



April 27, 2023
Shanghai, China



State of China's Automotive Market

Monthly Automotive Committee Update

Recap of Shanghai Auto Show 2023 Event

*Presentation by **Bill Russo**,
Founder & CEO, Automobility Limited
and Chairman, AmCham Shanghai
Automotive Committee*



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Headline News

Inventory Problem of ICE

You can access our monthly China Auto Market newsletter highlighting recent industry developments

State of China's Auto Market April 2023

Steep Discounting Continues as Industry Faces Multiple Headwinds

New Energy Vehicles are the only sustained growth category

Comments from [Bill Russo](#), Founder & CEO of [Automobility Ltd.](#)

We are looking forward to welcoming international visitors to Auto Shanghai, which begins with Press Day events on April 18. The beauty of the China auto shows, which I have attended every year since 2004 (except 2022 due to lockdowns), are that they offer a truly unique opportunity to see the global carmakers - foreign and local Chinese brands - all in one place.

The China market is currently in a period of historic transition to new energy vehicles, the likes of which is unparalleled elsewhere on the planet. Simply put, the market is very different in 2023 from the last time many international visitors attended Auto Shanghai in 2019:

- In 2019, 1.2 million NEVs were sold out of 25.8 million (4.7%).
- In 2022, 6.9 million NEVs were sold out of 26.9 million (25.6%).

Annual sales of gasoline (ICE) powered vehicles declined by 4.6 million units since the last year international visitors visited an auto show in China.

This transition is favorable to very few legacy carmakers who must make a statement in order to get back in the new game. We will see what they have to say very soon. Until then, lets have a look at the chessboard.

First Quarter Vehicle Sales Down 6.7%

6.1 million cars and trucks were sold in the first quarter of 2023, a decline of 6.7%. This decline was not a surprise, as many consumers took advantage in 2022 of tax incentives and purchase subsidies which expired at year end. Year-over-year **New Energy Vehicle sales increased 27.2%**, while sales of **gasoline-powered vehicles declined 12.7%** versus the first quarter of 2022.



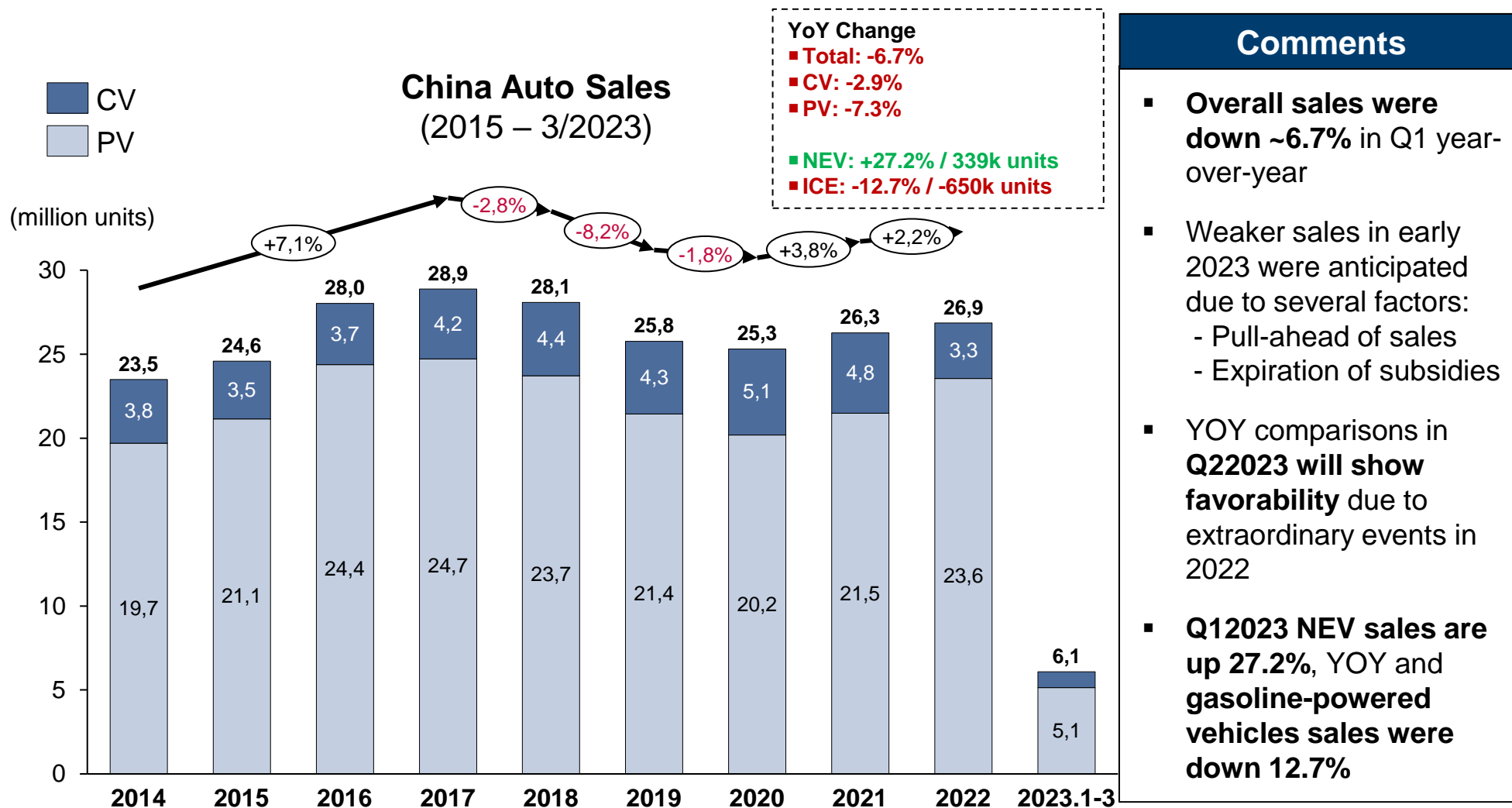
Link to February News Summary
(VPN required in China):



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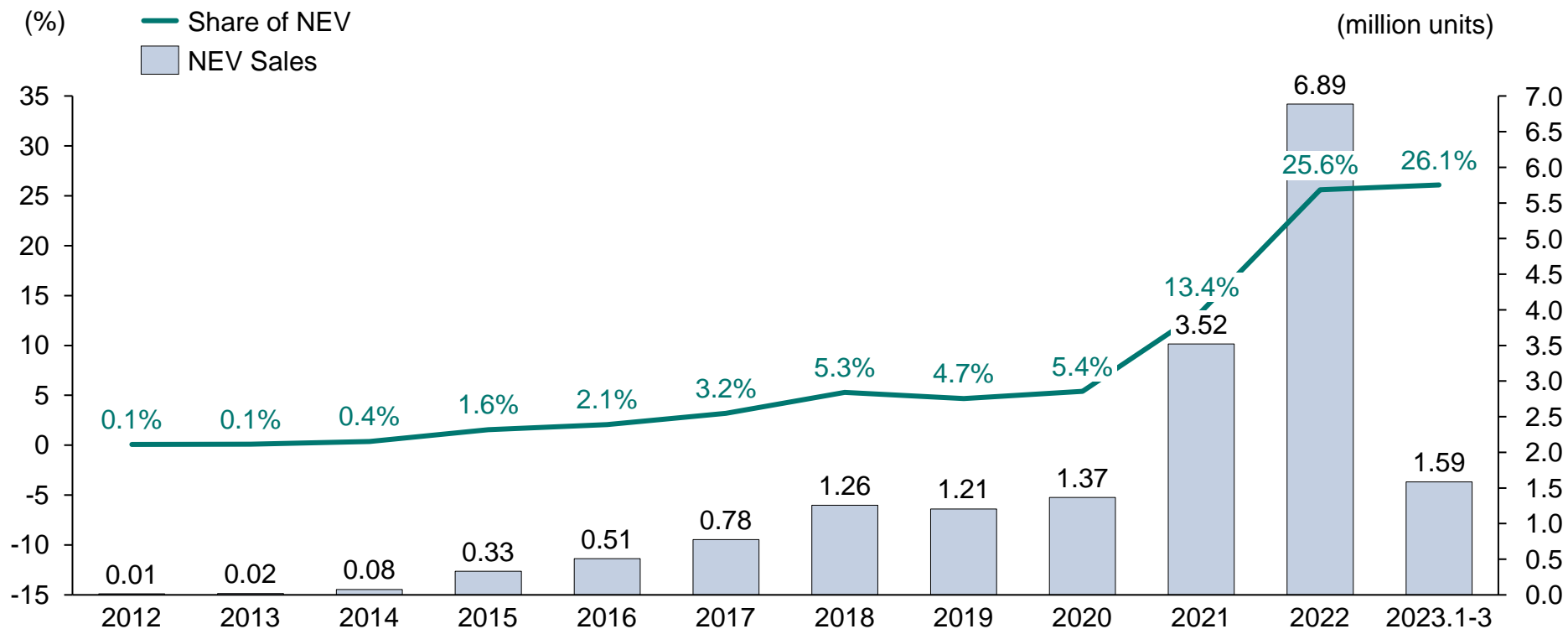
A weak opening in 2023 was expected after expiry of stimulus, which was not completely offset by aggressive pricing moves



Source: CAAM, *Automobility analysis*

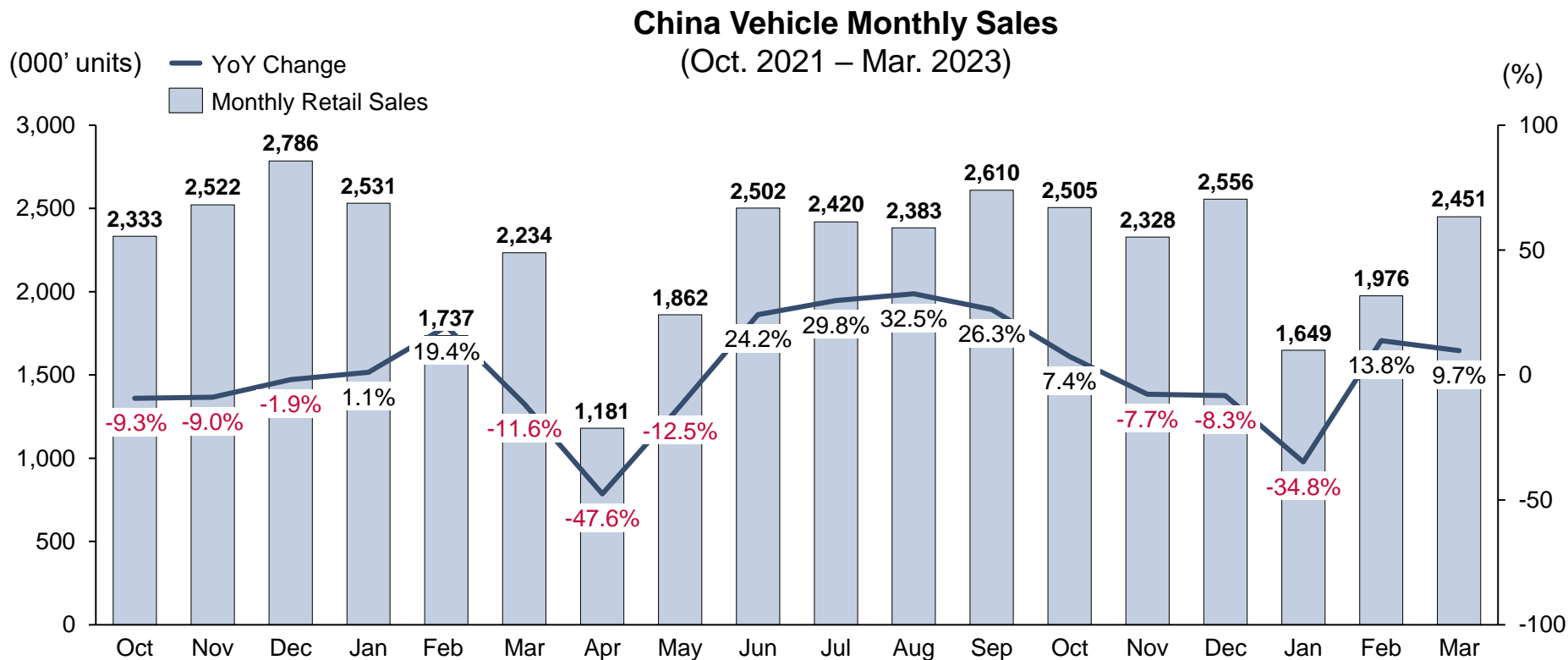
NEV share of new car sales increased slightly in Q1 2023

China NEV Annual Sales (2012 – 3/2023)



NEV share in Q1 of 2022 was 21.7%, and it was 8.2% in 2021.

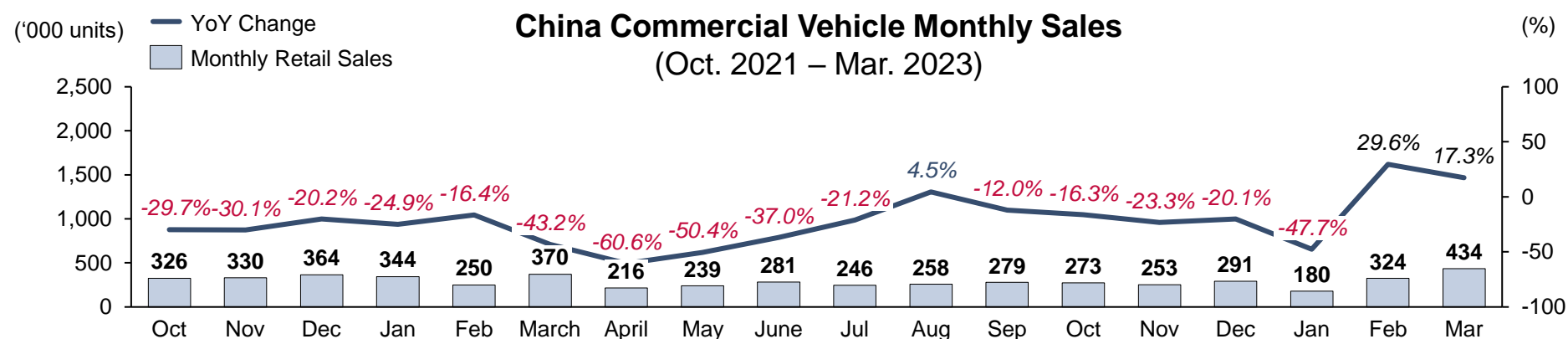
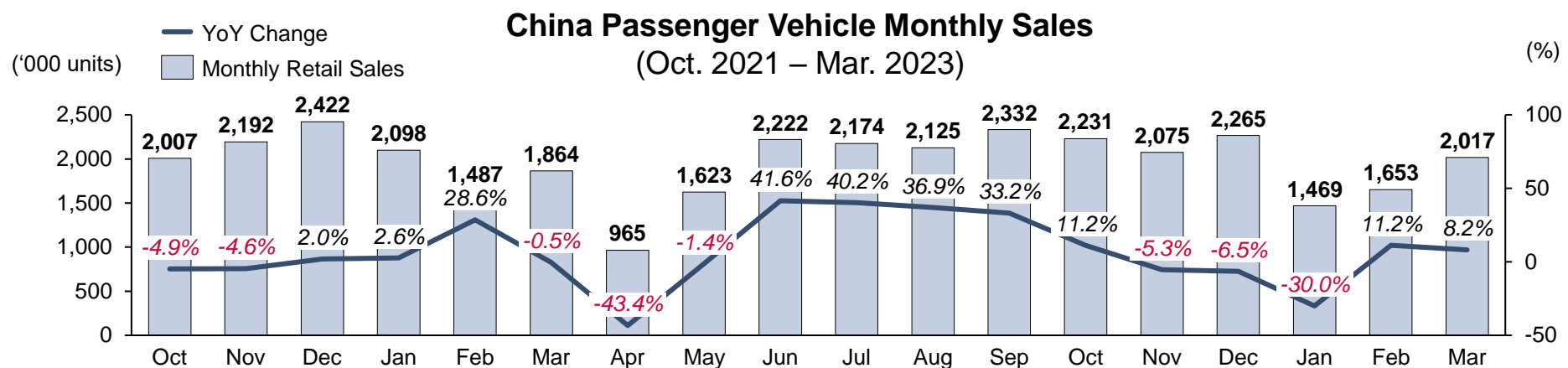
Recovery of sales momentum in March was fueled by heavy discounting



Comments

- **“Hangover effect”** from post-lockdown stimulus still weighs on ICE sales, which were relatively flat year-over-year
- **New Energy Vehicles** are still the main source of growth, even after the elimination of purchase subsidies

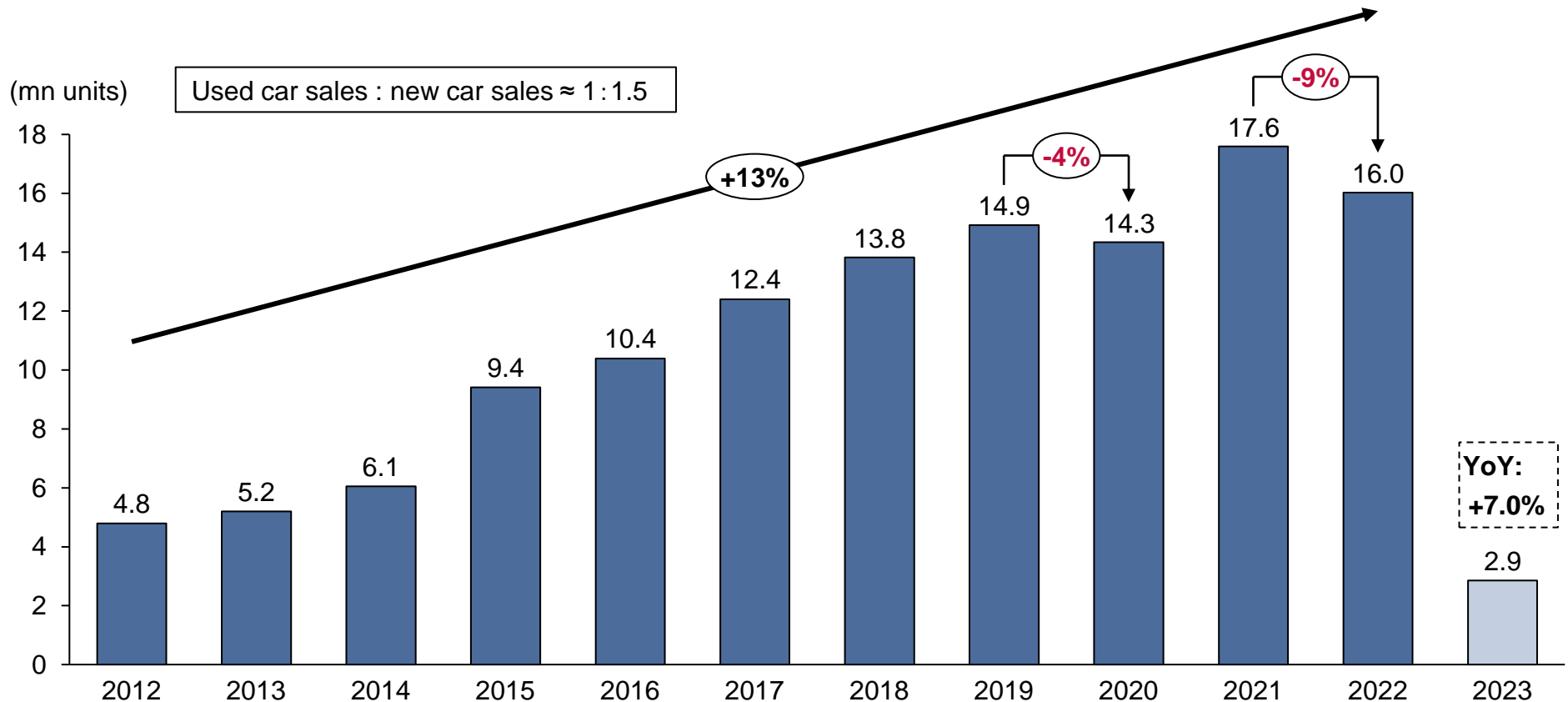
A rebound in CV sales along with NEV expansion and heavy discounting contributed to the March sales recovery



- CV segment had its best month since 2021 – a clear sign of recovery from its stimulus hangover
- PV sales growth was paid for with a price war, and is almost entirely from new energy vehicles

Used car sales have regained momentum

China Used Car Sales (2012 – Mar. 2023)

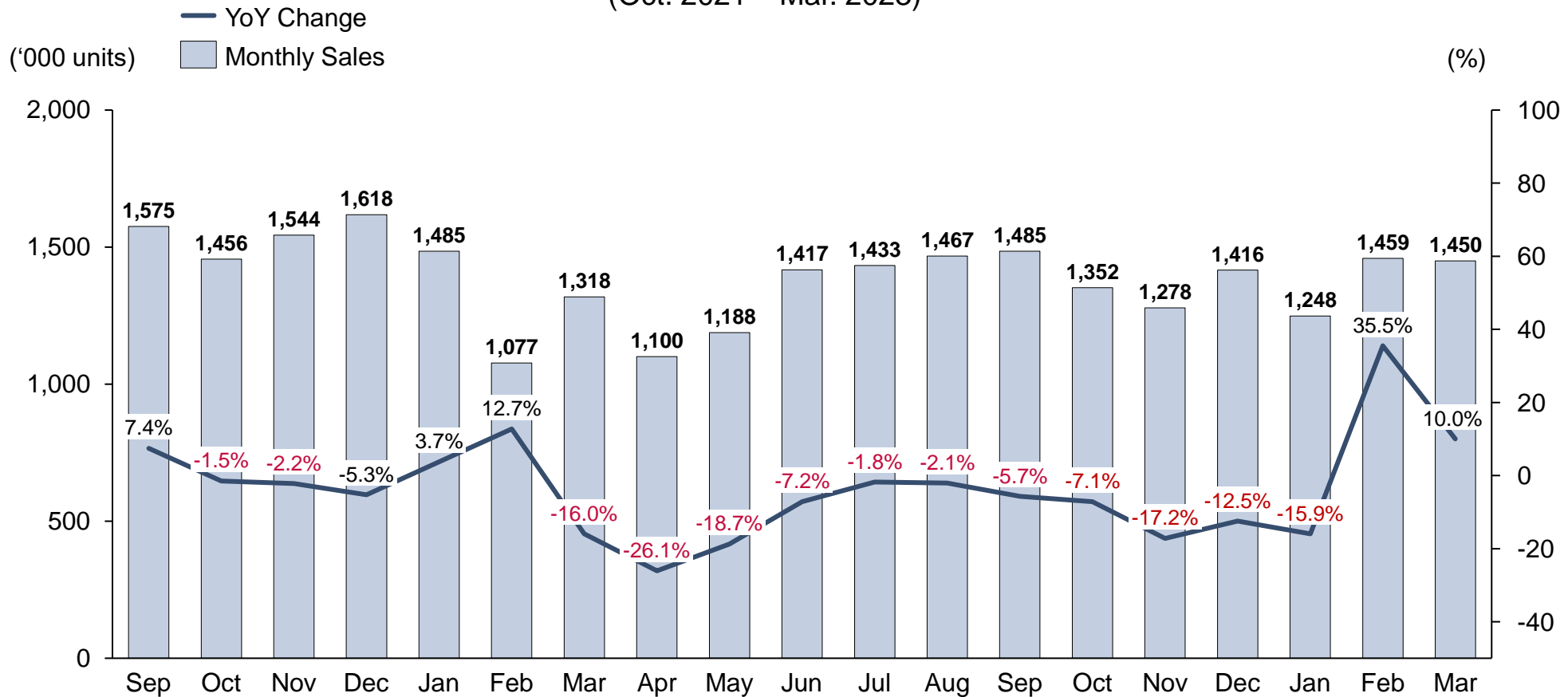


- Used cars +7.0% while New car sales are -6.7%: an indication of economic weakness as consumers prefer value for money in a period of economic weakness

Source: China Automobile Dealers Association, Auto.sina.com, Automobility analysis

While used car sales were up versus last March, they were about even with the prior month

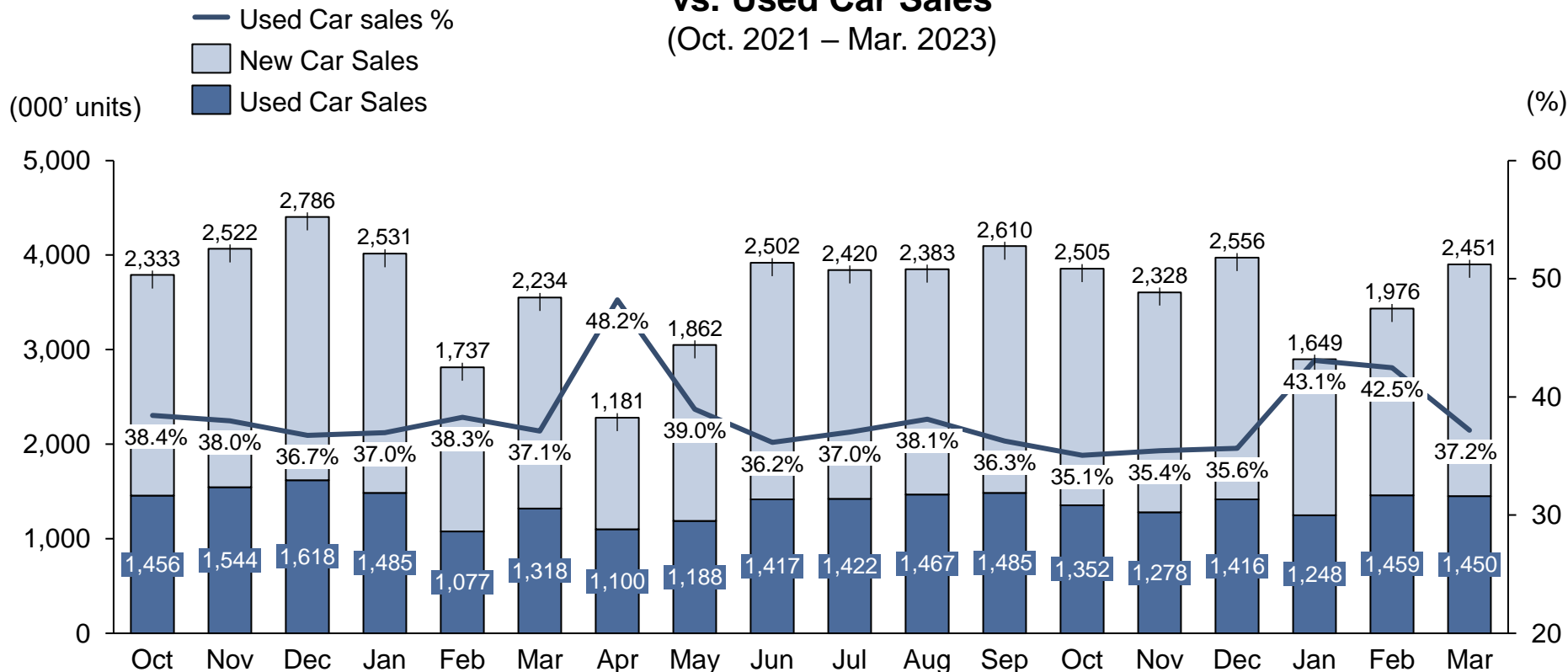
China Used Car Sales (Oct. 2021 – Mar. 2023)



Source: China Automobile Dealers Association, Automobility analysis

Value-seeking consumers are driving used car sales growth during a period of economic stress

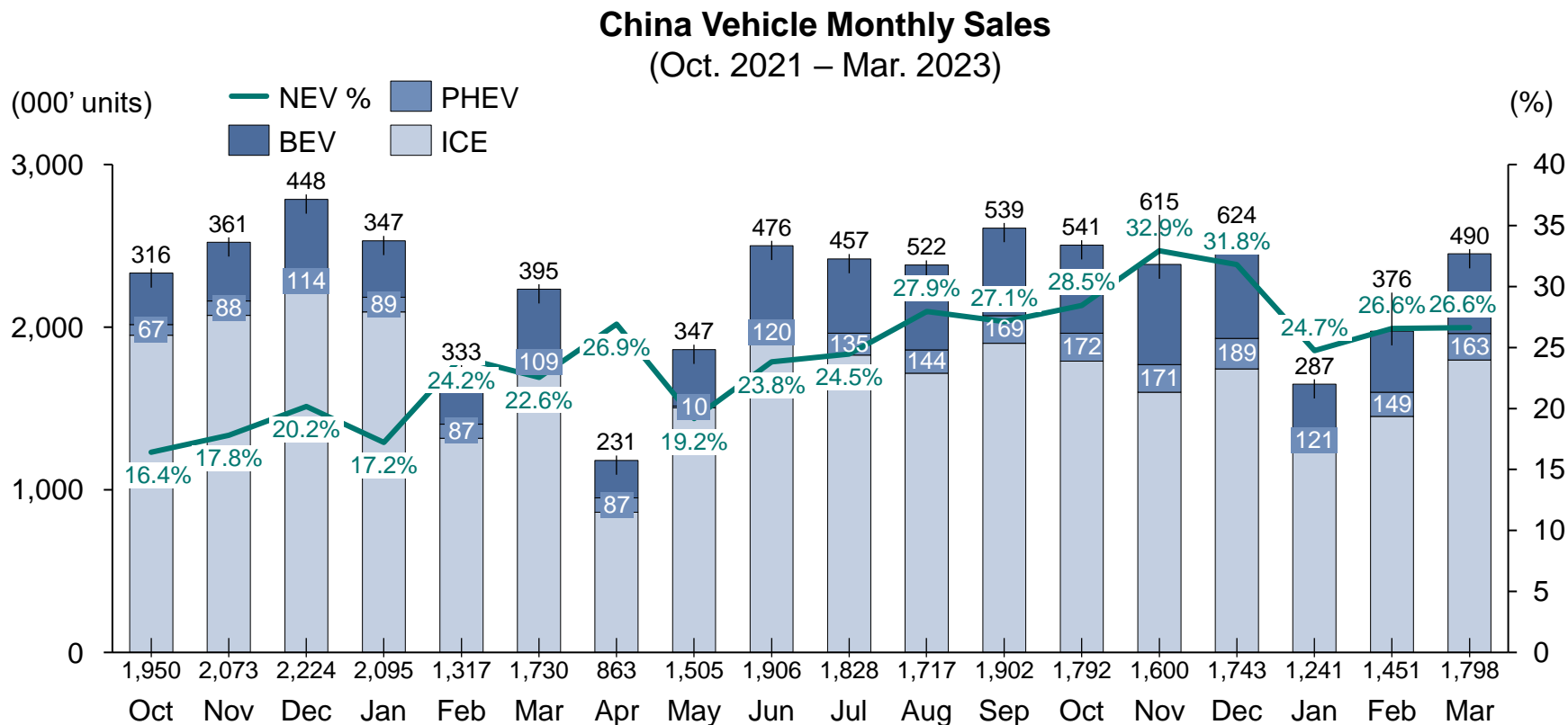
China Vehicle Monthly Sales vs. Used Car Sales
(Oct. 2021 – Mar. 2023)



▪ Expiration of tax incentives on purchase of new cars restores used car pricing advantage

Source: China Automobile Dealers Association, Automobility analysis

NEV share of sales have remained at ~25% or higher for the past 8 months



Comments

- **NEV share of sales** increased by 5.5% in the YOY 1st quarter
- The **price war (initiated by Tesla)** has effectively weakened the sales of traditional ICE brands, to the overall benefit of the leading NEV players

Source: CAAM, *Automobility analysis*

New Energy Vehicles remain as the only product category with sustained growth in the China auto market










Comments

- **NEV sales have stepped down** from late 2022, but **remain above 25%** of the market
- **BYD remains the 800 pound gorilla** and has **extended its lead** in 2023
- **Overcapacity is a huge problem**, and we can expect **cut-throat pricing** and **added pressure to expand sales in overseas markets**

Source: CAAM, CPCA, Automobility analysis





















There is a widening gap in performance among the NEV market leaders in 2023

No.	Group	3/2023 Sales	YoY	No.	Model	3/2023 Sales	YoY
1	 BYD	192,289	86.3%	1	 Tesla Model Y	54,937	38.3%
2	 Tesla	76,663	16.6%	2	 BYD Qin	43,230	74.4%
3	 GAC (Aion)	40,016	97.0%	3	 BYD Song	40,114	50.1%
4	 SGM - Wuling	27,848	-40.5%	4	 BYD Yuan Plus	27,907	178.6%
5	 Geely	26,923	97.5%	5	 BYD Dolphin	27,687	165.0%
6	 Chang'an	23,779	56.1%	6	 GAC Aion S	26,392	288.2%
7	 Li Auto	20,823	88.7%	7	 Hongguang Mini EV	23,159	-44.8%
8	 VW*	14,517	6.3%	8	 Tesla Model 3	21,726	-16.5%
9	 NIO	10,378	88.7%	9	 BYD Han	13,834	12.1%
10	 GWM <i>new</i>	8,462	-43.6%	10	 GAC Aion Y	13,267	39.6%

The price war is forcing a **restructuring of the market**, with a **widening gap in performance** among the market leaders

Source: CPCA, Automobility analysis *includes VW-SAIC and VW-FAW

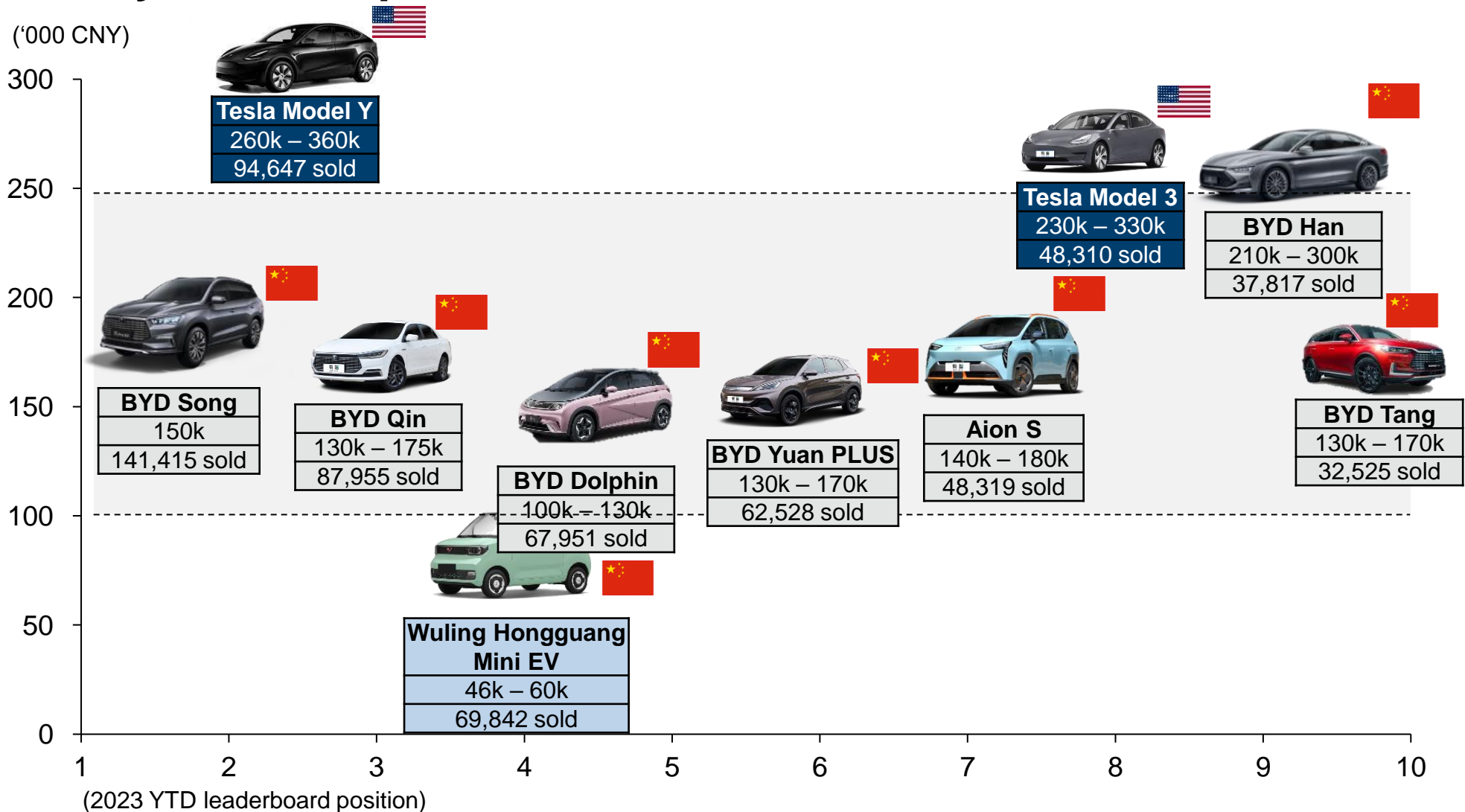
The top 10 market leaders now command over 80% of China's NEV market, with BYD having 6 of the top 10 selling nameplates

No.	Group	2023 YTD Sales	YoY	Market %	No.	Model	2023 YTD Sales	YoY
1	 BYD	508,706	80.0%	38.8%	1	 BYD Song	141,415	101.4%
2	 Tesla	137,429	26.9%	10.5%	2	 Tesla Model Y	94,647	26.7%
3	 GAC (Aion)	80,308	79.0%	6.1%	3	 BYD Qin	87,955	16.0%
4	 SGM - Wuling	77,701	-26.2%	5.9%	4	 Hongguang Mini EV	69,842	-26.3%
5	 Chang'an	60,674	98.0%	4.6%	5	 BYD Dolphin	67,951	129.5%
6	 Geely	59,597	33.2%	4.5%	6	 BYD Yuan Plus	62,528	278.2%
7	 Li Auto	52,584	65.8%	4.0%	7	 GAC Aion S	48,310	180.4%
8	 NIO	31,041	20.5%	2.4%	8	 Tesla Model 3	42,782	27.3%
9	 VW*	30,787	-5.1%	2.0%	9	 BYD Han	37,817	9.9%
10	 NETA	22,449	-25.5%	1.7%	10	 BYD Tang	32,525	16.3%

BYD's lead has widened its lead overall in 2023, with now more than half of their sales derived from PHEV models

Source: CPCA, Automobility analysis *includes VW-SAIC and VW-FAW

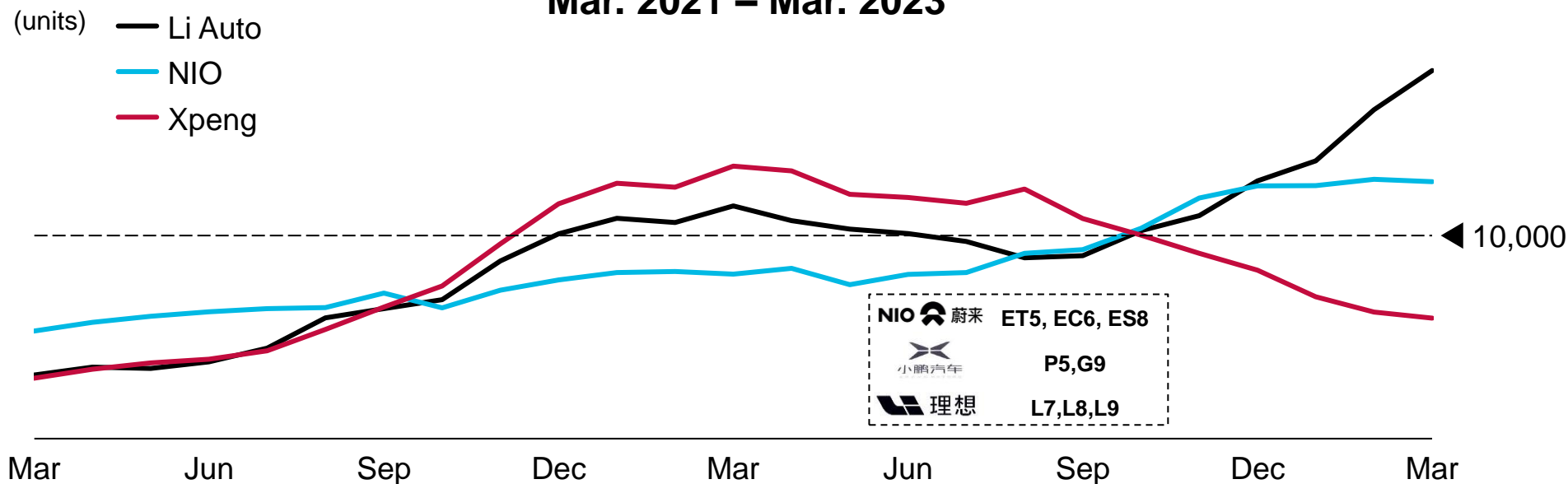
The NEV sales leaderboard is dominated by affordably priced locally-branded products



Source: Desktop research, Automobility analysis

A clear separation is emerging among the Smart EV players in China since their recent launches

Sales of EV new forces, rolling 6m average
Mar. 2021 – Mar. 2023



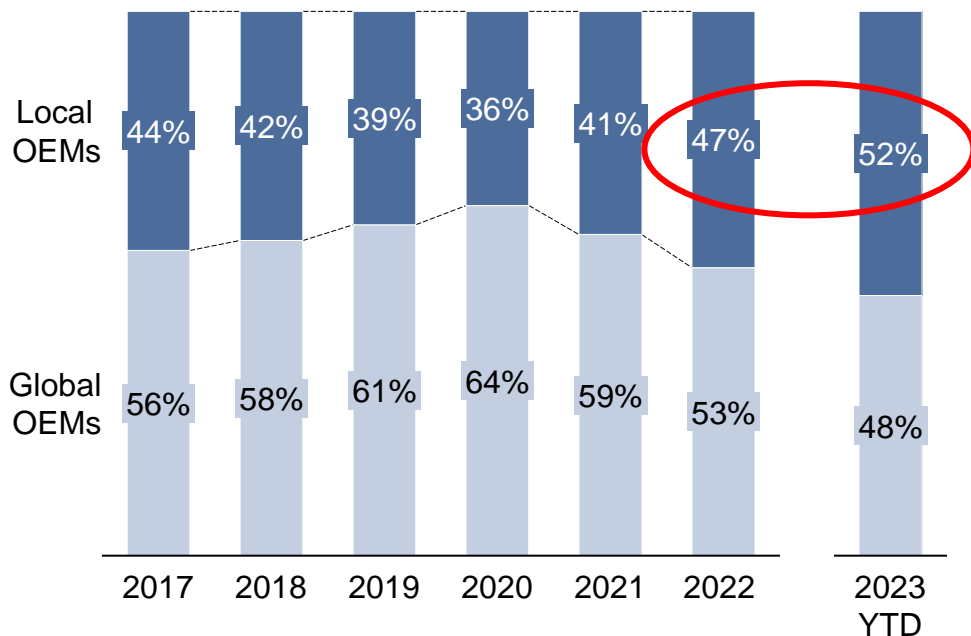
Comments

- The sales trend of three EV new forces went very differently after **the second tie in September 2022** mainly due their product strategies.
- All three brands have **launched new models** during June to September 2022. And Tesla has started its **price war in China** in October 2022.

Foreign brands are especially weak in comparison to Chinese brands in 2023

China PV Sales by Brand Origin
(% in terms of sales volume)

2017 – 2022



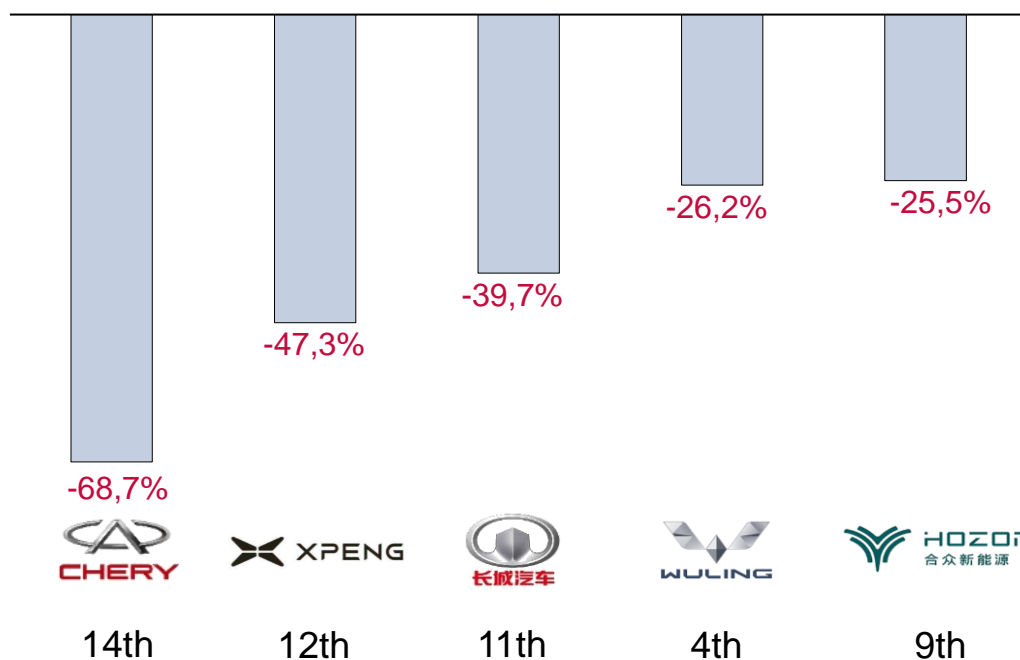
China PV Sales by Brand Origin
(YTD, 2023)

Brand Origin	Total Sales Volume (thousand units)	YoY
Local	2,683	5.3%
Germany	1,007	-9.2%
Japan	797	-31.3%
USA	483	-9.3%
Korea	82	-12.8%

- Local brands are very likely to outsell foreign brands for the first time since the opening and reform era began in the 1980s
- Gains **accrue to a very small number** of local players
- **Japan OEMs are the biggest loser in the price war** so far in 2023

Several NEV brands are facing precipitous double-digit declines in 2023

Worst performing NEV brands in 23Q1
(in terms of YoY Retail PV sales)

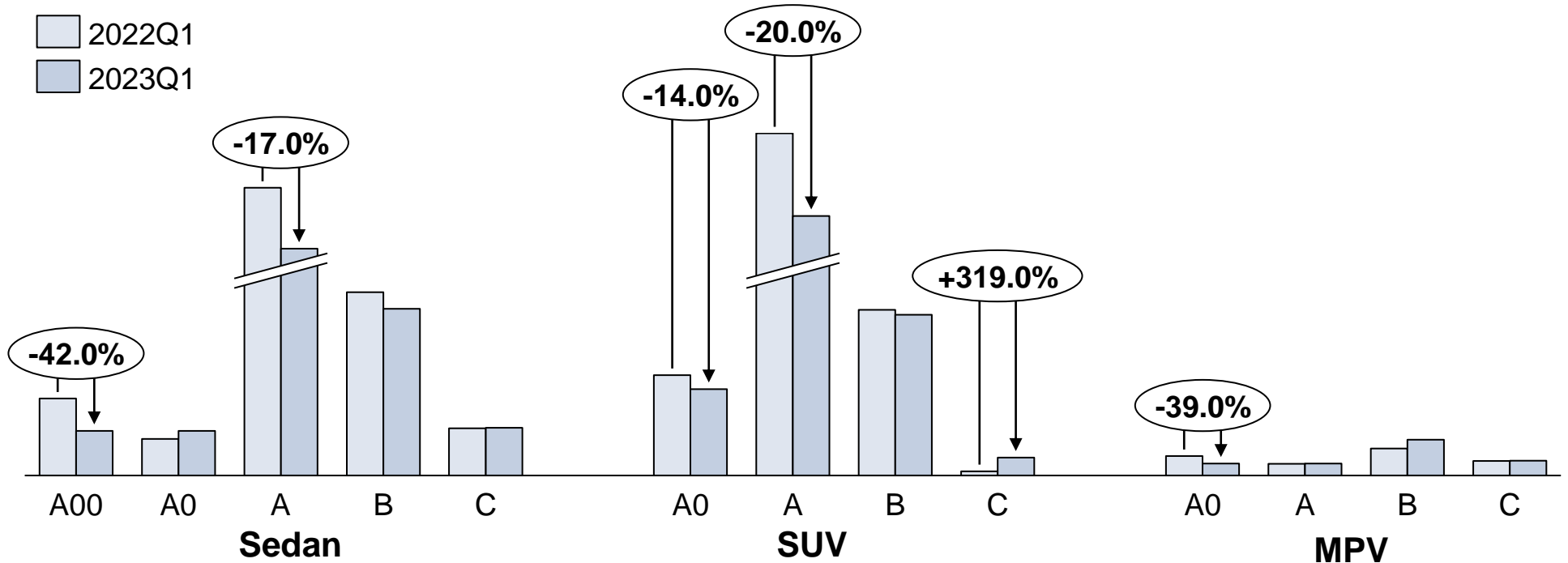


China's NEV market is "racing to the middle"

- Target customer demographic for low-end EV brands is more **impacted by overall economic weakness** and are less likely to purchase new vehicles
- Price war** initiated by Tesla pushes retail prices of mid-market segment into competition for "upgraders" seeking more
- BYD** is now offering several value-priced models (Ocean series: Seal, Dolphin)
- ICE brands are clearing inventory** by offering huge discounts

PV market is racing to the middle, with affordable upgrades available in the aftermath of the price war

Retail PV sales, by segments, 2022Q1 - 2023Q1

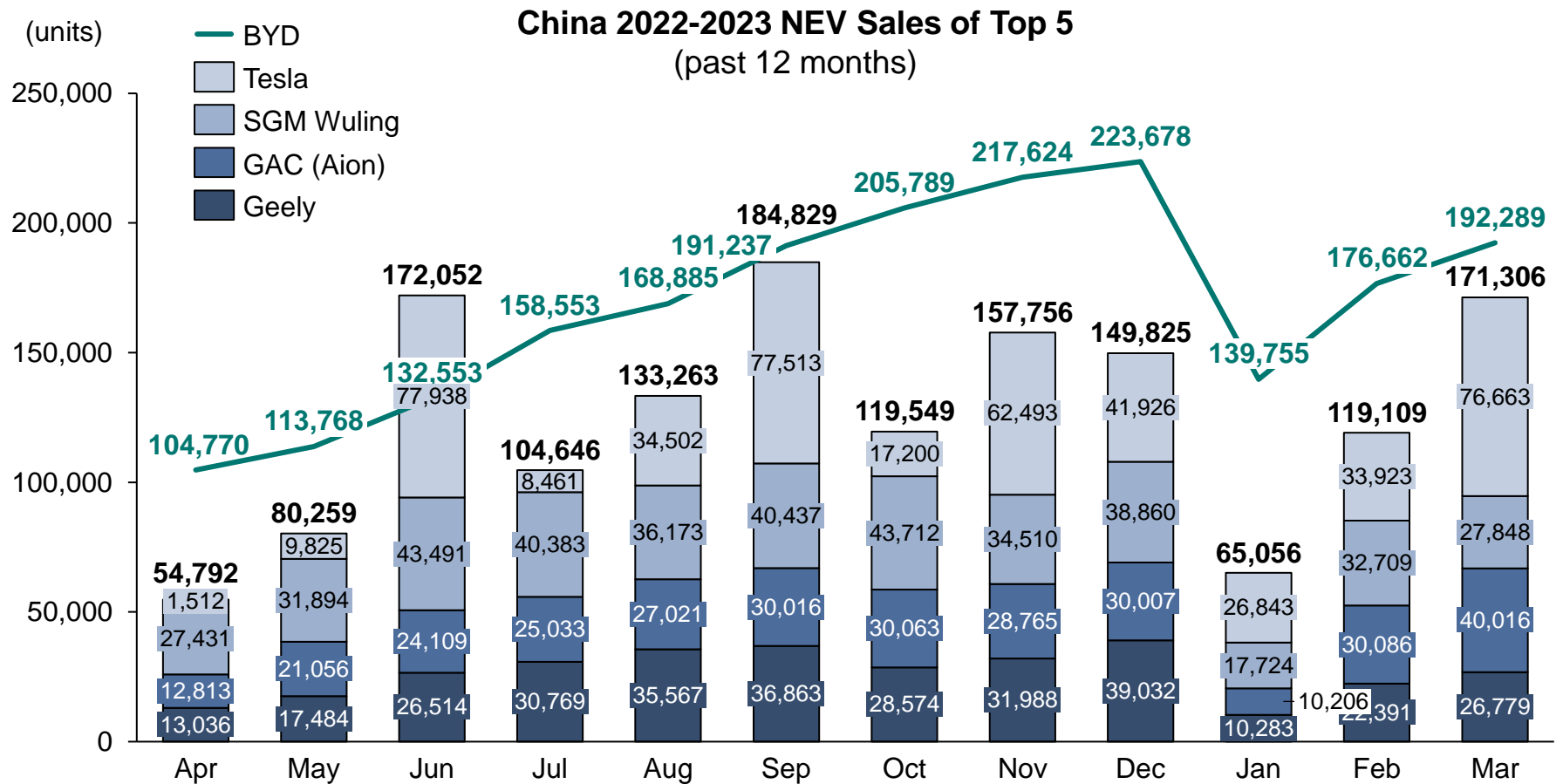


Comments

- Total retail PV sales declined 13% yearly in 2023Q1. The biggest declines are in the **A00 Sedan** and **A0 MPV** segment, and the C SUV segment has increased 319%.
- PV customers who were **shopping entry level** vehicles are now **racing to the middle** market. And the demand for family vehicles is **still strong after doubling growth in 2022**.

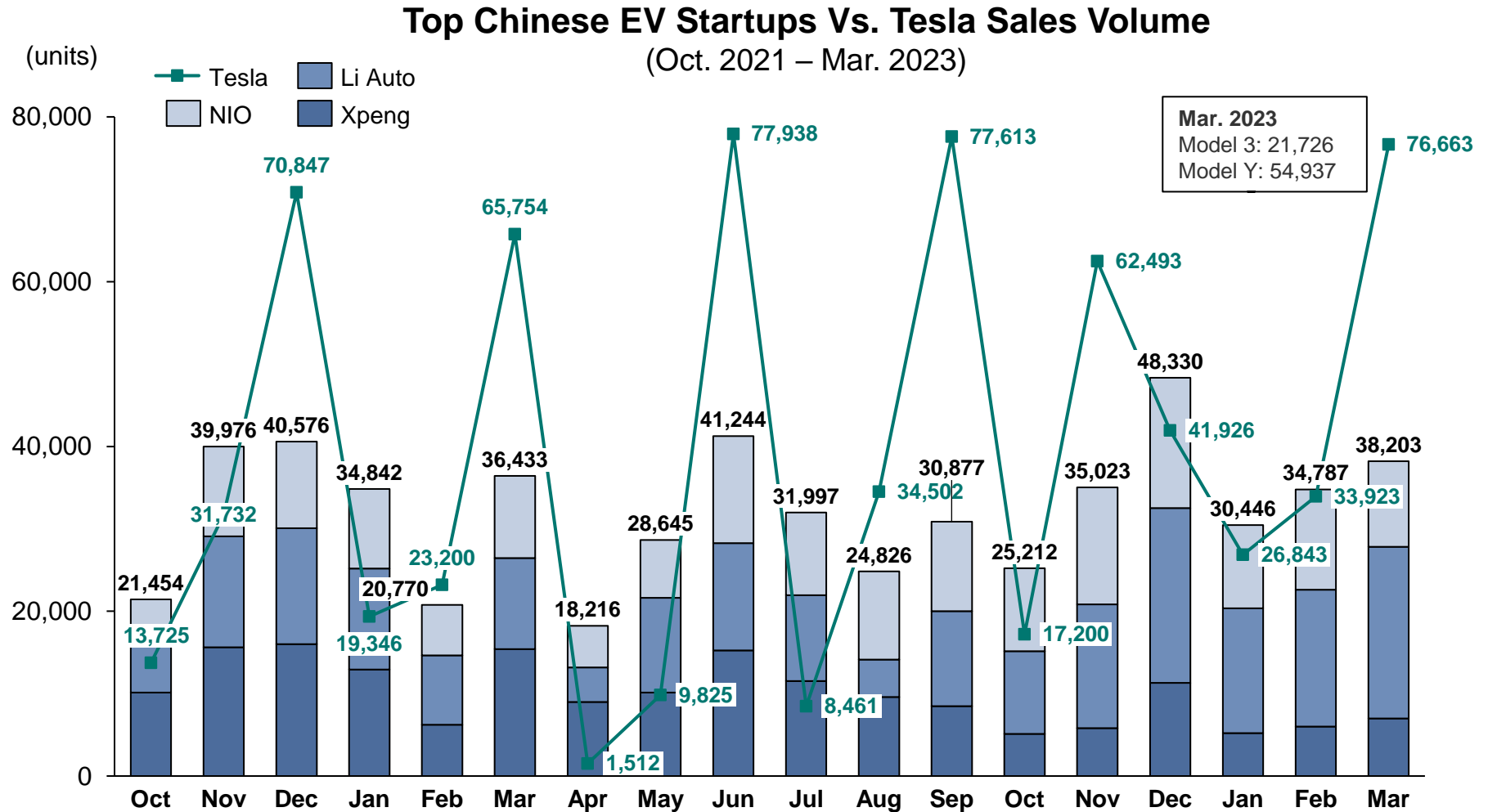
Source: Desktop research, Automobility analysis

BYD is consistently outsells the next 4 competitors combined in the "top 5" NEV group



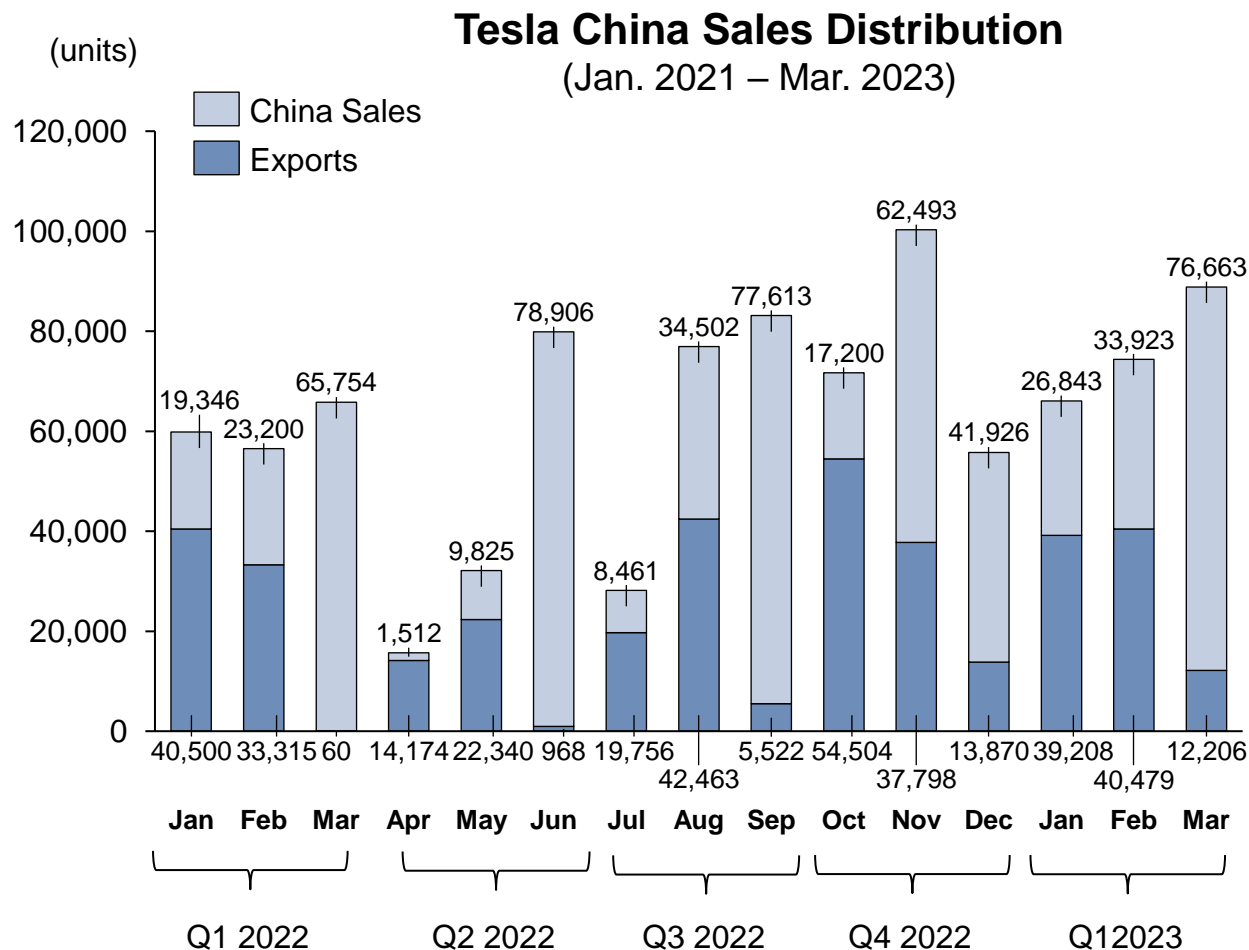
Source: Desktop research, Automobility analysis

Tesla resumed its pattern of peak domestic mix in the final month of this quarter



Source: CPCA, Desktop research, Automobility analysis

Tesla's price war may have mitigated weakened demand, but has thus far not expanded Giga Shanghai production volumes



Comments

- Weaker demand in China, combined with added global capacity have created a situation where **global capacity now exceeds demand** for Tesla
- **Tesla's models have aged** in hyper-competitive EV market
- Giga Shanghai along with new global capacities face risk of underutilization
- **Tesla claims to be leveraging its cost advantage** to grow its share internationally, but results in China are decidedly mixed

Source: Desktop research, Automobility analysis

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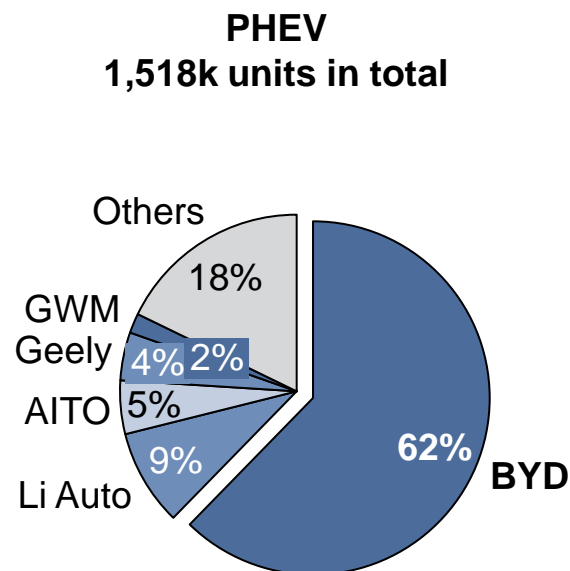
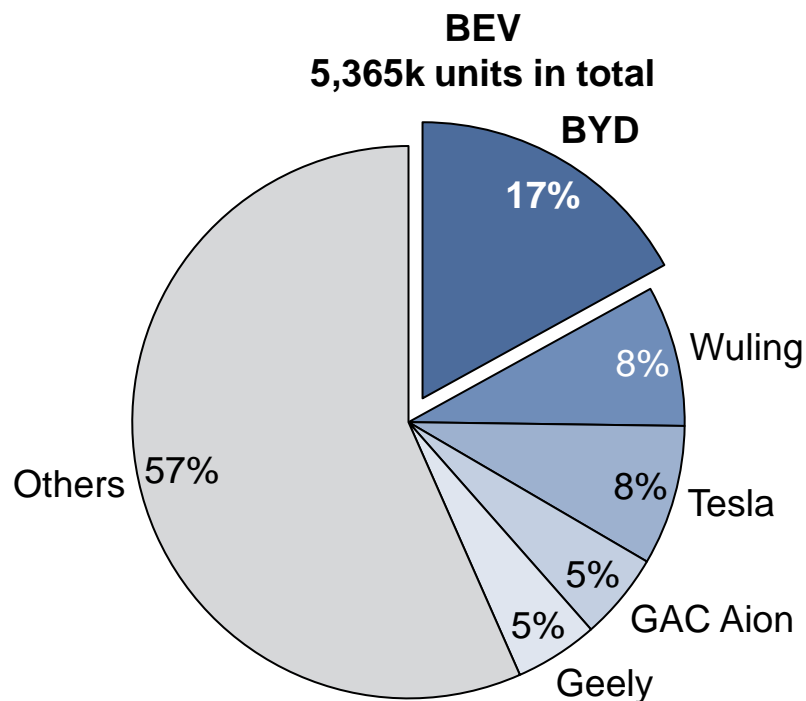
BYD's NEV Dominance

Headline News

Inventory Problem of ICE

BYD is the clear leader in the BEV category and is completely dominating the PHEV category

BYD's share in NEV, by segments, 2022

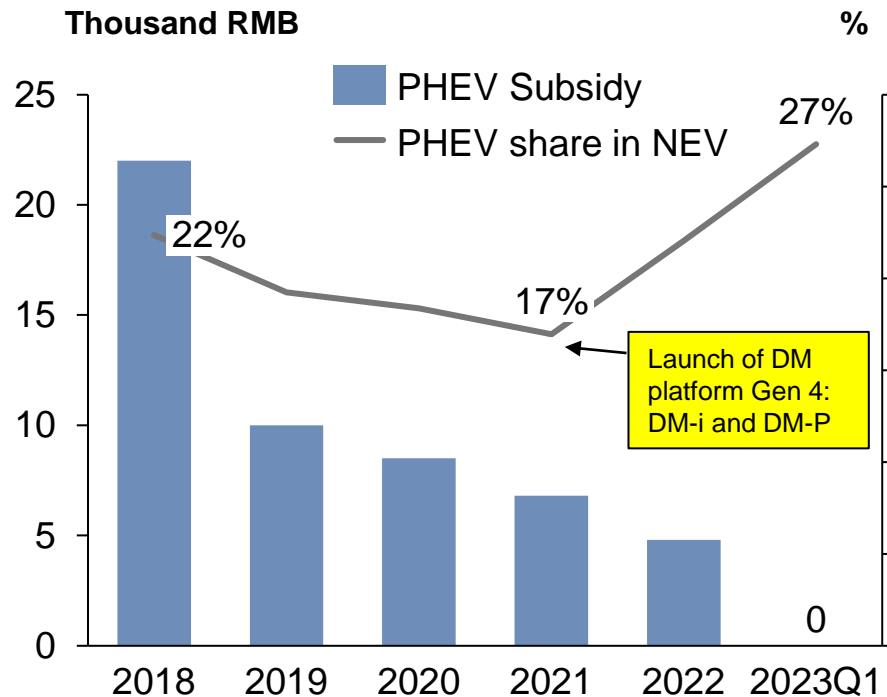


Comments

- **BYD sold more PHEVs (946k) than BEVs (911k) in 2022**, taking 62% market share of PHEV in 2022. And its **PHEV dominance widened in 2023Q1, reaching 65.4%**.
- “Other” PHEV players include sino-foreign JVs like VW, Audi and Mercedes, but none of them has achieved a 1% market share.

PHEV share of NEV has been increasing since 2021 even as subsidies are decreasing

Subsidy and share of PHEV, 2018-2023Q1



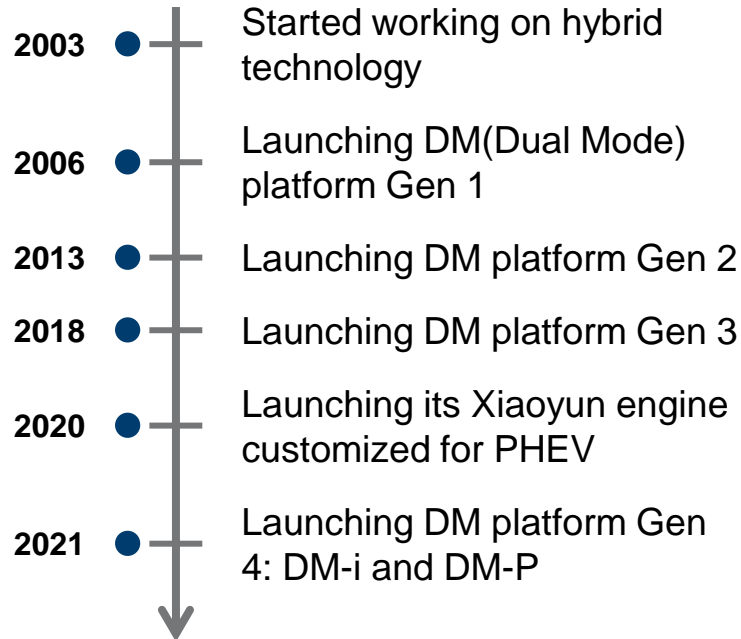
Comparison among BEV, PHEV and ICE

Category	BEV	PHEV	ICE
Model	BYD Qin EV	BYD Qin DM-i	VW Lavida
Range	510km	55km(battery) +1200km(fuel)	800km
Price	139.8k	99.8k	120.9k
Fuel consumption per 100km	-	3.8L	6.5L

PHEVs deliver longer range, lower fuel consumption and also qualify for free NEV license plates (until 2023).

BYD began R&D on PHEV in 2003 and launched an engine configuration optimized for PHEV in 2021

History of development of BYD DM platform



BYD's Xiaoyun 1.5L engine customized for PHEV

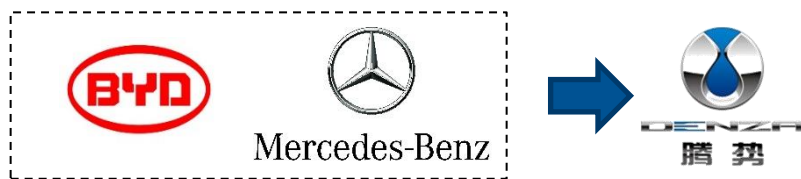


Comments

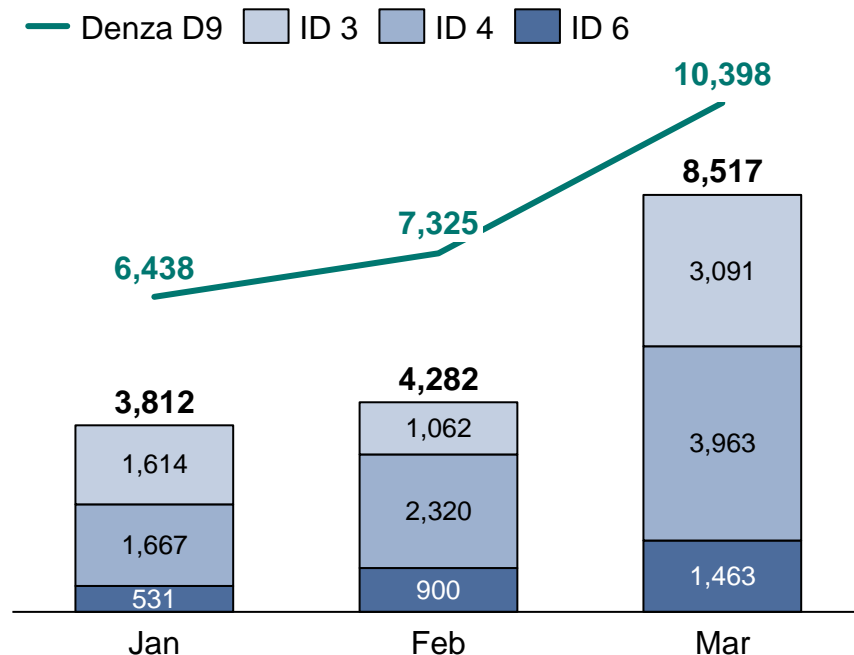
- BYD 's PHEVs are **cheaper than their BEV version**, while other OEMs choose to sell the PHEV versions more expensive than the BEV versions.
- BYD's cost advantages are due to **the vertical integration of engines and batteries**.

BYD's Denza brand outsells VW ID series with only a single BEV model in 2023Q1

BYD's most premium priced model, Denza D9



Denza vs VW ID series, 2023Q1



Comments

- Denza is a JV set up by BYD and Mercedes in 2010, and Mercedes sold most of its share to BYD in 2021. After BYD regained its leadership, Denza launched D9, a pure electric MPV, in August 2022.
- D9 is **the most expensive model of BYD**, with a price of 336-466k RMB. And Denza has launched a new SUV model during the Shanghai Auto Show.

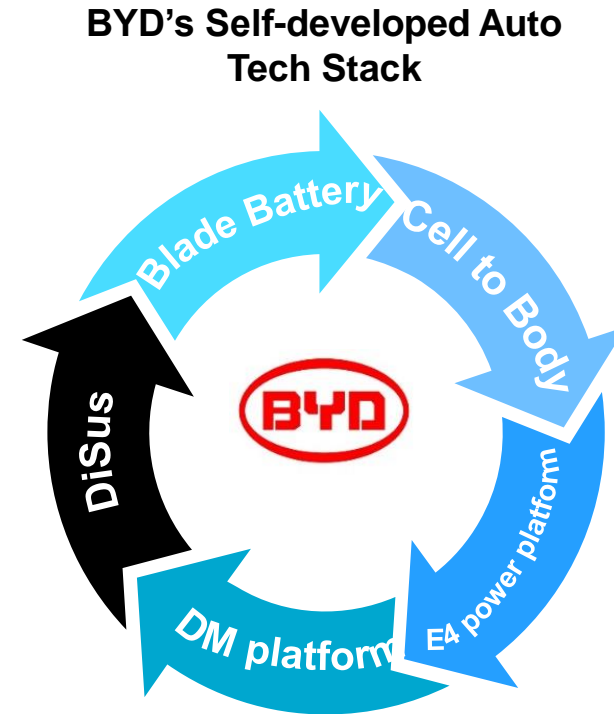
Source: Desktop research, Automobility analysis

BYD has increased its vertical integration capabilities to smart motion control for its NEV brands



China's first intelligent body control system DiSus

Features	Solutions		
	DiSus-C	DiSus-A	DiSus-P
Damping control	●	●	●
Height control	—	●	●
Rigidity control	—	○	●
Sensing	●	●	●
Four-wheel linkage	—	—	●



Comments

- The BYD DiSus System will be available in several models under the BYD Dynasty series, BYD Ocean series, DENZA, Yangwang, and a new brand launching this summer.
- A few of BYD previous models with hardware availability will be able to equip DiSus through OTA upgrade.

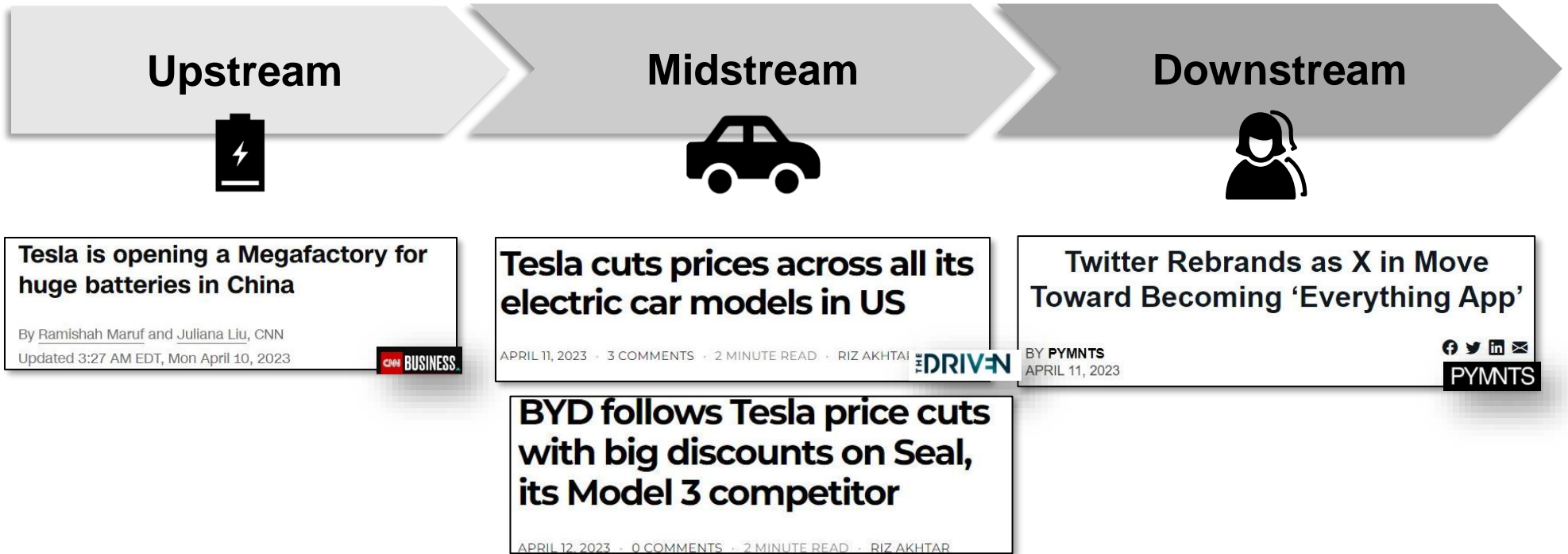
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BYD's NEV Dominance

Headline News

Inventory Problem of ICE

Tesla continues to make strategic moves to shore up its position across the value chain



Source: Desktop Research, Automobility analysis

Chinese Smart EV makers are launching their own Autopilot solutions through subscriptions in 2023



OEM	Solution	Price (RMB)	Business Mode
NIO	NOP+	<ul style="list-style-type: none"> Hardware: 39,000 Software: 380/ month 	Purchase + Subscription
Xpeng	XNGP	<ul style="list-style-type: none"> Hardware: 39,800 Software: 39,800 or 9,800/ year 	Purchase + Subscription
Tesla	FSD	<ul style="list-style-type: none"> 68,000 	Purchase
SAIC IM	NOA	<ul style="list-style-type: none"> Undisclosed 	Undisclosed

Comments

- NIO announced launching its ADAS solution through a subscription model, expecting more volume with the low entry price.
- Tesla's FSD was not selling well in China, with only 2% purchase rate according to Musk.

Source: Desktop research, Automobility analysis

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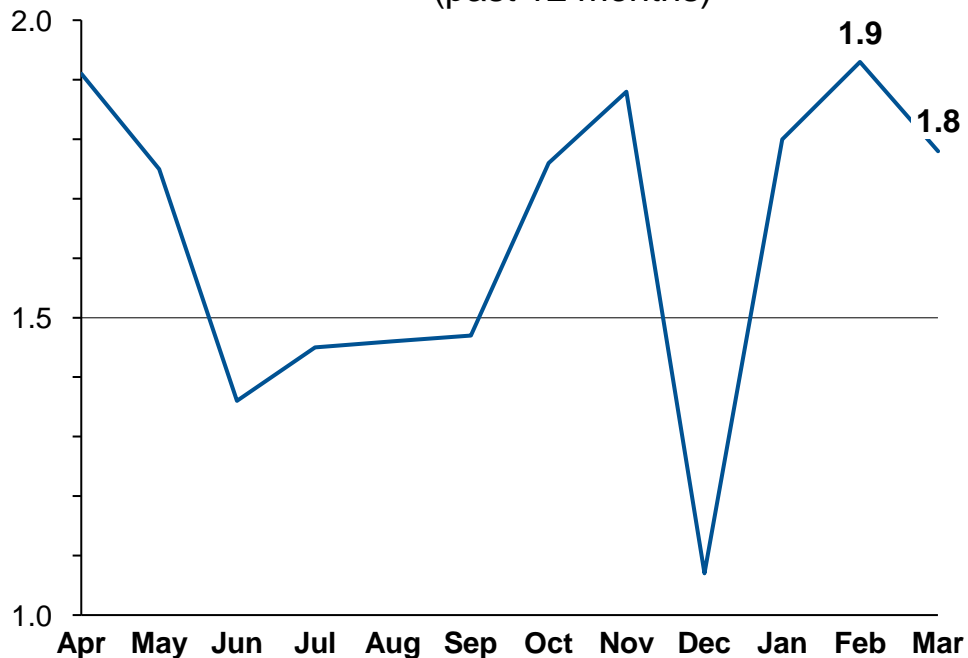
BYD's NEV Dominance

Headline News

Inventory Problem of ICE

There are still two million cars in inventory that that are not compliant with the new China VI emissions standard

China Inventory Index of Auto Dealers
(past 12 months)



The Munich Conference of ICE OEMs



Comments

- The dramatic price cut in March was only the beginning of the story. There are still **two million non-compliant** cars in stock as of March that can **only be sold as used cars** when the new emission standard goes into effect on July 1st, leaving 3 months for further price cuts.
- OEMs and dealers are asking the government for a delay through industry associations.

Source: Desktop research, Automobility analysis

Contact us

Please find below contact details for our offices in Shanghai or contact us at info@automobility.io

Tel Aviv

Automobility Limited
101 Rokach Blvd,
Tel Aviv, 6153101, Israel
Tel +972 54 5424074

Shanghai

Automobility Ltd
Corporate Avenue One,
No.222 Hubin Road
Shanghai China 200021
Tel +86 139 1757 7148

Hong Kong

Automobility Limited
RM 2507, 25/F C C WU BLDG 302
HENNESSY RD WANCHAI
HONG KONG

