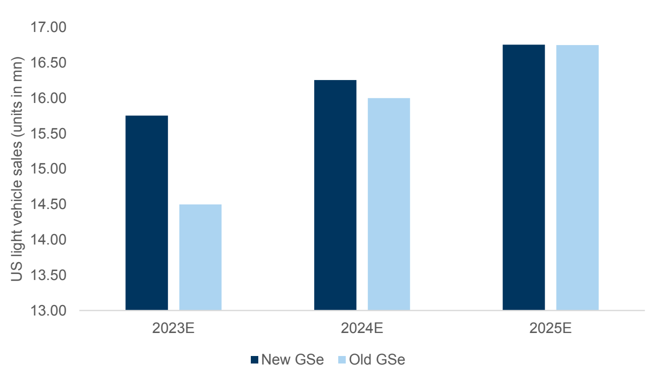
Exhibit 10: US SAAR and auto monthly indicators



Source: University of Michigan, Wards, Autodata, US Bureau of Economic Analysis (BEA), US Federal Reserve Bank, Google Trends (https://www.google.com/trends)

Given the YTD sales strength and improvement in demand indicators, we raise our 2023 and 2024 US SAAR estimates to 15.75 mn/16.25 mn from 14.50 mn/16 mn. We maintain our 2025 estimate of 16.75 mn.

Exhibit 11: We raise our 2023/2024 US light vehicle SAAR estimates to 15.75 mn/16.25 mn respectively

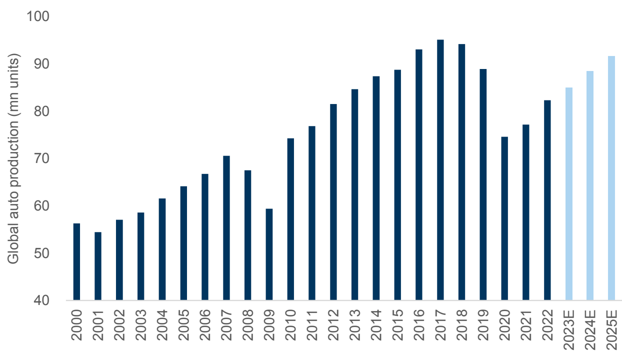


Source: Goldman Sachs Global Investment Research

We model global production of 85.0/88.4/91.7 mn in 2023/2024/2025, reflecting slightly higher NA production than our prior view for 2023/2024 as well as incorporating the estimates for China from Tina Hou who resumed coverage of the sector on 7/11/12.

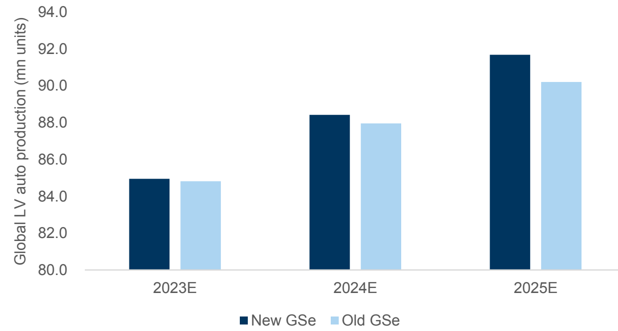
Exhibit 12: We expect CY23-CY25 auto production of 85.0 mn/88.4 mn/91.7 mn

Global auto production



Source: Goldman Sachs Global Investment Research, IHS

Exhibit 13: We raise our global production estimates slightly for CY2023/2024/2025

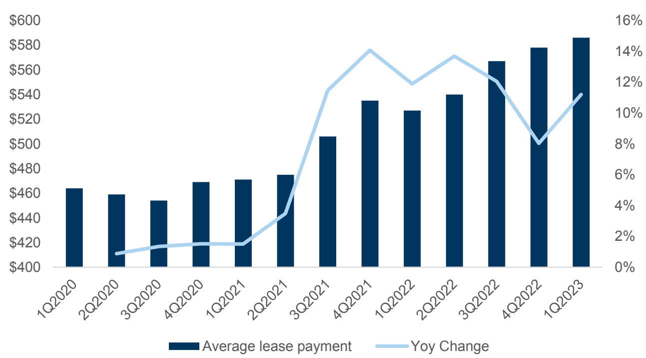


Source: Goldman Sachs Global Investment Research

Recently, a key debate for the industry has been around rates and how higher rates are impacting auto companies. With about 80% of all new vehicle purchases in the U.S. using some type of financing per Experian, we believe that the increase in interest rates could create some additional risk to auto pricing and/or mix as monthly average lease/loan payments have increased over 20% since 2020 (with higher new car pricing being a contributing factor to this as well).

Exhibit 14: The average auto leasing payment has risen over the last 3 years

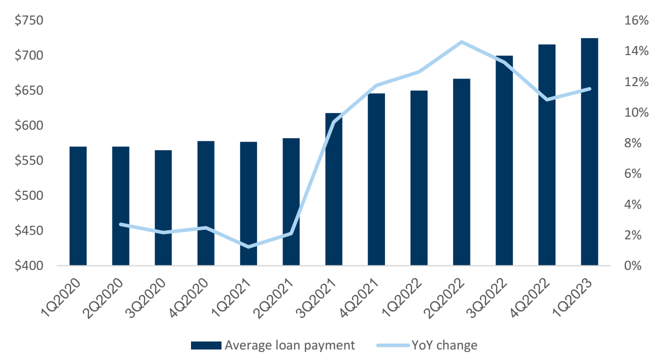
Average monthly lease payment



Source: Experian

Exhibit 15: The average monthly auto loan payment has increased ~27% since 1Q2020

Average monthly loan payment



Source: Experian

Furthermore, to highlight some incremental demand weakness in part caused by increased interest rates, 30+ day auto delinquencies have incrementally increased. However, we'd note that credit stress metrics at Ford and GM remained well within normal ranges in 1Q23 as both companies skew towards prime lending. We believe there has been more stress on the lower-end parts of the market, and on loans for used vehicles.

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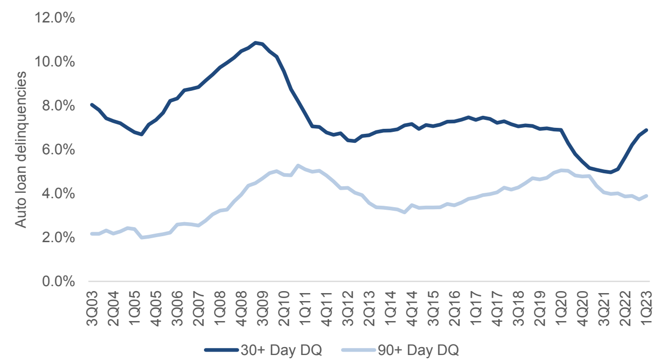
Exhibit 16: 30+ day auto deliquency rates are incrementally increasing
Auto loans delinquency



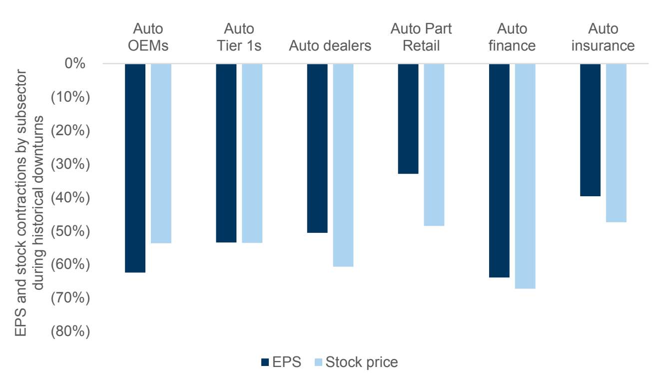
Source: Federal Reserve Bank of New York

Examining past cycles for estimate revisions and stock performance

Companies in the auto ecosystem experienced large fundamental pullbacks in prior industry downturns. For example the median EBITDA contraction was 21% for OEMs and 25% for suppliers in the 2001 correction and 55% for both OEMs and suppliers in the 2008/2009 pull-back. Cash burn was about $20 bn for both Ford and GM in 2008.

The stocks also contracted sharply in prior periods. The OEM stocks pulled back by about 56% at the median in 2001, and about 86% in 2008/2009 on average (with GM and Chrysler both filing for bankruptcy in the financial crisis). The supplier stocks pulled back by about 54% in 2001 and about 85% in 2008 at the median (note that Delphi Automotive filed for bankruptcy in 2005, and Visteon and Lear filed during the global financial crisis). Auto dealer stocks pulled back significantly in 2001 (~80% at the median) and 2008/2009 (~89% at the median).

Exhibit 17: Average EPS and stock contractions by subsector during historical downturns



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

In the 2001 recession, US SAAR levels remained around the 16-16.5 mn historical

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average, primarily because of the high levels of OEM incentive spending.

Exhibit 18: During the 2001 recession, auto OEM/supplier/dealer stocks were down 56%/54%/80% at the median

Estimate revisions and stock price reactions during the 2001 downturn

2001 Downturn				
	Sales	EBITDA/EBT*	EPS	Stock price
OEM Median	(14%)	(21%)	(41%)	(56%)
Tier 1s Median	(8%)	(25%)	(33%)	(54%)
Dealers Median	(36%)	(65%)	(35%)	(80%)
Auto Part Retail Median	(23%)	(41%)	(41%)	(65%)
Auto finance Median*	(54%)	(119%)	(48%)	(74%)
Auto insurance Median*	(17%)	(75%)	(45%)	(47%)

*Auto finance and insurance use EBT while the other subsectors use EBITDA

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

During the 2008 financial crisis, US SAAR fell to a low of ~9-10 mn units for multiple months in 2009 from its historical average of ~16-16.5 mn. Sales, EBITDA (and EBT for auto finance and insurance companies), and EPS also contracted considerably in this time period with earnings for several of the companies in the broader auto ecosystem dipping into negative territory. Additionally, stocks contracted considerably with auto finance, dealers, tier 1s, and OEMs all down over 80% from peak to trough.

Exhibit 19: During the financial crisis, auto OEM, supplier, dealer, and auto finance company stocks declined by about 85%

2008 Downturn				
	Sales	EBITDA/EBT*	EPS	Stock price
OEMs Median	(22%)	(55%)	(83%)	(86%)
Tier 1s Median	(33%)	(55%)	(93%)	(85%)
Dealers Median	(29%)	(42%)	(84%)	(89%)
Auto Part Retail Median	(15%)	(28%)	(46%)	(66%)
Auto finance Median*	(46%)	(87%)	(82%)	(85%)
Auto insurance Median*	(14%)	(86%)	(56%)	(60%)

*Auto finance and insurance use EBT while the other subsectors use EBITDA

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

In the more recent 2016 downturn, despite the fact that US SAAR remained very strong (>16.5 mn and even in the 17-18 mn range for some months in 2016-2019), auto companies experienced contractions in sales, EBITDA, and EPS in addition to significant stock pullbacks (down ~40% to down ~65%).

Exhibit 20: During the 2016 downturn, auto OEM, tier 1 supplier, and dealer stocks were down between 40-50% respectively at the median

2016 Downturn				
	Sales	EBITDA/EBT*	EPS	Stock price
OEMs Median	(10%)	(41%)	(80%)	(42%)
Tier 1s Median	(22%)	(21%)	(37%)	(46%)
Dealers Median	(15%)	(19%)	(51%)	(46%)
Auto Part Retail Median	(16%)	(27%)	(35%)	(56%)
Auto finance Median*	(37%)	(44%)	(70%)	(65%)
Auto insurance Median*	(15%)	(55%)	(56%)	(52%)

*Auto finance and insurance use EBT while the other subsectors use EBITDA

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

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US SAAR troughed that ~8.6 mn in April 2020 (factories began closing in mid- to late-March 2020 due to COVID), and has recovered meaningfully, but SAAR has remained below the historical average level (SAAR has averaged in the mid 15 mn range in 1H23).

Exhibit 21: During the COVID-19 downturn, auto OEM, tier 1, and dealer stocks were down ~30% at the median

COVID-19 Downturn				
	Sales	EBITDA/EBT*	EPS	Stock price
OEM Median	(13%)	(28%)	(46%)	(31%)
Tier 1s Median	(14%)	(29%)	(51%)	(29%)
Dealers Median	(14%)	(22%)	(37%)	(34%)
Auto Part Retail Median	(2%)	(7%)	(10%)	(7%)
Auto finance Median*	(7%)	(46%)	(56%)	(46%)
Auto insurance Median*	(2%)	(5%)	(1%)	(31%)

*Auto finance and insurance use EBT while the other subsectors use EBITDA

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

Current stock prices are off of the 2018 peaks for OEMs and tier 1s at their respective medians. However, auto dealer stocks have increased by a little over 150% since their 2018 peak at the median (driven by higher estimates), with the current NTM P/E multiple for auto dealers up about 15% vs. the end of 2018.

Exhibit 22: 2023 consensus (FactSet) estimates vs. 2018 peak

2023E vs. 2018 Peak			
	EPS (2023E vs. 2018)	Stock price (current vs. 2018 peak)	Change in NTM P/E
OEM Median	39%	(10%)	7%
Tier 1s Median	(7%)	(9%)	38%
Dealers Median	263%	153%	15%
Auto Part Retail Median	132%	166%	24%
Auto finance Median	8%	10%	12%
Auto insurance Median*	(5%)	6%	22%

*Auto finance and insurance use EBT while the other subsectors use EBITDA

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

Auto dealers are the best performing sector YTD (up 47% YTD) despite consensus (FactSet)EPS estimates only being revised up by about 1% at the median. The median NTM P/E multiple for auto tier 1s is up about 9% since the beginning of the year while the median NTM P/E multiple for auto dealers has expanded by about 44%.

Exhibit 23: 2023 YTD estimate revisions, stock prices, and change in NTM P/E multiples

Changes in EPS estimates, stock prices, and NTM P/E multiples — 2023 YTD			
	EPS estimates	Stock price	Change in NTM P/E
OEM Median	9%	31%	13%
Tier 1s Median	8%	21%	9%
Dealers Median	1%	47%	44%
Auto Part Retail Median	7%	3%	1%
Auto finance Median	1%	16%	15%
Auto insurance Median	(5%)	(11%)	(8%)

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

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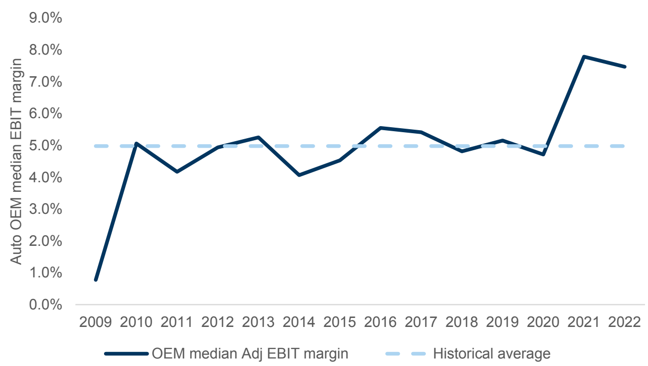
Auto OEMs

We would continue to be selective with auto OEM stocks as price and mix are likely to remain headwinds as supply/demand generally moderates, but we see opportunities in a handful of brand leaders and traditional OEMs with strong balance sheets to invest in the BEV/autonomy transitions (and trade at attractive valuations).

The 2022 median adjusted EBIT margin of key auto OEMs included in our screen was ~250 bps higher than the long-term historical average adjusted EBIT margin of the group.

Exhibit 24: Historical median OEM EBIT margins



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

Traditional auto OEM stocks have historically traded at a high single digit NTM P/E multiple at the median, and the current median NTM P/E multiple for select auto OEMs is ~6-7X (~27% below the long-term average).

Exhibit 25: Historical NTM P/E multiple for auto OEMs

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

We view Tesla as an industry leader in terms of powertrain technology and costs, as evidenced by powertrain efficiency compared to vehicle price (Exhibit 26 and Exhibit 27). We believe it will be critical for other OEMs to continue to invest in BEV technology (and provide well integrated full solutions that are OTA updateable), and leverage their current brand/customer relationships to create attractive products.

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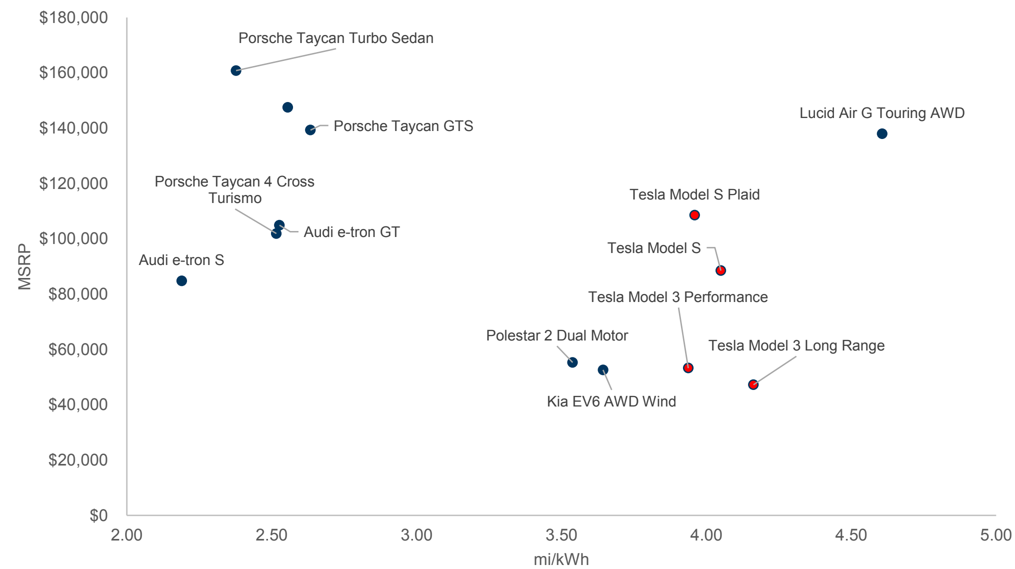
Exhibit 26: Tesla model 3 long range screens as a leader in efficiency (mi/kWh) and MSRP
Efficiency (mi/kWh) with price for AWD sedans



Source: EPA, Company data, Data compiled by Goldman Sachs Global Investment Research

Exhibit 27: Tesla Model Y long range screens well for efficiency and price
Efficiency (mi/kWh) with price for AWD SUVs

Source: EPA, Company data, Data compiled by Goldman Sachs Global Investment Research

Brand value

In conjunction with GS DataWorks, we also analyzed brand value of auto OEMs by looking at mentions of auto brands on Twitter from 2018-present. Tesla was mentioned in almost 4.9 mn tweets in that time frame, and the next most-mentioned brand was Ford with ~665K mentions. However, we note that a large part of that is likely due to

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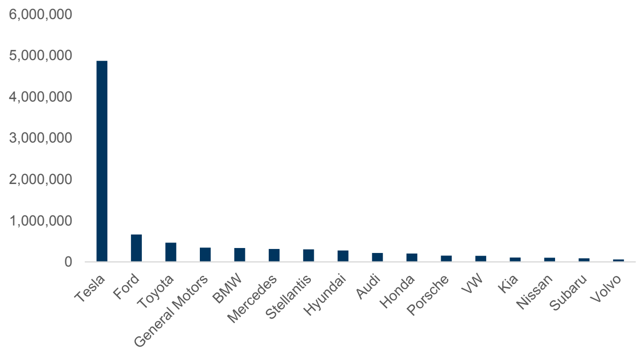
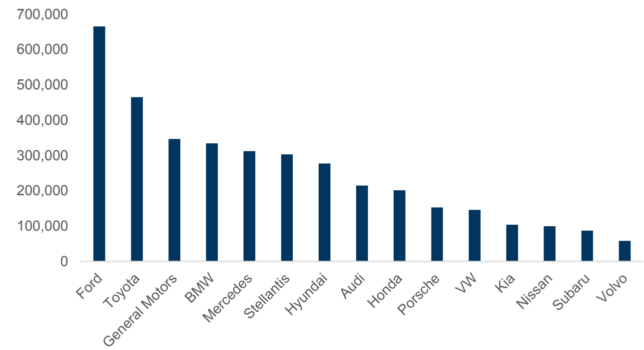
mentions associated with the stock rather than simply the vehicles.

Exhibit 28: There have been significantly more mentions of Tesla on Twitter compared to other auto brands
Global Tweets (2018-present)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 29: Global Tweets (2018-Present) excluding Tesla



Source: Company data, Goldman Sachs Global Investment Research

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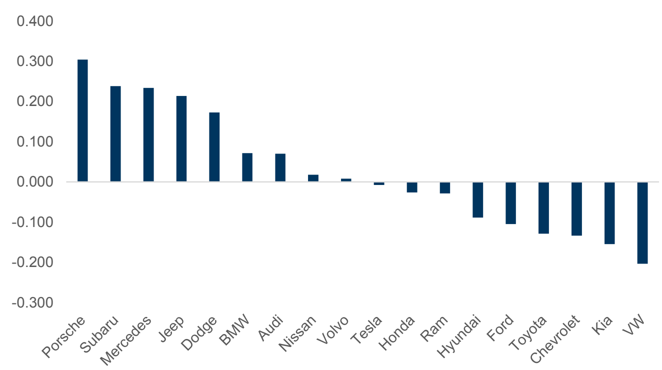
Additionally, the sentiment scale below shows net sentiment based on the number of positive, negative, and neutral tweets with mentions of select auto brands since 2018. Porsche, Subaru, and Mercedes screened at the high-end of the sentiment scale.

Exhibit 30: Sentiment scale by brand (2018-Present)



Source: Company data, Goldman Sachs Global Investment Research

GS DataWorks leverages alternative data sources and advanced analysis techniques to create unique data-driven insights across Global Investment Research.

GS DataWorks analysis provided by Dan Duggan, Ph.D.

In Exhibit 31 we show brand loyalty rewards in 2022 per S&P Global Mobility. Tesla won over half of the awards including overall loyalty to make and highest conquest percentage. GM was recognized for overall loyalty to manufacturer.

Exhibit 31: S&P Global Mobility Brand Loyalty Rewards 2022

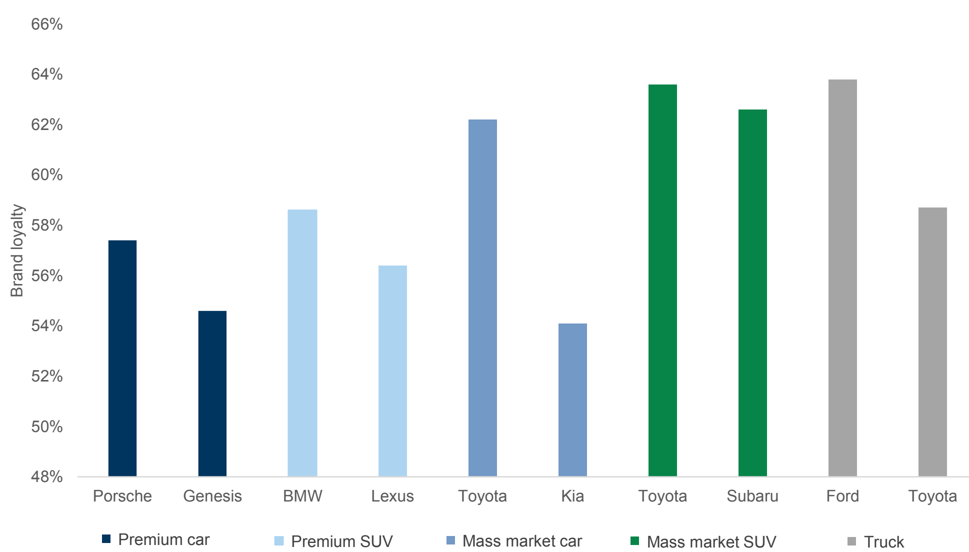
2022 S&P Global Mobility manufacturer and make loyalty awards	
Overall Loyalty to Manufacturer	General Motors*
Overall Loyalty to Make	Tesla
Ethnic Market Loyalty to Make	Tesla
Most Improved Make Loyalty	Tesla
Overall Loyalty to Dealer	Subaru
Highest Conquest Percentage	Tesla*
Alternative Powertrain Loyalty to Make	Tesla*
Most Improved Alternative Powertrain Loyalty to Make	Mercedes-Benz

*repeat winner from the 2021 awards

Source: S&P Global Market Intelligence

In Exhibit 32 we show customer loyalty, which is based on the percentage of vehicle owners who choose the same brand when trading in or purchasing their next vehicle (note that only sales at new-vehicle franchised dealers qualify and thus Tesla was not a part of this study). The J.D. Power study was redesigned in 2022 to include brand loyalty across five segments (premium car, premium SUV, mass market car, mass market SUV, and truck). In 2022, the highest ranking brands in the premium car segment was Porsche (57.4% loyalty rate). Toyota ranks highest among mass market car brands with a 62.2% loyalty rate followed by Kia (54.1%). Toyota ranks highest among mass market SUV brands with a 63.6% loyalty rate, and Subaru (62.6%) ranks second. In the truck segment, Ford ranks highest with a 63.8% loyalty rate (and the highest of all segments).

Exhibit 32: 2022 top 2 brand loyalty rankings by vehicle class



Source: J.D. Power

We also show brand loyalty in the premium and mass market segments from 2019-2021 below.

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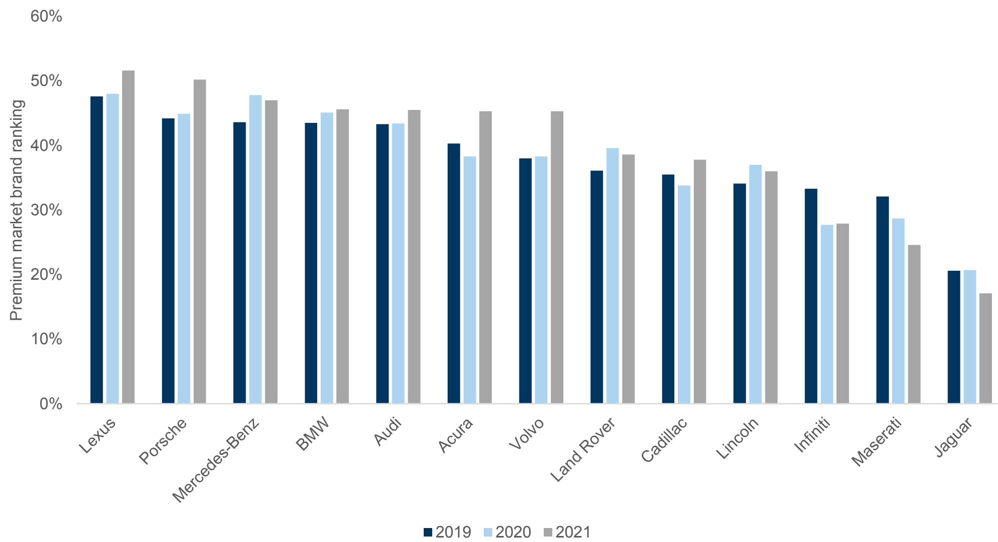
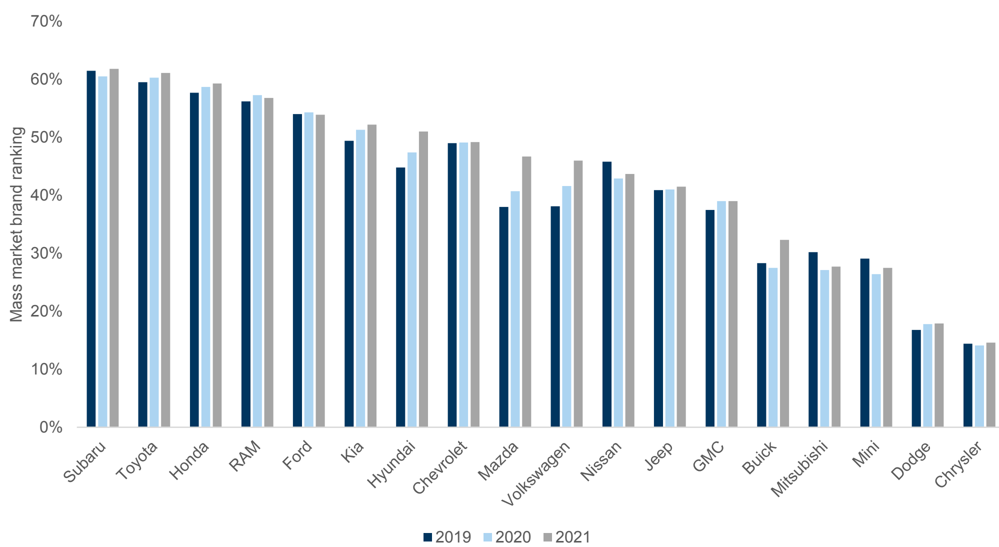
Exhibit 33: Premium market brand loyalty ranking 2019-2021



Source: J.D. Power

Exhibit 34: Mass market brand loyalty ranking 2019-2021



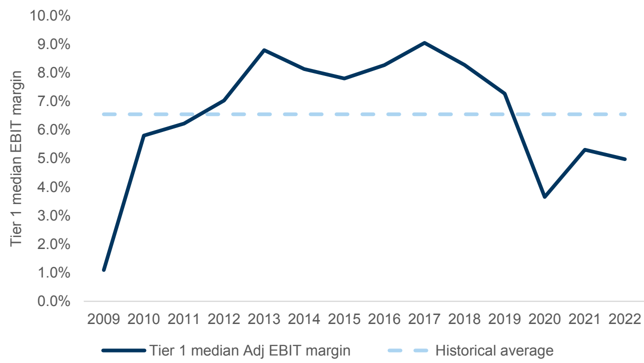
Source: J.D. Power

Tier 1 suppliers

We continue to be positive on several of the North American based auto suppliers, especially the auto tech enablers, which we consider to be companies that have higher content and/or sell full solutions for key applications like EVs/ADAS. Many of the auto suppliers also have more defensive characteristics (e.g. solid margins and FCF, and diversified customers/end market exposure).

Historically, tier 1 suppliers operate with mid-single digit adjusted EBIT margins. At the median, the 2022 tier 1 supplier adjusted EBIT margin is ~150 -200 bps below the long-term historical level.

Exhibit 35: Tier 1 suppliers' Adj EBIT margins are below its historical median



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

Tier 1 suppliers have historically traded in the 10-15X range on NTM P/E, but are currently trading at the low end of that range and ~10% below the long-term average).

Exhibit 36: Median NTM P/E multiple for tier 1 suppliers

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

In Exhibit 37 we show the percentage of revenue and EPS coming from EV-specific/ADAS products as well as ICE-specific products in 2022.

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Exhibit 37: 2022 US Tier 1 Supplier EV/ADAS and ICE Revenue and Earnings Power

	2022 % of revenue from EV specific/ADAS products	2022 % of revenue from ICE specific products	2022 EPS from EV specific/ADAS products	2022 EPS from ICE specific products	Notes
US companies					
BorgWarner	10-20%	72-80%	(15)%-(10)%	80-90%	2022 EV sales were $870 mn, and the company expects 2023 EV sales to be $1.5-$1.8 bn and eProduct sales of $2.3-$2.6 bn
Magna	4-10%	0-5%	2-10%	0-5%	Assumes ~20% of total sales are EV specific or ADAS-related and ~10% of sales are ICE specific (with the remainder being powertrain agnostic)
Lear	0-5%	N/A	0-5%	N/A	Total electrification sales in E-Systems for 2022 were ~$565 mn
Gentex	10-20%	N/A	10-20%	N/A	Treats Full Display Mirror (FDM) revenue as revenue from ADAS
Visteon	<5%	N/A	N/A	N/A	Visteon's 2022 electrification revenue was <$50 mn in 2022, and the company expects this to grow to ~$600 mn in 2026
Aptiv	20-25%	N/A	15-25%	N/A	Assumes ~$2 bn in active safety business and ~$1 bn of revenue from high-voltage products in 2021 with high voltage growing at a ~30% CAGR and active safety at a 25% CAGR through 2025, per the company
European companies					
Autoliv	N/A	N/A	N/A	N/A	Products are powertrain agnostic
Forvia	15-20%	10-20%	5-15%	20-30%	
Vitesco	15-20%	75-90%	(15)%-(5)%	100-120%	
Continental	2-10%	0-5%	2-8%	2-8%	
Valeo	35-45%	5-15%	N/A	15-25%	
TI Fluid Systems	2-10%	50-60%	(20)%-(10)%	80-90%	
Michelin	N/A	N/A	N/A	N/A	Products are powertrain agnostic
Pirelli	N/A	N/A	N/A	N/A	Products are powertrain agnostic

Source: Company data, Goldman Sachs Global Investment Research

In Exhibit 38 we estimate the percentage of 2025 revenue and EPS coming from EV-specific and ADAS products as well as ICE-specific products. Importantly, we believe that auto tech enablers in the broader auto supply chain, including tier 1 suppliers and electronics/components companies, are an attractive place to invest because of their broad customer relationships, higher content per unit for EVs/ADAS related applications, mid to high-teens ROIC, and the high margins/FCF these companies generate cycle to cycle.

Exhibit 38: 2025 US Tier 1 Supplier EV/ADAS and ICE Revenue and Earnings Power

	2025 % of revenue from EV specific/ADAS products	2025 % of revenue from ICE specific products	2025 EPS from EV specific/ADAS products	2025 EPS from ICE specific products	Notes
US companies					
BorgWarner	30-40%	55-65%	10-15%	60-70%	2025E eProduct sales anticipated to be ~$5.6 bn (~$4.3 bn EV; ~$1.3 bn Hybrid) and is anticipated to be 35% of total revenue
Magna	10-15%	5-15%	5-15%	1-5%	Assumes >$4 bn in sales from ADAS, powertrain electrification, and battery enclosures per company comments
Lear	3-10%	N/A	5-10%	N/A	Assumes ~$1.3 bn of electrification revenue in 2025 (Lear believes that it is on track to meet or exceed this goal)
Gentex	15-25%	N/A	15-25%	N/A	Treats Full Display Mirror (FDM) revenue as revenue from ADAS
Visteon	5-10%	N/A	6-12%	N/A	Assumes the <$50 mn of electrification revenue grows at the 86% CAGR (CAGR from 2022 through 2026)
Aptiv	25-35%	N/A	20-30%	N/A	Assumes ~$2 bn in active safety business and ~$1 bn of revenue from high-voltage products in 2021 with high voltage growing at a ~30% CAGR and active safety at a 25% CAGR through 2025, per the company
European companies					
Autoliv	N/A	N/A	N/A	N/A	Products are powertrain agnostic
Forvia	20-30%	5-15%	20-25%	15-25%	
Vitesco	35-45%	55-65%	10-20%	80-90%	
Continental	8-15%	0-5%	8-15%	0-5%	
Valeo	40-50%	5-10%	25-35%	8-15%	
TI Fluid Systems	15-25%	35-45%	2-10%	55-65%	
Michelin	N/A	N/A	N/A	N/A	Products are powertrain agnostic
Pirelli	N/A	N/A	N/A	N/A	Products are powertrain agnostic

Source: Company data, Goldman Sachs Global Investment Research

Moreover, tier 1 suppliers in our coverage have experienced growth over market the past few years, and expect to continue to outgrow auto production in 2023 (Exhibit 39).

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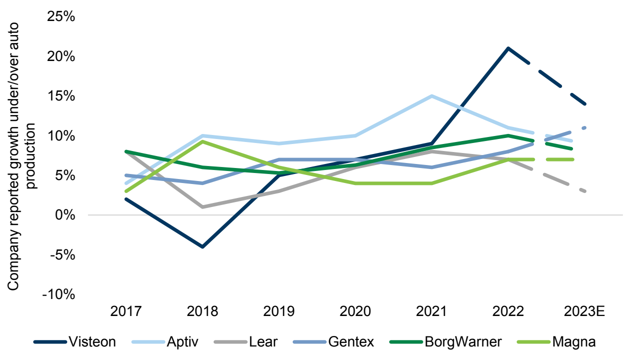
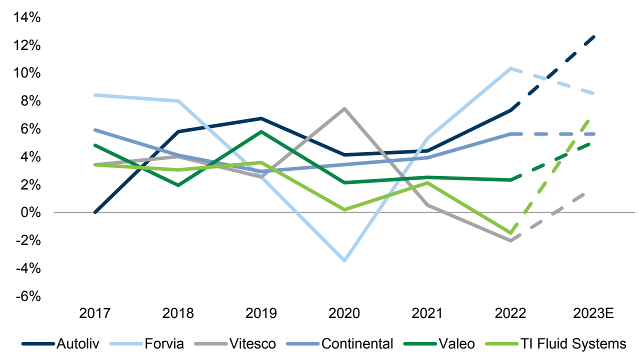
Exhibit 39: US tier 1 suppliers growth over/under market and 2023 company targets



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 40: European tier 1 suppliers growth over/under market and 2023 targets



Source: Company data, Goldman Sachs Global Investment Research

Auto dealers

The limited new vehicle supply in recent years has resulted in increased profitability for auto dealers, particularly those with franchised new vehicle operations, as the supply/demand imbalance resulted in super-normal new vehicle gross profit per unit (GPU), as highlighted in Exhibit 41. The scarcity of new vehicles and limited supply of attractive used vehicles also contributed to a similar increase in used vehicle GPUs, although not of the same magnitude. As the supply/demand imbalance continues to improve, we expect both new and used GPUs will moderate toward more normalized levels, but we note the potential for new vehicle GPUs to settle at a higher level than the pre-pandemic average. With that said, we expect declining GPUs to pressure overall dealer sales and profitability on a per unit basis, which we note could be partially offset by unit expansion.

Increased EV penetration is largely neutral to auto dealers as they stand to benefit from overall vehicle demand. However, the long-term profitability of the parts and service business is likely to be pressured given that EVs require less maintenance and have fewer parts available for repair/replacement.

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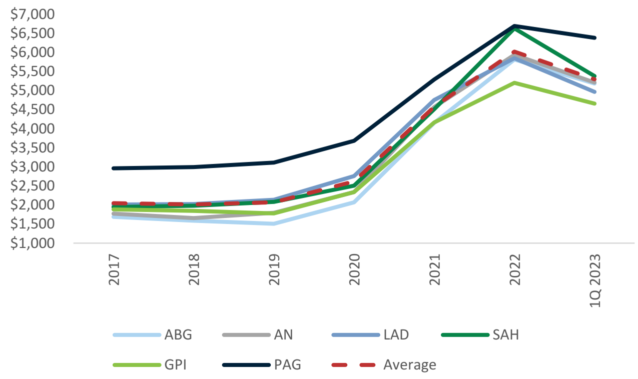
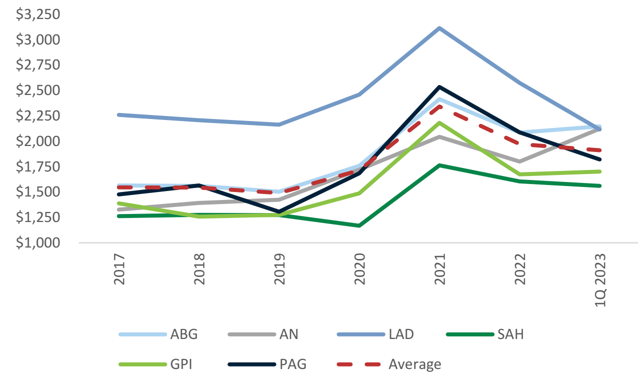
Exhibit 41: Same store average new vehicle retail gross profit per unit



Source: Company data, Goldman Sachs Global Investment Research

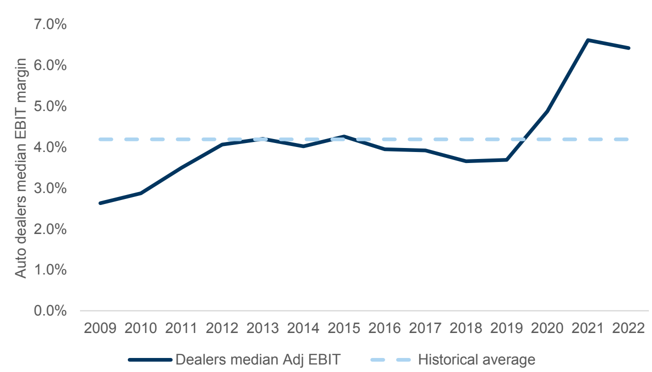
Exhibit 42: Same store average used vehicle retail gross profit per unit



Source: Company data, Goldman Sachs Global Investment Research

Historically, adjusted EBIT margins of auto dealers are in the low to mid single digit range, and 2022 adjust EBIT margins for the group was ~220 bps above the long-term historical average at the median.

Exhibit 43: Historical median EBIT margin of auto dealers are above its historical average



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

The auto dealer group is currently trading at a NTM P/E multiple of ~8X, which is ~21% below the long-term historical average.

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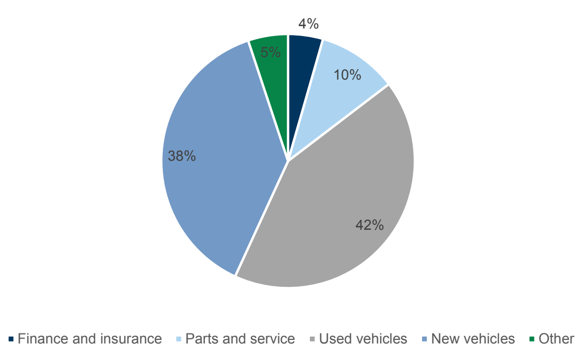
Exhibit 44: Historical NTM P/E multiple for auto dealers

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

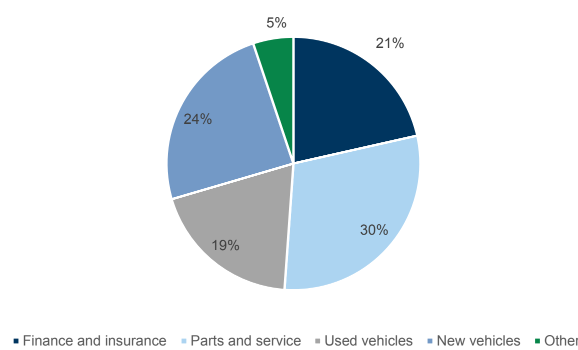
On average, a mid-single digit percent of auto dealers' revenue and ~20-30% of gross profit comes from finance and insurance. Parts and services typically make up a low double digit percentage of revenue and around 30% of gross profit. Used vehicles account for about 30-45% of revenue and anywhere from a high single-digit percentage to over half of gross profit depending on the exposure to used vehicles. Some auto dealers are more heavily skewed towards the used vehicle market (e.g. used vehicle sales made up 78% of revenue and 66% of gross profit for CarMax in 2022). Excluding CarMax, new vehicles make up ~40-50% of revenue and ~20-30% of gross profit for auto dealers.

Exhibit 45: Illustration of a typical auto dealer's current revenue breakdown



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

Exhibit 46: Breakdown of a typical auto dealer's current gross profit



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

We show individual company revenue and profit breakdowns below:

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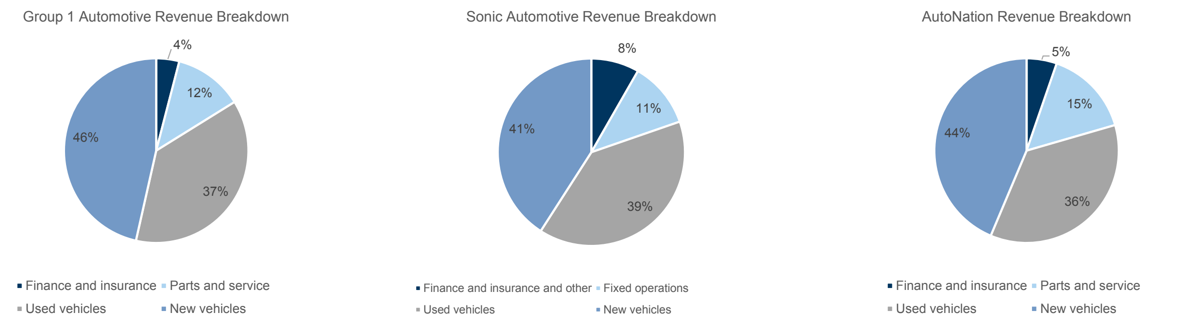
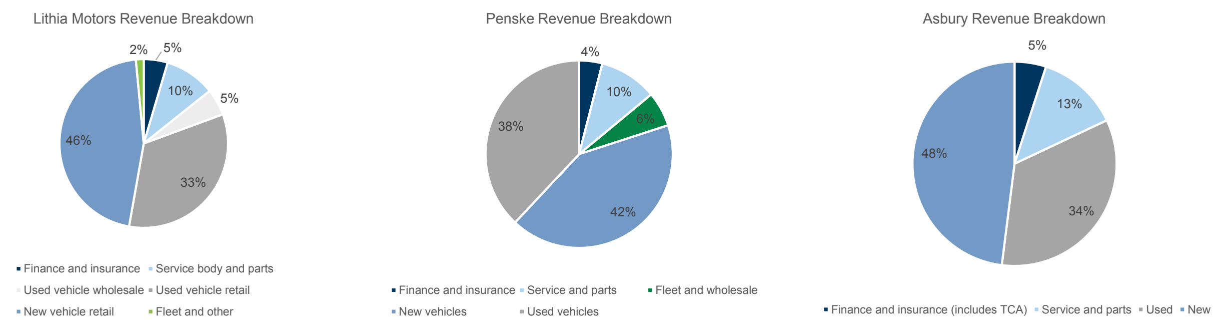
Exhibit 47: Key auto dealers' 2022 revenue breakdown



Source: Company 10-K filings

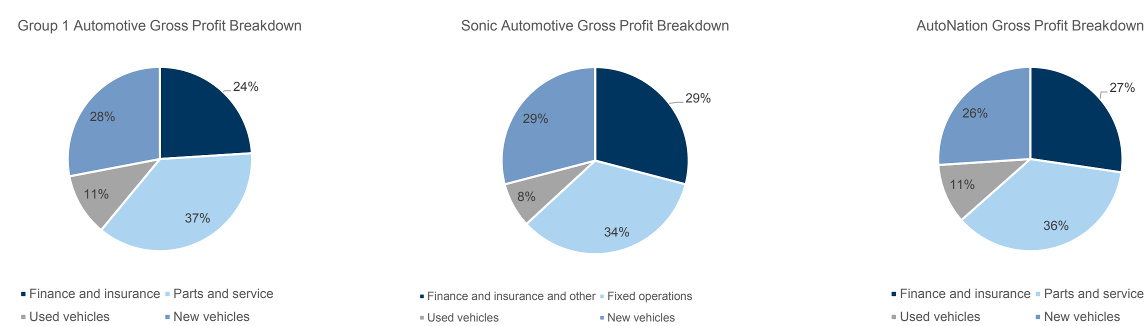
Exhibit 48: Key auto dealers' 2022 revenue breakdown



Source: Company 10-K filings

We show gross profit breakdowns for select auto dealers below:

Exhibit 49: Key auto dealers' 2022 gross profit breakdown



Source: Company 10-K filings

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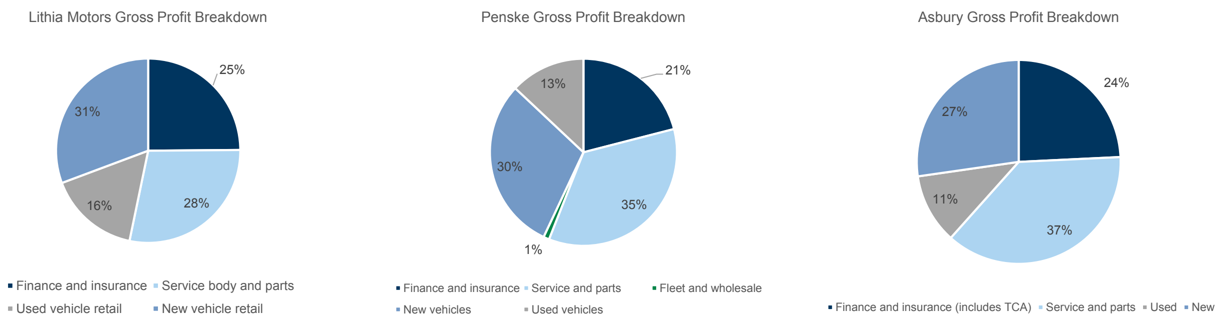
Exhibit 50: Key auto dealers' 2022 gross profit breakdown



Source: Company 10-K filings

Auto part retail

Auto part retailers have benefited from limited new vehicle supply and declining affordability in recent years as many consumers have opted to maintain and extend the ownership cycle of their current vehicles, translating to increased maintenance and repair spend. This dynamic contributed to above trend sales growth for parts retailers (along with favorable inflation pass through), and the aging of the U.S. light vehicle population should remain a tailwind going forward, particularly as the auto part retailers serve a sweet spot of vehicles aged six to twelve years. From a margin perspective, auto part retailers experienced operating margin expansion, largely reflecting fixed cost leverage due to the above trend sales growth, but margins have started to normalize closer to historical levels when excluding the impacts of company-specific initiatives.

Increased EV penetration remains a potential longer-term headwind for the industry. EVs require less maintenance and have fewer parts than internal combustion engine or hybrid vehicles, and therefore, if EV penetration were to increase meaningfully, the auto part retailers could be exposed to softening demand trends longer term. However, we do not expect any demand headwinds related to EVs in the near or medium term as the parts retailers serve the current U.S. light vehicle population that is predominately powered by internal combustion engines, and with a sweet spot of vehicles aged six to twelve years it will take a long time for any material shift in EV penetration to impact their addressable market. Further, we note that improvements in undercar and powertrain technology in recent years may also contribute to a longer lifespan for the current vehicle fleet, potentially softening any impacts from increased EV penetration, along with potential selling opportunities related to EV parts content.

Adjusted EBIT margins for auto part retail companies are ~40-50 bps higher than the historical average for the group at the median.

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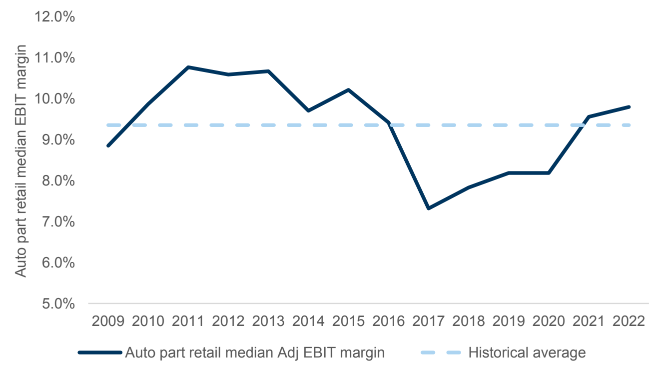
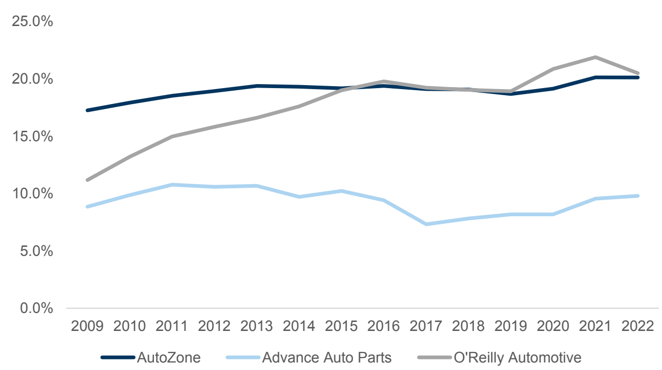
Exhibit 51: Median EBIT margin for auto part retail companies



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

The adjusted EBIT margins of O'Reilly Automotive (ORLY) and AutoZone (AZO) are in the high-teens/20% range while Advance Auto Parts (AAP) has adjusted EBIT margins in the 5-10% range.

Exhibit 52: EBIT margins of AutoZone and O'Reilly Automotive are in the high-teens to mid-20% range while Advance Auto Parts' EBIT margin is in the mid- to high-single-digit range
EBIT margins for auto part retails



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

The NTM P/E multiple for auto part retail companies is ~11% higher than the long term historical average, which is in the mid-teens range.

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Exhibit 53: NTM P/E multiple for auto part retail companies

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

Auto finance

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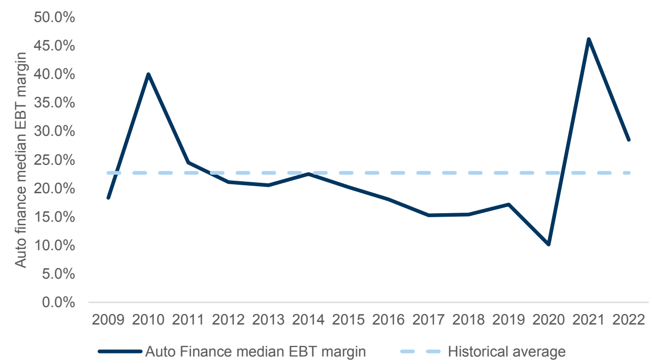
A lack of used vehicle supply and strong consumer demand and dealer activity kept auction prices above pre-pandemic level. As a result, used car values increased nearly ~+50% vs. 2019 levels and the higher price per vehicle has resulted in 1) stronger origination volumes, 2) higher lease residual gains, and 3) lower credit costs given greater recoveries (lower loss severity) and led to outsized profitability in 2021 and 2022.

As market conditions normalize (improvement in supply chains and new vehicle supply) and borrowing costs rise, we see several implications including 1) higher credit losses given greater loan loss severity and loss given default (LGD) / residual value risk, 2) net interest margin compression from higher funding costs and 3) weaker demand leading to slower loan growth, while 1) higher retail auto yields (new production is ~300bps accretive vs. current portfolio yields) and 2) a potential rebound in commercial floor plan balances (dealer floorplan balances have been depressed despite strong demand, given low inventory levels; ~20 days vs. 80 days historically) may partially offset the P&L impact.

Overall, we would expect easing supply / demand, higher interest rates and lower used car values as having an adverse impact on auto finance profitability and returns.

The 2022 adjusted EBT margin for auto finance companies is ~580 bps above the long-term historical average for the group.

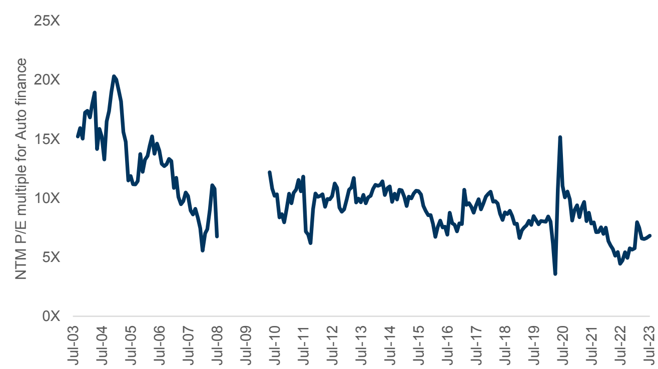
Exhibit 54: Median EBT margin for auto finance companies



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

The current NTM P/E multiple for auto finance companies is below the long-term historical average.

Exhibit 55: Median NTM P/E multiple for auto finance companies



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

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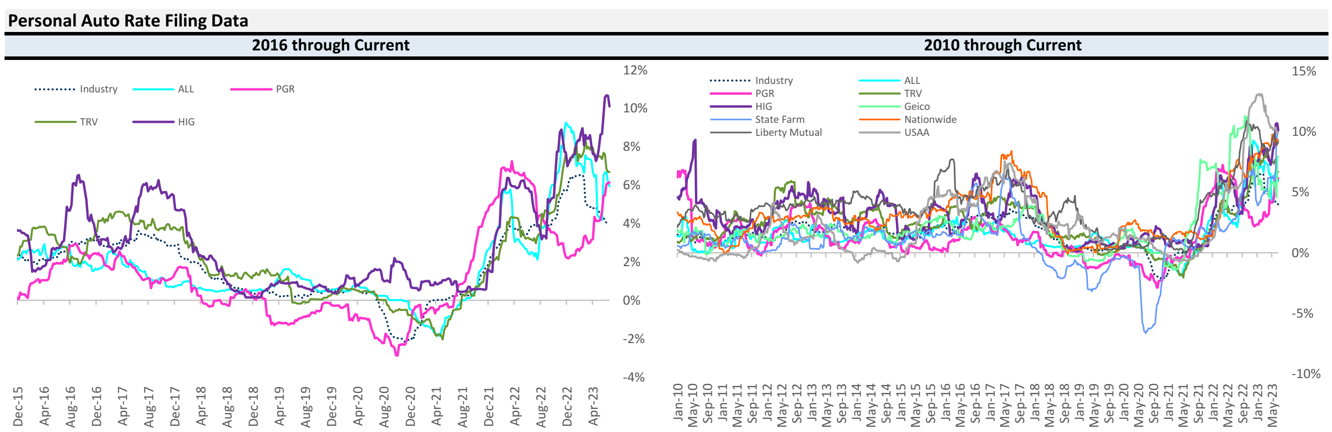
Auto insurance

The auto insurers (ALL, PGR, KMPR, MCY are most concentrated in auto while THG, TRV, HIG also have notable exposure) have been under significant pressure over the past couple of years as high auto inflation has driven up the cost of insurance claims. Said more simply, the cost of goods sold has been significantly disrupted by the higher costs associated with repairing and replacing vehicles. Compounding the issue for these companies is the regulated nature of pricing on auto insurance – companies must go out to each of the 50 states separately to get regulatory approval for premium increase. While companies have made some pricing adjustments, they haven't been enough to restore profitability particularly in the larger states like California and New York. Looking forward, we see an improving environment that should benefit from 1) pricing actions taking effect, 2) regulators becoming more receptive to increases in the states with weaker profitability, and 3) the potential for auto disinflation to help loss cost severity. While we see this as a positive story over the next 12 months, we would point out that catastrophe activity and the record level of hail storms in the US during 2Q still makes for a more challenging setup in the near term. However, we see Allstate and Progressive with a more clear runway to restoring margins as we get further into the back half of the year.

Repricing for inflation

Using regulatory approval filings we are able to track the pricing for auto insurance and have recently refreshed this analysis. We use the trailing six months data as an indicator for the pricing we see as earning to segments due to the average six-month policy duration for ALL and PGR. Considering this and the 6-month nature of the compounding, we see around 8-10 points of pricing earnings in over the next year and expect this to continue to ramp up as companies begin to get larger rate increases from the states that have been tough on approvals to date (ie CA, NY, NJ).

Exhibit 56: Trailing 6M Personal Auto Insurance Rate Filing Monitor



Source: SNL Financial, Goldman Sachs Global Investment Research

Loss Severity Trends

We track claims severity and have an index that incorporates 1) used car prices (30% weight), 2) motor vehicle repair costs (30%), 3) motor vehicle parts cost (15%), 4) medical inflation (10%), legal services inflation (10%), and wage inflation (5%). This index taken into considerations with our future estimates tells us that the worst of auto claims severity should be behind us, though it remains somewhat elevated relative to history on year over year comparisons due more by auto repair CPI remaining quite elevated for the time being.

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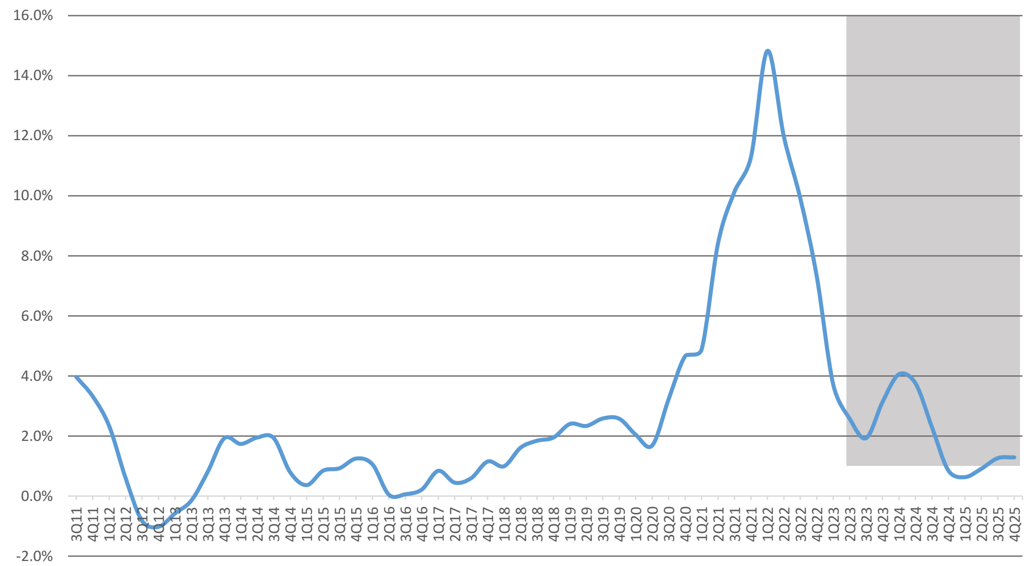
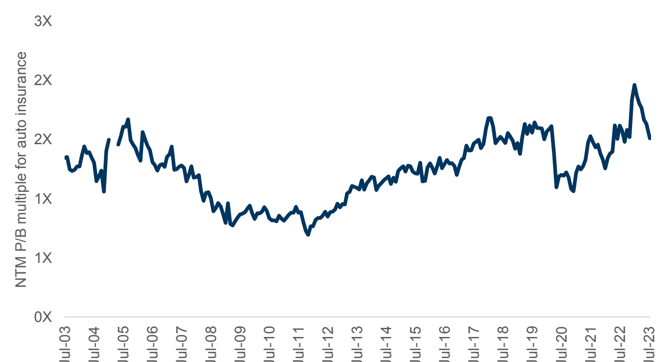
Exhibit 57: Estimated Severity Index



Source: FRED, Goldman Sachs Global Investment Research

Exhibit 58: Median P/NTM Book multiple for auto insurance companies



Source: FactSet

Price targets and key risks

GM (covered by Mark Delaney): We are Buy-rated on GM shares. Our 12-month price target is $49, which is based on 7X applied to our normalized EPS estimate of $7.00. Key risks to our view relate to the auto cycle, market share, margins, FCF, and GM's ability to profitably pivot to growth areas such as EVs and AVs.

F (covered by Mark Delaney): We are Neutral-rated on F shares. Our 12-month price target is $14, which is based on 7X our normalized EPS estimate of $2.00. Key risks to our view relate to Ford's ability to profitably pivot to growth areas such as EVs and AVs, the auto cycle, market share, and margins (both margin pressure in a downturn and

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margin expansion longer term from company specific initiatives).

BWA (covered by Mark Delaney): We are Neutral-rated on BWA shares. Our 12-month price target is $48, which is based 11X applied to our normalized EPS estimate of $4.35. Key risks to our view relate to revenue growth, including BWA's ability to outgrow the market due to its EV portfolio, diesel exposure, the auto cycle, margins, and market share.

TEL (covered by Mark Delaney): We are Buy rated on TEL. Our 12-month target price target is $168, based on a 21X normalized EPS estimate of $8.00. Key risks to our view relate to automotive end demand, execution of its margin expansion plan, the impact of EVs and new car architectures on automotive content for TE, unfavorable commodity pricing, macroeconomic demand trends, and TE successfully expanding into the sensor market.

APTV (covered by Mark Delaney): We are Buy rated on APTV shares. Our 12-month price target is $138, based on a 22X our normalized EPS estimate of $6.25. Key risks to our view relate to Aptiv's ability to grow its content per vehicle ahead of industry production, the auto cycle, Aptiv's market share, margins, Aptiv's net debt position, component shortages in the auto supply chain, and the impact of COVID-19 on industry supply and demand.

VC (covered by Mark Delaney): We are Buy rated on VC shares. Our 12-month price target is $200 based on 20X our normalized EPS estimate of $10.00. Key downside risks to our view relate to: 1) Visteon's ability to capitalize on the secular shift to EVs and AVs (including in BMS and with digital cockpit products); 2) margins (with weakness in volume, product, and operational execution as downside risks); 3) revenue (dependent on traction with new, higher ASP offerings as well as industry volumes); 4) general macroeconomic risk, especially as it relates to the auto cycle; 5) market share (especially as traditional tech companies seek to do more in digital electronics in vehicles); and 6) multiple contraction, given that Visteon trades at a premium to peers.

MGA (covered by Mark Delaney): We are Buy-rated on MGA shares. Our 12-month price target is $64, which is based on a 10X applied to our normalized EPS estimate of $6.40. Our 12-month price target for MG.TO listed in Canada is C$86 using current exchange rates. Key risks to our view relate to the auto cycle (including challenges from COVID-19 and supply chain disruptions, as well as debates around the sustainability of the strong demand environment), Magna's ability to cater to new entrants and grow in key areas such as EVs/ADAS), Magna's ability to outgrow industry unit production (and profitably pivot toward secular growth themes to make up for the ~10% of its portfolio tied to ICE/legacy applications), Margins, and whether Magna can successfully improve its EBIT margins over time.

TSLA (covered by Mark Delaney): We are Neutral rated on TSLA shares. Our 12-month price target of Tesla is $275, based on 55X applied multiple to our Q5-Q8 EPS estimate including SBC. Key downside risks to our view relate to potentially larger vehicle price reductions than we expect, increased competition in EVs, delays with products/capabilities like FSD/the third-generation platform/4680, key person risk, the internal control environment, margins, and operational risks associated with Tesla's high degree of vertical integration. Upside risks include faster EV adoption and/or share gain from Tesla, a stronger macroeconomic environment for new vehicle sales more generally, earlier new product launches than we expect (e.g. a vehicle using the third-generation platform), and an earlier/larger impact from AI enabled products (e.g. FSD and Optimus) than we currently anticipate.

Toyota (covered by Kota Yuzawa): We are Buy rated on Toyota shares. Our 12-month target price is ¥2,700 based on P/B-ROE correlation using our FY3/24 estimates. Risks to our view include yen appreciation, delays in EV development, battery sourcing issues amid rapid growth in the EV market, disappointment in the company's shareholder return policy, and protracted semiconductor shortages.

Nissan (covered by Kota Yuzawa): We are Neutral rated on Nissan shares. Our 12-month target price of ¥640 is based on a P/B-ROE correlation using our FY3/25 estimates. Key risks include yen appreciation/depreciation, a correction/rebound in China sales, protracted/eliminated semiconductor shortages, and deterioration/improvement in the earnings environment for the sales finance business.

Honda (covered by Kota Yuzawa): We are Buy-rated on Honda Motors. Our 12-month target price of ¥5,200 is based on P/B-ROE correlation and our FY3/24 estimates. Risks include yen appreciation, sharply higher raw material prices, weaker-than-expected sales of new vehicles, and inefficiency in multiple EV projects.

Autoliv (covered by Philipp Konig): We are Buy rated on ALV. Our 12-month target price is $109, based on 12.0x our 2024E EPS. Key downside risks to our view relate to 1) deterioration in global production volumes; 2) risks to market share gains due to competitive pressures; 3) execution risks around the implementation of the restructuring program; 4) mix deterioration; 5) abrupt raw material price movements; and 6) regulations changes.

Porsche (covered by George Galliers): We are Buy-rated on Porsche shares. Our 12-month price target is €149, based on 24.0X our 2024 EPS estimate. Key downside risks to our view relate to 1) Lower delivery growth, supply and demand mismatch of BEV/ICE models; 2) Lower profitability in the case of delivery shortfall or lower-than-expected BEV gross margins; 3) Failure to secure raw material supply for BEVs; 4) Increase in competitive forces; 5) Transfer pricing/billings more expensive in the future; 6) Change in regulation/industry developments resulting in a step-up in investment; 7) FX/commodity risks.

Mercedes (covered by George Galliers): We are Buy-rated on Mercedes. Our 12-month price target of €98, based on 7.5X our 2024 EPS estimate. Key risks to our view relate to 1) Mercedes deviates from a luxury strategy/focus; 2) Slowdown and/or restrictions in key luxury markets, including China; 3) Cost savings at Mercedes do not materialize; 4) Inability to reduce capex and control working capital; 5) Improvements in price/mix cannot be sustained through outer years; 6) Cyclical nature of end markets; 7) Semiconductor and other component availability constrains production unexpectedly going forward; 8) Energy restrictions/price inflation in Europe.

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Stellantis (covered by George Galliers): We are Buy-rated on Stellantis shares. Our 12-month target price is €23/$25/€23 for STLAM.MI/STLA/STLAM.PA based on 5.0X 2024E EPS. Key risks to our view include 1) New products less well-received than expected; 2) Slowdown in the EU/NA market; 3) Commodity/raw material prices; and 3) Full-size pick-up truck market slowdown.

VW (covered by George Galliers): We are Neutral rated on VW shares. Our 12-month price target is €151, which is based on a 4.5X applied to our normalized 2024 EPS estimate. Key risks to our view relate to stronger improvement in European demand, Macro concerns, notably with respect to Europe, don't materialize, faster-than-expected easing of supply constraints, corporate reorganization, and investors start to take a SoTP approach to valuing VW, thereby crediting the equity value of Porsche AG. Downside risks relate to software and BEV production issues, new products less well-received than recent products, supply-chain constraints, commodity and energy prices, geopolitics, China slowdown, and pricing pressure and increased competition.

AutoZone (covered by Kate McShane): We are Buy rated on AZO shares. Our 12-month price target of $2,840 is based on our downside/base/upside case EV/EBITDA multiples of 12.5X/13.5X/15.5X. Key risks to our view include a material slowdown in DIFM growth; worse-than-expected DIY trends; a reduction in miles driven that weigh on failure/maintenance demand; unfavorable weather; lower-than-expected EBIT margins due to wage costs and fuel prices; and increased competition.

ORLY (covered by Kate McShane): We are Buy rated on ORLY shares. Our 12-month price target is $973 and is based on our downside/base/upside case relative P/E multiples of 110%/120%/135%. Key downside risks to our view include higher distribution costs related to supply chain headwinds and labor cost increases; gross margin risk from the company's DIFM pricing strategy and higher product acquisition costs; operating margin risk as DIFM penetration increases and investments in recruiting/retaining talent drive higher SG&A spend; potential DIY demand headwinds; and unfavorable weather trends.

Advance Auto Parts (covered by Kate McShane): We are Neutral rated on AAP shares. Our 12-month price target of $82 is based on our downside/base/upside case relative P/E multiples of 60%/70%/75%. Key upside risks to our view include better-than-expected DIFM growth, driving top line and margin improvement; a stemming of DIFM share loss and potential share gains; a stronger DIY business to offset expected top line pressures on DIFM; improved execution and a clear long-term strategy to drive operating margin expansion; and a resumption of share repurchases and an increase in the quarterly dividend. Key downside risks to our view include execution challenges that could drive lower-than-expected sales and operating margin; slower-than-expected top line growth led by accelerated share loss to peers; slower recovery in inventory availability, and consequently, slower growth in AAP's DIFM business; slower pace of initiatives rollout, particularly on the supply chain front, leading to cost overages.

Lithia Motors (covered by Kate McShane): We are Neutral rated on LAD shares. Our 12-month price target of $305 is based on our downside/base/upside case relative P/E

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multiples of 40%/45%/50%. Key upside risks to our view include the potential that LAD acquires dealerships faster than our forecast; favorable industry dynamics as vehicle supply improves (both new and used) while demand remains resilient; gross profit per unit for both new and used vehicles remains well above pre-pandemic levels; Driveway scales faster than expected; LAD makes substantial progress toward the company's FY25 financial targets. Key downside risks to our view include the impact of higher interest rates; challenges in sourcing acquisitions; higher M&A multiples and execution/integration issues; unit sales remain constrained by vehicle production and affordability headwinds; gross profit per unit returns to more normalized levels faster than anticipated; higher-than-expected costs related to the company's omnichannel strategy; intensified competition, especially online.

ALLY (covered by Ryan Nash): We are Buy-rated on ALLY shares. Our 12-month price target is $31 based on 8X normalized 2024E EPS. Key risks to our view include less NIM expansion than expected and worse used auto values.

ALL (covered by Alex Scott): We are Buy rated on ALL shares. Our 12-month price target is $130 and based on 1.7X P/B ex AOCI valuation. Key risks to our view relate to 1) inflationary pressures remaining elevated and pricing insufficient; ALL's underlying loss ratio could miss our estimates; 2) Should the company need to take unfavorable reserve development or have pressure on the capital ratios there could be some downside risk.

PGR (covered by Alex Scott): We are Neutral-rated on PGR shares. Our 12-month price target is $143, which is based on a 2.6X price-to-book ex AOCI multiple and 19.4% op ROE. Key risks to our view relate to whether inflationary pressures subside/increase faster than expected, auto accident frequency declining/increasing greater than expected, a prolonged pricing cycle from higher loss trends, and net adverse loss development.

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Disclosure Appendix

Reg AC

We, Mark Delaney, CFA, Kate McShane, CFA, Kota Yuzawa, George Galliers, Ryan M. Nash, CFA, Philipp Konig, Alex Scott, CFA, Will Bryant, Morgan Leung, Robert Galante and Marly Reese, 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.

I, Dan Duggan, Ph.D., hereby certify that all of the views expressed in this report accurately reflect my personal views, which have not been influenced by considerations of the firm's business or client relationships.

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Growth is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

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Disclosures

Pricing information

Advance Auto Parts Inc. ($70.75), Allstate Corp. ($107.60), Ally Financial Inc. ($28.06), Aptiv Plc ($112.40), AutoZone Inc. ($2,573.38), Autoliv Inc. ($92.52), BorgWarner Inc. ($46.40), Ford Motor Co. ($15.22), General Motors Co. ($40.41), Lithia Motors Inc. ($322.50), Mercedes-Benz Group AG (€72.61), O'Reilly Automotive Inc. ($969.23), Porsche Automobil Holding (€53.62), Stellantis NV (€16.73), Stellantis NV (€16.72), TE Connectivity Ltd. ($142.68), Tesla Inc. ($271.99), Toyota Motor (¥2,212), Visteon Corp. ($157.10), Honda Motor (¥4,189), Magna International Inc. ($59.94), Nissan Motor (¥568), Progressive Corp. ($114.78), Toyota Motor (¥2,212) and Volkswagen (€123.90)

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The rating(s) for Aptiv Plc, BorgWarner Inc., Ford Motor Co., General Motors Co., Magna International Inc., TE Connectivity Ltd., Tesla Inc. and Visteon Corp. 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, Fisker Inc., Flex, Ford Motor Co., General Motors Co., Gentex Corp., Hyliion Holdings, Innoviz Technologies, Jabil Circuit Inc., Keysight Technologies Inc., Lear Corp., Luminar Technologies Inc., Magna International Inc., Mobileye Global Inc., National Instruments Corp., 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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	Rating Distribution			Investment Banking Relationships		
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