BERNSTEIN
SOCIETE GENERALE GROUP

1 June 2026

Asia Emerging Robotics

Asia Emerging Robotics: The Barometer (April/May 2026)

Dien Wang, Ph.D.
+852 2123 2622
dien.wang@bernsteinsg.com

Jay Huang, Ph.D.
+852 2123 2631
jay.huang@bernsteinsg.com

Weibin Liang, Ph.D.
+852 2123 2666
weibin.liang@bernsteinsg.com

In this note, we update the key events in humanoid robot industry, market sentiment, and important data points in Apr & May 2026. Readers can download the complete barometer dataset here: Asia Emerging Robotics Barometer.

Key events (Exhibit 1). In May, Chinese humanoid companies accelerated their listing progress, with Unitree advancing to the listing committee review stage (approved on June 1), and Deep Robotics and Leju Robot filed their prospectuses. It is encouraging to see more concrete operating data from humanoid startups. The three companies reported FY2025 revenues of RMB1,699mn (USD251mn), RMB337mn (USD50mn), and RMB258mn (USD38mn), respectively. Among Western players, Boston Dynamics has showcased a series of humanoid robot football skills (here, here, here, here, here) ahead of the **2026 FIFA World Cup** (11 June–19 July), which we see as **a key catalyst** in the coming month. Meanwhile, Figure AI ran a 200-hour livestream in which its humanoid robots sorted ~250,000 packages.

Market Sentiment (Exhibit 2 to Exhibit 4). Sentiment toward humanoid robots rebounded sharply in May, as earnings uncertainty faded by end-April and investors began to anticipate the unveiling of Tesla's Optimus Gen 3 in July/August. However, trading remained volatile, with related stocks pulling back in the final week of May on short-term profit taking.

Monthly data (Exhibit 5 to Exhibit 18) that underpins the fundamentals of the companies within our coverage.

- **Shuanghuan**: China xEV wholesales volume +10% YoY in Apr (+3% YoY in Mar); China robotic vacuum sales volume -26% YoY in Apr (-22% YoY in Mar); China industrial robot production volume +15% YoY in Apr (+24% YoY in Mar);

- **Hesai**: Shipment volume of Hesai's long-range ADAS LiDAR +177% YoY in Apr (+213% YoY in Mar); Hesai's market share remained at 50% in Apr (53% in Mar).

- **Tuopu**: China xEV wholesales volume +10% YoY in Apr (+3% YoY in Mar); Shipment volume of Tuopu's air suspension +114% YoY in Apr (+213% YoY in Mar); Raw material prices remained high in May, with aluminum +21% YoY;

- **Sanhua**: China xEV wholesales volume +10% YoY in Apr (+3% YoY in Mar); China domestic sales and export volume of air conditioners -9% YoY in Mar (-2% YoY in Mar) and the volume was expected to -13% YoY in 2Q26 (based on production plan); Raw material prices remained high in May, with copper +33% YoY and aluminum +21% YoY;

- **Leader Drive**: China industrial robot production volume +15% YoY in Apr (+24% YoY in Mar); China robotic reducer production volume +38% YoY in Apr (+91% YoY in 1Q26).

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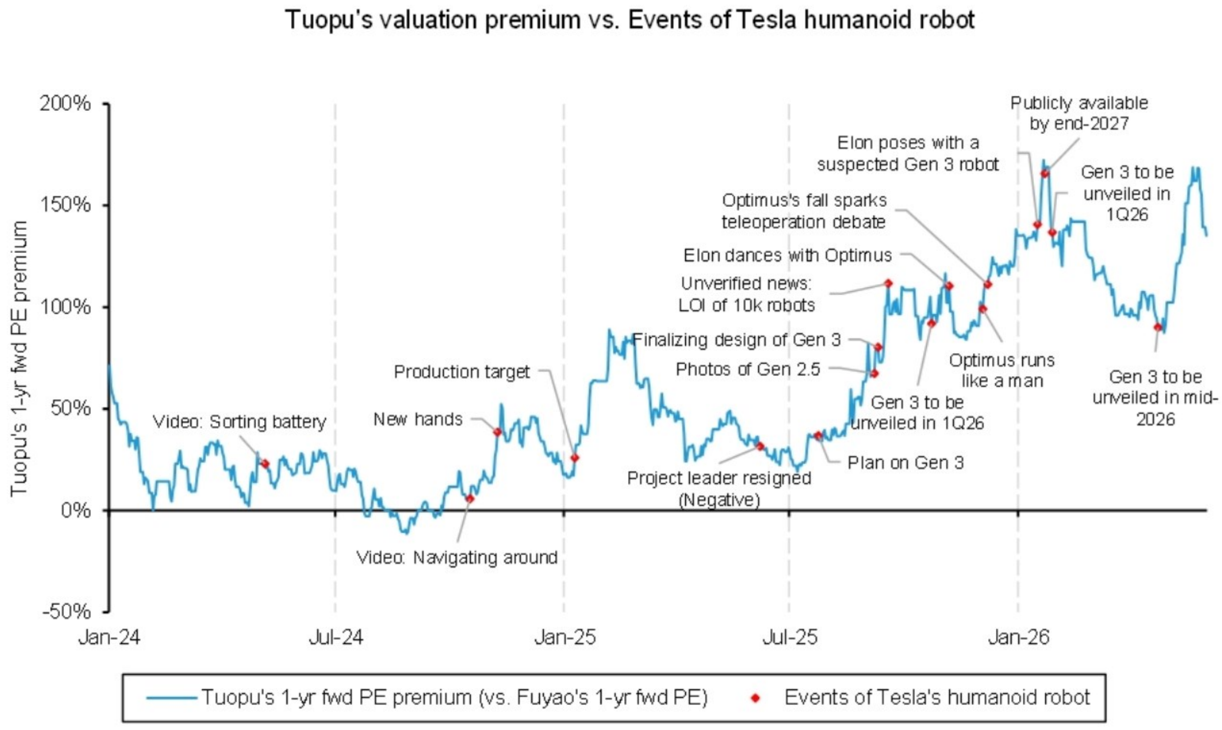
DETAILS

EXHIBIT 1: **Key events in the humanoid robot industry (Apr & May 2026)**

Date	Region	Institute	Ticker	Events
Apr 2, 2026	USA	Generalist AI	Unlisted	Generalist introduces GEN-1 general-purpose model for physical AI.
Apr 10, 2026	South Korea	KIA	000270.KS	KIA plans to deploy the Atlas humanoid robots in its US factories from 2029.
Apr 11, 2026	China	Unitree	Unlisted	Unitree makes a humanoid that runs at 10m/s.
Apr 12, 2026	Japan	Toyota Motor	7203.JP	Toyota Motor unveils its new humanoid basketball-playing robot "Cue7."
Apr 16, 2026	USA	Skild AI	Unlisted	Skild AI acquires Fetch Robotics assets from Zebra Technologies.
Apr 16, 2026	Germany	Siemens	SIE.GR	Siemens and Humanoid test the HMND 01 Alpha wheeled humanoid robot in Siemens' electronics factory for logistics tasks.
Apr 19, 2026	China	Honor	Unlisted	Honor's humanoid robot breaks human half marathon record in 50min 26sec.
Apr 22, 2026	China	State Grid Corporation of China	Unlisted	State Grid Corporation of China intends to procure ~8,500 units of various robots in 2026, with total investment of ~RMB6.8bn.
Apr 22, 2026	Germany	Schaeffler	SHAO.GR	Schaeffler enters into strategic partnership with Hexagon Robotics and VinDynamics.
Apr 23, 2026	USA	Tesla	TSLA.US	Tesla 1Q26 earnings call: · Tesla plans to unveil Optimus Gen 3 in mid-2026. · Tesla is constructing a second Optimus factory at Giga Texas location and that will probably start production around summer next year.
Apr 27, 2026	China	Xiaomi	1810.HK	Xiaomi unveils its latest humanoid robot during its investor day.
Apr 29, 2026	USA	Figure	Unlisted	Figure is ramping up production of its humanoid robots, increasing output from one robot per day to one per hour.
Apr 30, 2026	USA	1X Technologies	Unlisted	1X kicks off full-scale production of humanoid robot Neo.
May 18, 2026	China	Deep Robotics	Unlisted	Deep Robotics releases its IPO prospectus, aiming to raise USD368mn.
May 18, 2026	USA	Boston Dynamics	Subsidiary of Hyundai Motor Group	Boston Dynamics showcases its robot can lift a heavy fridge and claims its robots can shift 100+ lb load.
May 19, 2026	China	Leju Robot	Unlisted	Leju Robot releases its IPO prospectus, aiming to raise USD384mn.
May 21, 2026	UK	Humanoid	Unlisted	Humanoid partners with Bosch, Schaeffler to scale robot production.
May 22, 2026	USA	Figure	Unlisted	Figure AI's humanoid robots sort ~250k packages in 200 hours during nonstop livestream.
May 25, 2026	China	Unitree	Unlisted	Unitree's STAR Market IPO set for listing committee review on June 1. However, its recurring net profit was -53% yoy in 1Q26 and will down 6~22% yoy in 1H2026.
May 26, 2026	USA	Figure	Unlisted	Figure signs agreement with Catalyst Brands to deploy Figure humanoids into their distribution and logistics network.
May 29, 2026	USA	Boston Dynamics	Subsidiary of Hyundai Motor Group	Boston Dynamics showcases a series of humanoid robot's football skills.

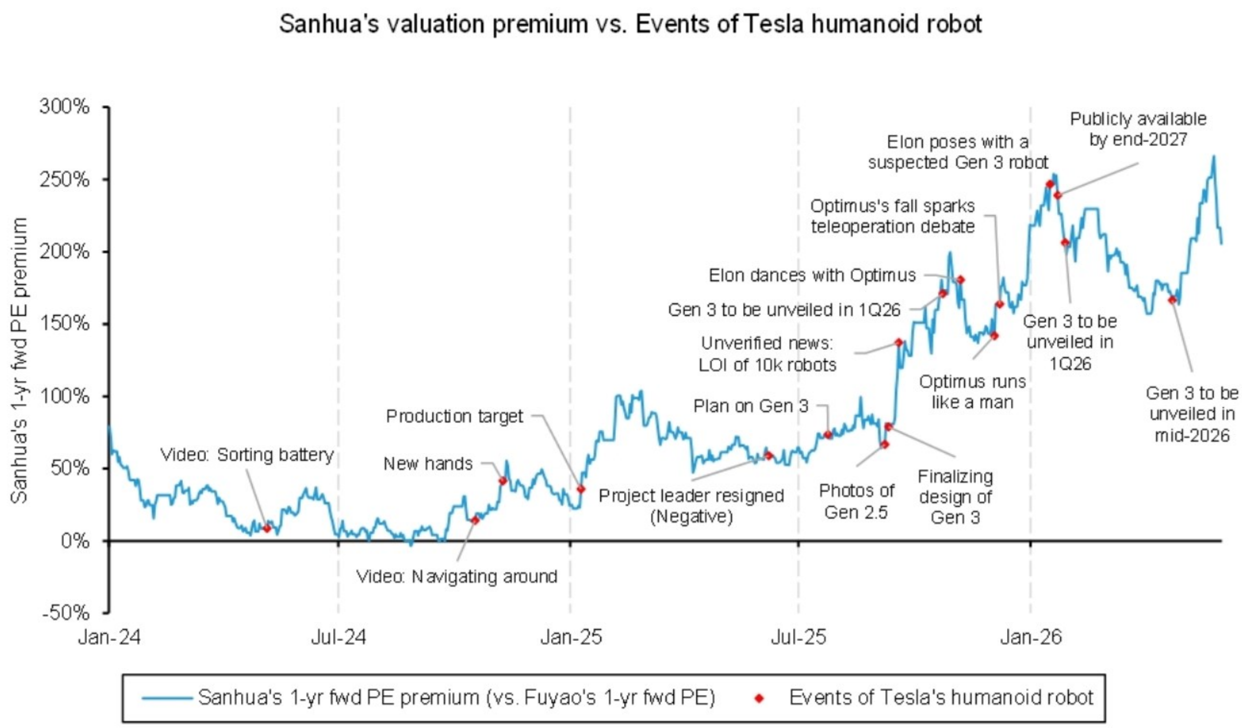
Source: Industry news, companies' websites, Bernstein analysis

EXHIBIT 2: **Tuopu: Valuation premium attributed to Tesla & humanoid robots**



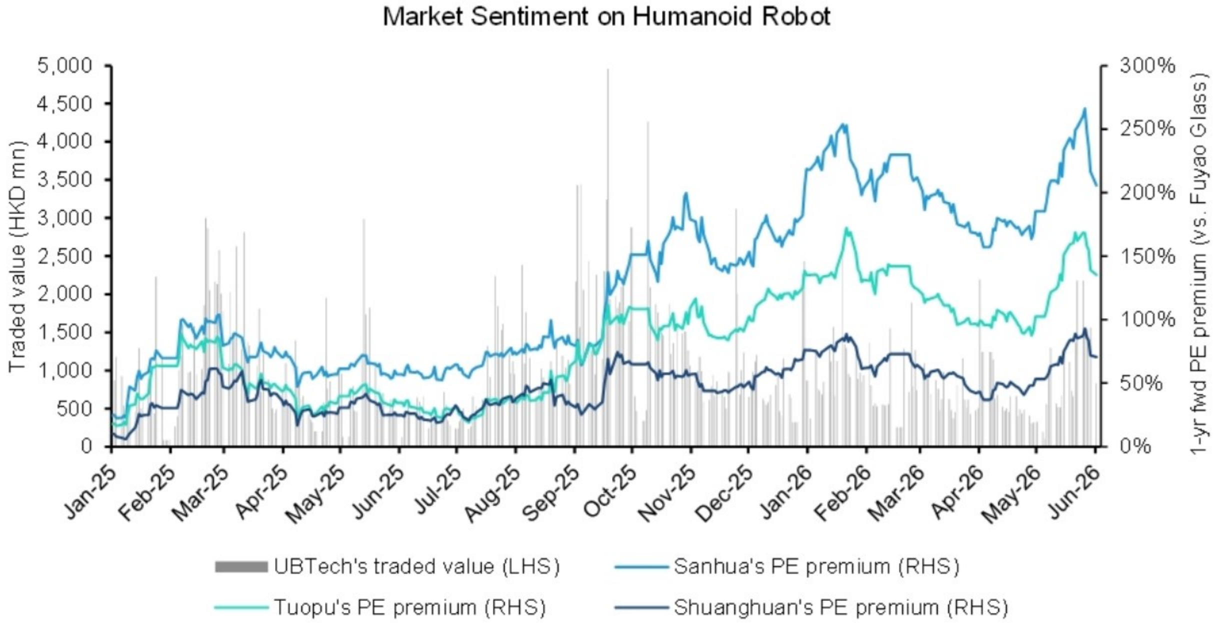
Note: We use Fuyao Glass (600660.CH/3606.HK) as the benchmark. Fuyao Glass is not covered by Bernstein.
Source: Tesla, industry news, Tuopu, Fuyao Glass, Bloomberg, Bernstein analysis

EXHIBIT 3: **Sanhua: Valuation premium attributed to Tesla & humanoid robots**



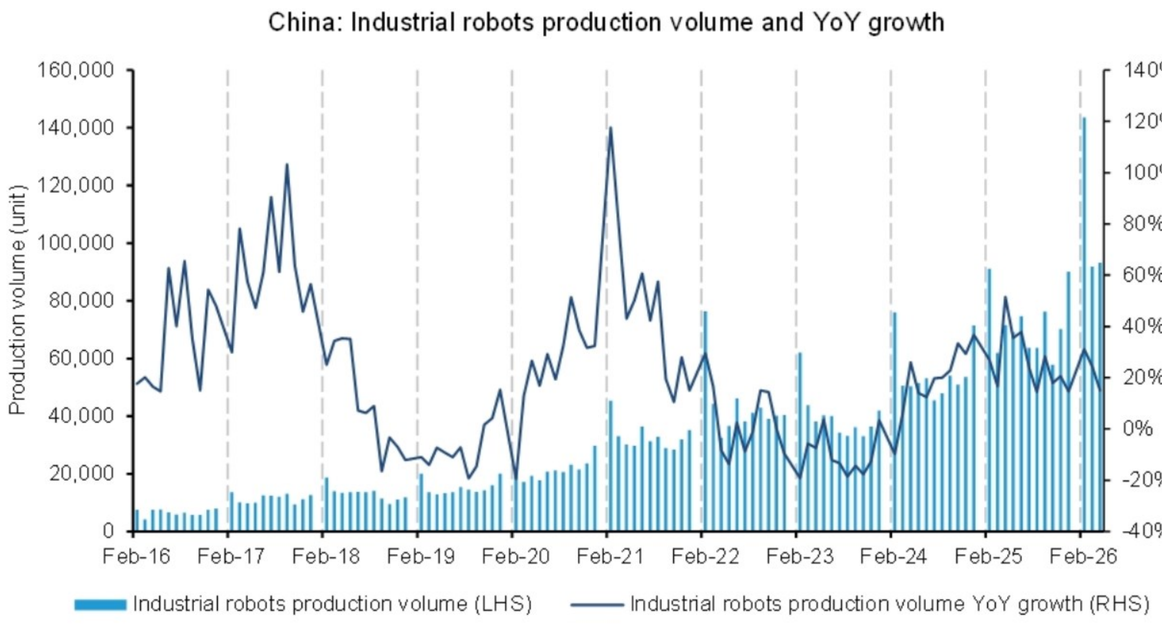
Note: We use Fuyao Glass (600660.CH/3606.HK) as the benchmark. Fuyao Glass is not covered by Bernstein.
Source: Tesla, industry news, Sanhua, Fuyao Glass, Bloomberg, Bernstein analysis

EXHIBIT 4: **Market sentiment on humanoid robot**



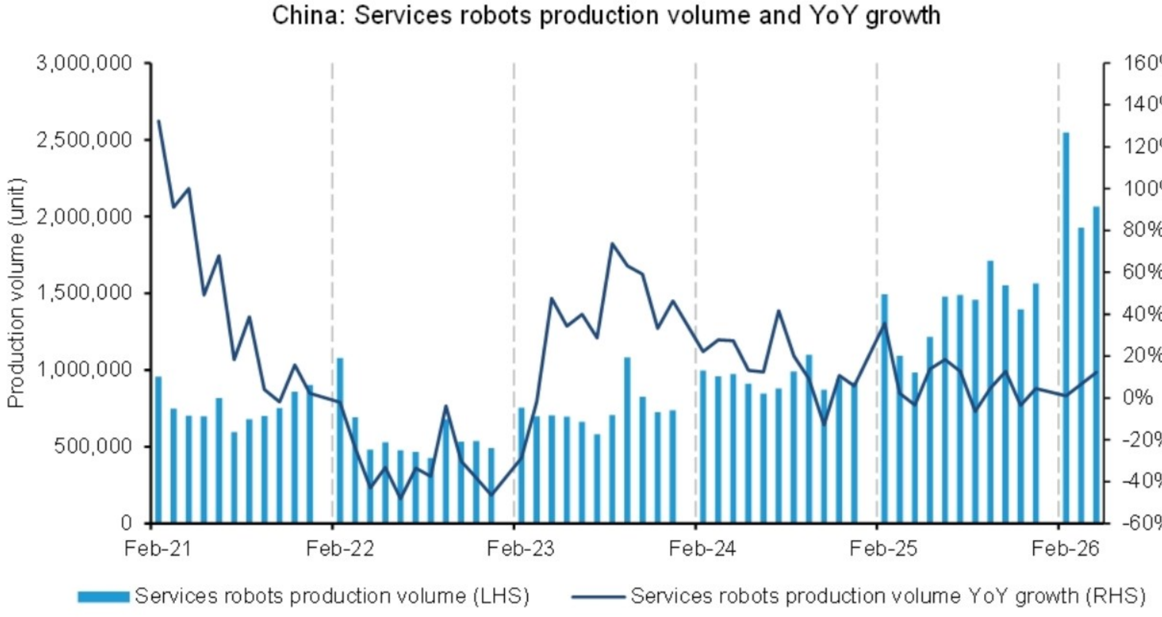
Note: We use Fuyao Glass (600660.CH/3606.HK) as the benchmark. Fuyao Glass and UBTech (9880.HK) are not covered by Bernstein.
Source: Tesla, industry news, Tuopu, Shuanghuan, Fuyao Glass, UBTech, Bloomberg, Bernstein analysis

EXHIBIT 5: **Production volume of industrial robots in China**



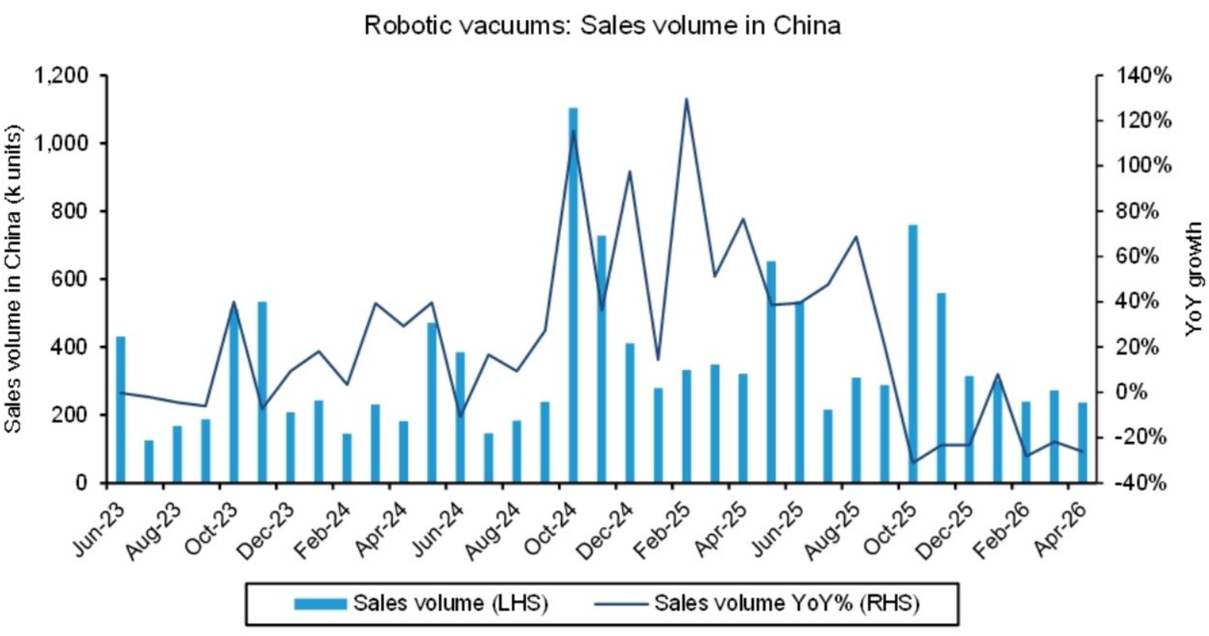
Source: China NBS, Bernstein analysis

EXHIBIT 6: **Production volume of services robots in China**



Source: China NBS, Bernstein analysis

EXHIBIT 7: **Sales volume of robotic vacuums in China**

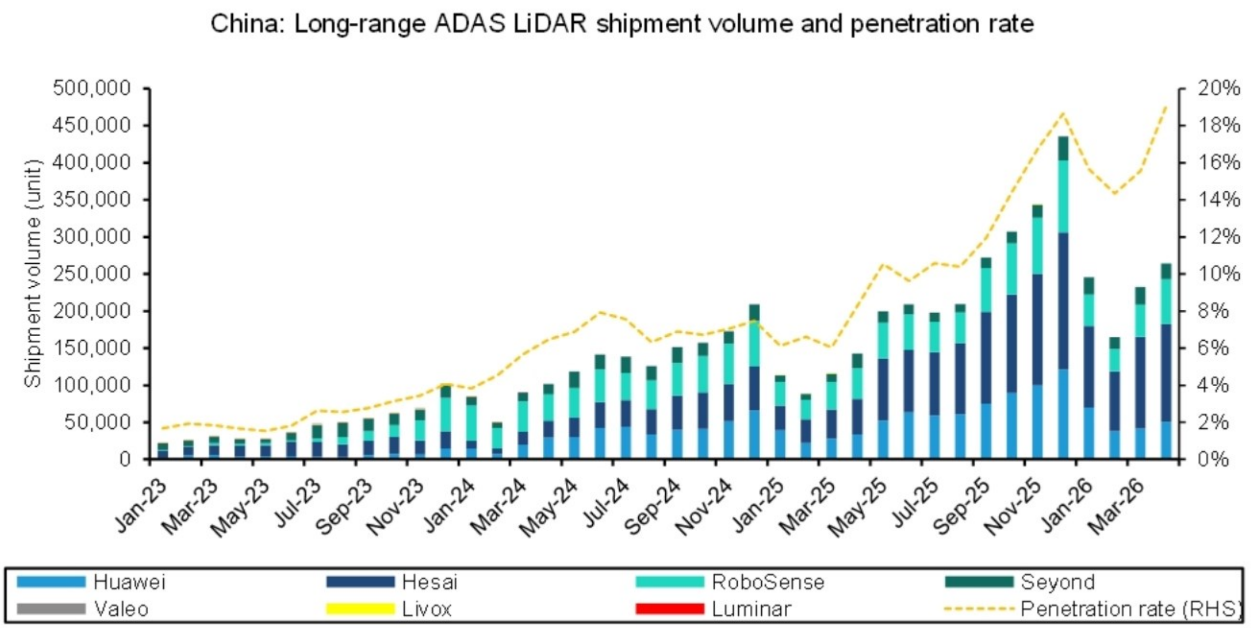


Note: The data covers offline sales channels and online sales channels (excl. Doyin).
Source: AVC, Bernstein analysis

EXHIBIT 8: **China xEVs wholesale volume**

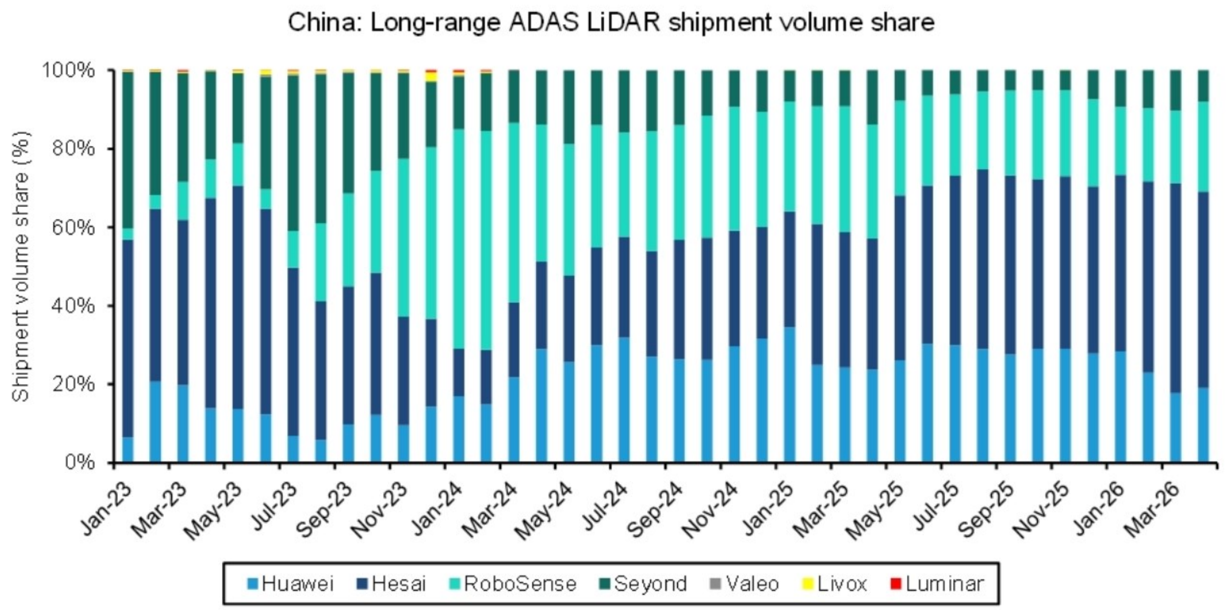
Source: CAAM, Bernstein Asian Autos team, Bernstein analysis and estimates

EXHIBIT 9: **Long-range ADAS LiDAR in China: Increasing penetration and volume share breakdown**



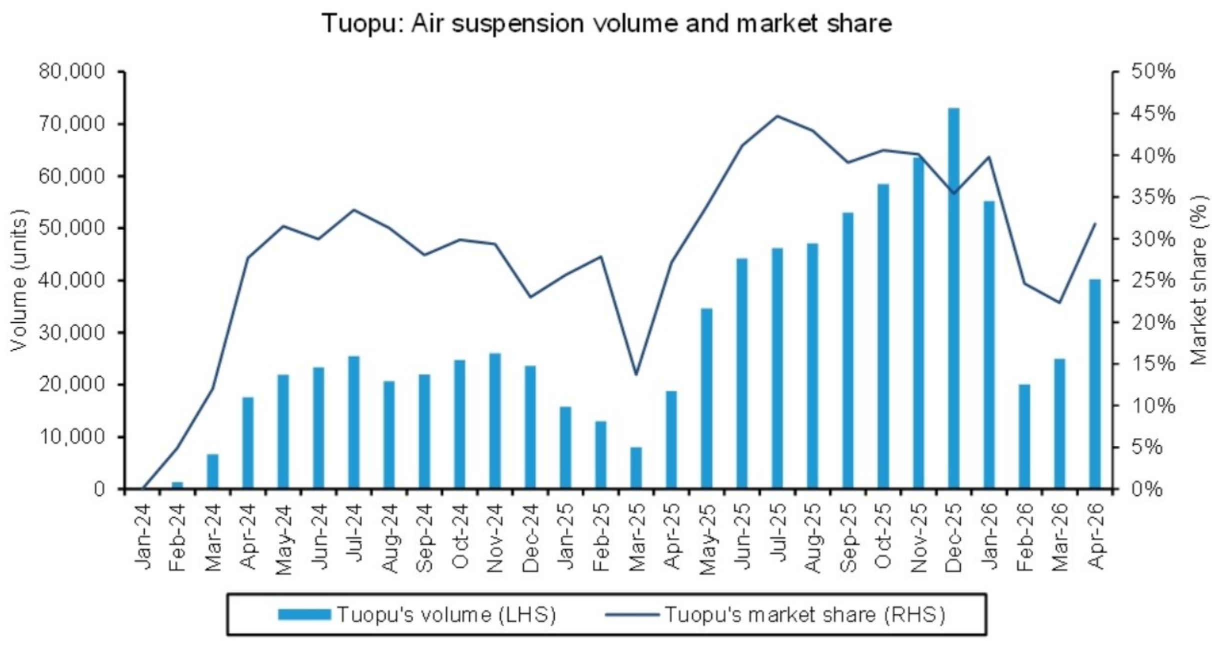
Source: Gasgoo, Bernstein analysis

EXHIBIT 10: **Long-range ADAS LiDAR in China: Market share breakdown**



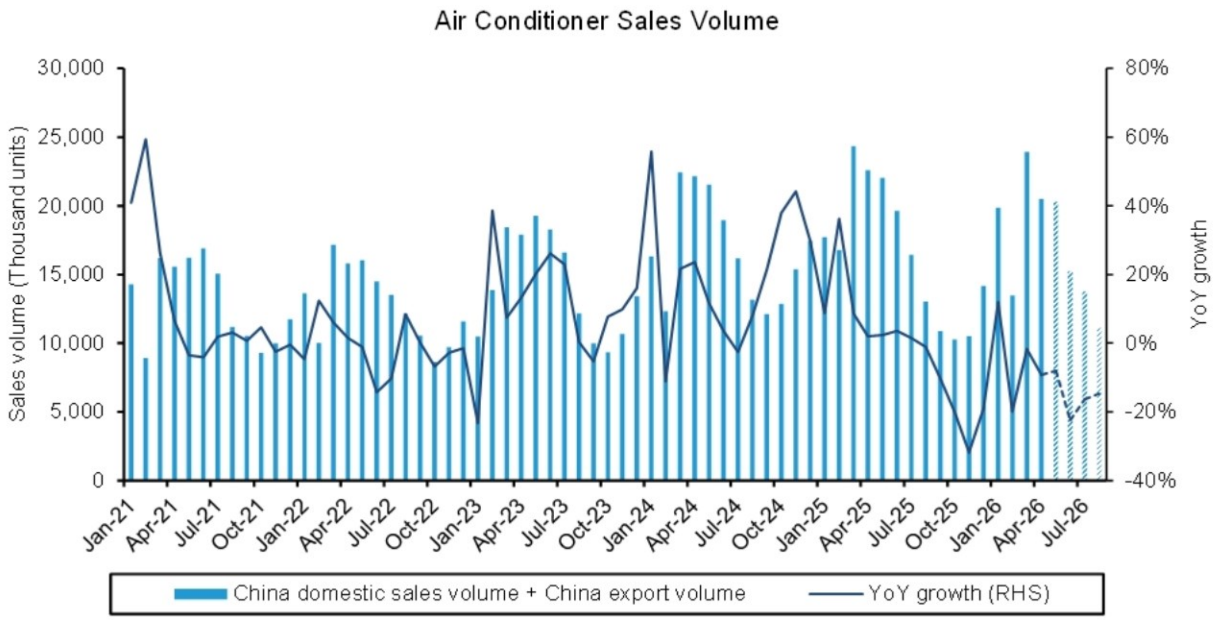
Source: Gasgoo, Bernstein analysis

EXHIBIT 11: **Tuopu's air suspension volume and market share**



Source: Gasgoo, Bernstein analysis

EXHIBIT 12: **Air conditioner sales volume (China domestic sales + export)**

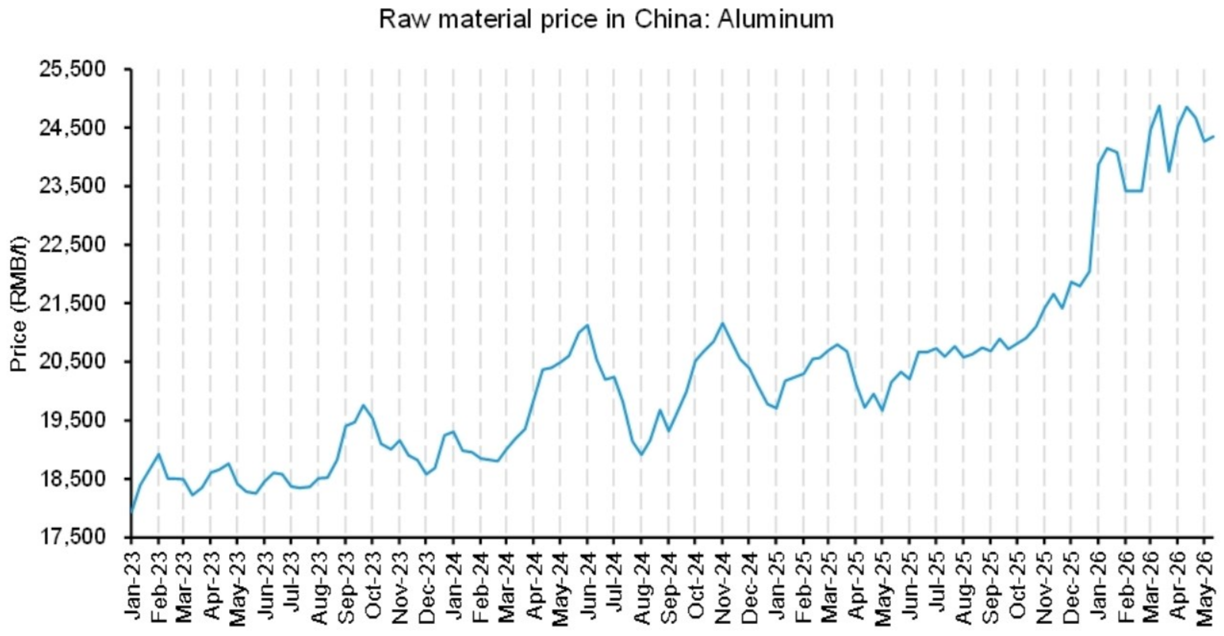


Source: ChinaIOL, Bernstein China Consumer Team, Bernstein analysis

EXHIBIT 13: **Raw material price: Copper**

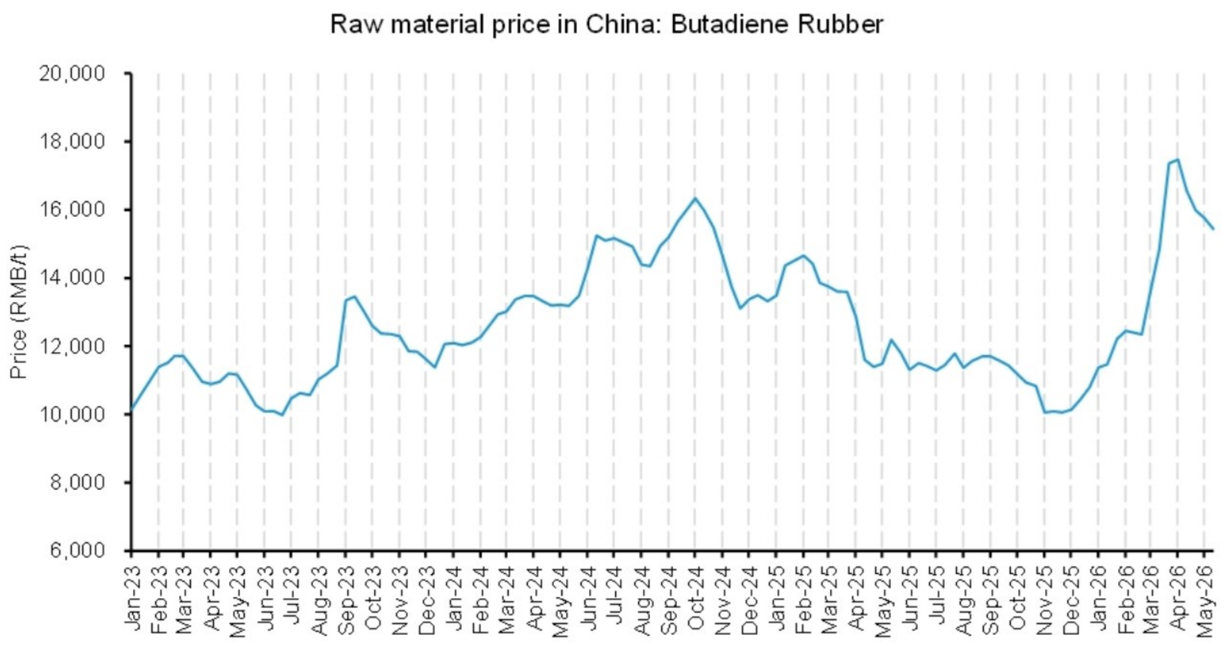
Source: China NBS, Wind, Bernstein analysis

EXHIBIT 14: **Raw material price: Aluminum**



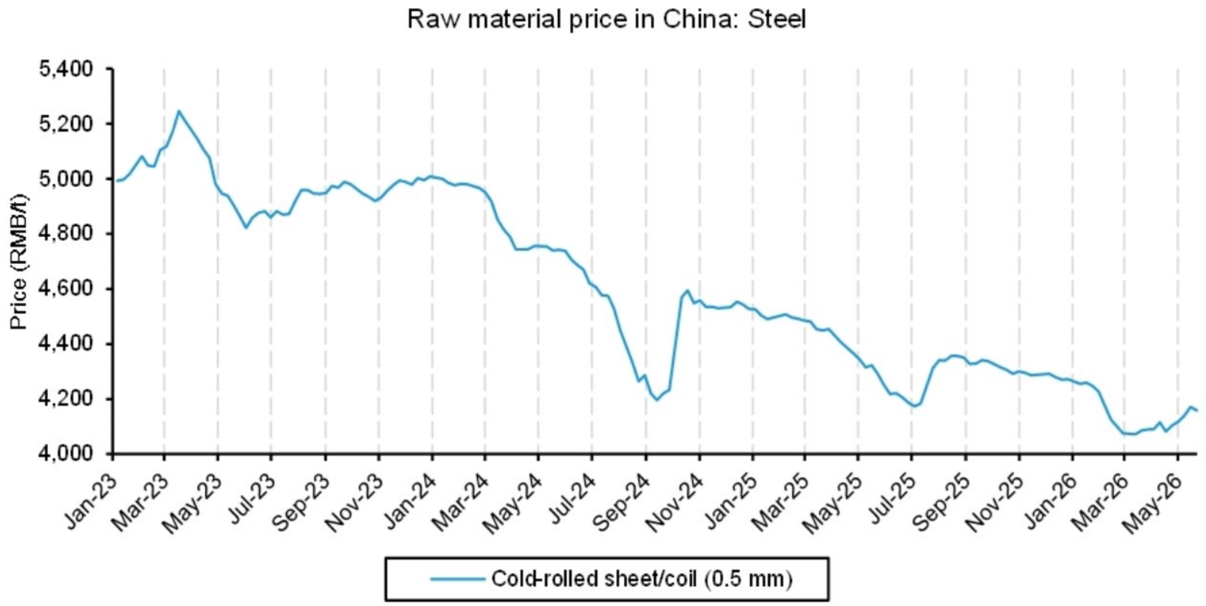
Source: China NBS, Wind, Bernstein analysis

EXHIBIT 15: **Raw material price: Butadiene rubber**



Source: China NBS, Wind, Bernstein analysis

EXHIBIT 16: **Raw material price: Steel**



Source: China NDRC, Bernstein analysis

EXHIBIT 17: **Raw material price: Gear steel**

Source: Wind, Bernstein analysis

EXHIBIT 18: **Raw material price: Polypropylene**

Source: Wind, Bernstein analysis

INVESTMENT IMPLICATIONS

We rate Shuanghuan, Hesai and Tuopu Outperform, Sanhua Market-Perform and Leader Drive Underperform.

BERNSTEIN TICKER TABLE

			1 Jun 2026		TTM		Reported EPS			Reported P/E (x)		
			Closing	Price	Rel.							
Ticker	Rating	Cur	Price	Target	Perf.	Cur	2025A	2026E	2027E	2025A	2026E	2027E
HSAI.US (Hesai)	O	USD	20.03	30.00	(43.5)%	CNY	2.92	3.31	5.27	46.4	41.0	25.7
2525.HK (Hesai)	O	HKD	153.10	238.00	NA	CNY	2.92	3.31	5.27	45.3	39.9	25.1
688017.CH (Leader Drive)	U	CNY	287.30	115.00	98.0%	CNY	0.69	0.83	0.96	414.9	344.4	298.8
601689.CH (Tuopu)	O	CNY	61.18	75.00	(25.6)%	CNY	1.61	1.81	2.36	38.0	33.8	26.0
2050.HK (Sanhua)	M	HKD	30.72	27.00	NA	CNY	1.03	0.97	1.11	25.7	27.3	24.0
002050.CH (Sanhua)	M	CNY	44.57	39.00	22.7%	CNY	1.03	0.97	1.11	43.3	45.8	40.3
002472.CH (Shuanghuan)	O	CNY	38.78	60.00	(27.8)%	CNY	1.50	1.70	2.00	25.9	22.8	19.4
ASIAX			2,032.77									

O - Outperform, M - Market-Perform, U - Underperform, NR - Not Rated, CS - Coverage Suspended

Source: Bloomberg, Bernstein estimates and analysis.

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Bernstein is part of a joint venture between Société Générale (SG) and AllianceBernstein, L.P. (AB). Unless specifically noted otherwise, for purposes of these disclosures, references to Bernstein’s “affiliates” relate to both SG and AB and their respective affiliates.

VALUATION METHODOLOGY

Hesai Group

We use DCF as the primary valuation method. We set target prices at USD 30.0 and HKD 238.0 for its ADR and H-Share, respectively, based on WACC of 8.3% and terminal growth rate of 3.0%, respectively. They reflect our long term forecast of the company’s existing core business and rising contribution from robotics. We use PE method as a reference, with our target price implies a 39x forward PE at end-2026.

Leader Harmonious Drive Systems Co., Ltd.

We use DCF as the primary valuation method. We set target prices at CNY 115.0 based on WACC of 8.3% and terminal growth rate of 3.0%, which reflects our long term forecast of the company’s existing core business and rising contribution from robotics. We use PE method as a reference, with our target price implies a 120x forward PE at end-2026.

Ningbo Tuopu Group Co., Ltd.

We use DCF as the primary valuation method. We set target prices at CNY 75.0 based on WACC of 8.0% and terminal growth rate of 3.0%, which reflects our long term forecast of the company’s existing core business and rising contribution from robotics. We use PE method as a reference, with our target price implies a 32x forward PE at end-2026.

Zhejiang Sanhua Intelligent Controls Co., Ltd.

We use DCF as the primary valuation method. We set target prices at CNY 39.0 and HKD 27.0 for its A-Share and H-Share, respectively, based on WACC of 8.2% and terminal growth rate of 3.0%. They reflect our long term forecast of the company’s existing core business and rising contribution from robotics. We use PE method as a reference, with our target price implies a 35x forward PE at end-2026.

Zhejiang Shuanghuan Driveline Co., Ltd.

We use DCF as the primary valuation method. We set target prices at CNY 60.0 based on WACC of 7.6% and terminal growth rate of 3.0%, which reflects our long term forecast of the company’s existing core business and rising contribution from robotics. We use PE method as a reference, with our target price implies a 30x forward PE at end-2026.

RISKS

Hesai Group

Downside risks are: 1) serious car accidents caused by LiDAR failures; 2) escalated sanctions from the US government; 3) loss of market share at key clients; and 4) slower-than-expected improvements in profitability.

Leader Harmonious Drive Systems Co., Ltd.

Potential upside risks include: 1) official entry into leading humanoid robot makers; 2) breakthroughs or unexpected policy support in Chinese humanoid robot industry; 3) further market share gains in strain-wave reducers among global industrial robot leaders; and 4) proven commercial success of its roller screws.

Ningbo Tuopu Group Co., Ltd.

Downside risks include 1) Tesla fails to meet investors' expectations in automotive or robots; 2) diminished investor interest in humanoid robots due to absence of breakthroughs; 3) a slowdown in vehicle sales; and 4) negative impacts from geopolitical issues (e.g. tariffs, export control of magnetic materials).

Zhejiang Sanhua Intelligent Controls Co., Ltd.

Potential upside risks include: 1) Tesla shows material progress in automotive or robotics; 2) significant progress in data centers and energy storage; and 3) release of specialized heat management solutions for robotics. Downside risks include: 1) Tesla fails to meet investors' expectations in automotives or robotics; 2) diminished investor interest in humanoid robots due to absence of breakthroughs; 3) a slowdown in sales of new energy vehicles and air conditioners; and 4) negative impacts from geopolitical issues (e.g. tariffs, export control of magnetic materials).

Zhejiang Shuanghuan Driveline Co., Ltd.

Downside risks include: 1) Tesla robot fails to meet investors' expectations; 2) diminished investor interest in humanoid robots due to absence of major breakthroughs; 3) slowdown sales of new energy vehicles and robotic vacuums; 4) delays in expansion in Europe or upgrading EV gears from parallel-shaft to coaxial layout;

RATINGS DEFINITIONS, BENCHMARKS AND DISTRIBUTION

EQUITY RATINGS DEFINITIONS

Bernstein brand

The Bernstein brand rates stocks based on forecasts of relative performance for the next 12 months versus the S&P 500 for stocks listed on the U.S. and Canadian exchanges, versus the Bloomberg Europe Developed Markets Large and Mid Cap Price Return Index EUR (EDME) for stocks listed on the European exchanges and emerging markets exchanges outside of the Asia Pacific region, versus the Bloomberg Japan Large and Mid Cap Price Return Index USD (JPL) for stocks listed on the Japanese exchanges, and versus the Bloomberg Asia ex-Japan Large and Mid Cap Price Return Index (ASIAX) for stocks listed on the Asian (ex-Japan) exchanges -unless otherwise specified.

The Bernstein brand has three categories of ratings:

- Outperform: Stock will outpace the market index by more than 15 pp
- Market-Perform: Stock will perform in line with the market index to within +/-15 pp
- Underperform: Stock will trail the performance of the market index by more than 15 pp

Coverage Suspended: Coverage of a company under the Bernstein research brand has been suspended. Ratings and price targets are suspended temporarily, are no longer current, and should therefore not be relied upon.

Not Rated: A rating assigned when the stock cannot be accurately valued, or the performance of the company accurately predicted, at the present time. The covering analyst may continue to publish research reports on the company to update investors on events and developments.

Not Covered (NC) denotes companies that are not under coverage.

Bernstein brand stock ratings are based on a 12-month time horizon.

Autonomous brand – common stocks

The Autonomous brand rates common stocks as indicated below. As our benchmarks we use the Bloomberg Europe 500 Banks And Financial Services Index (BEBANKS) and Bloomberg Europe Dev Mkt Financials Large and Mid Cap Price Ret Index EUR

(EDMFI) index for developed European banks and Payments, the Bloomberg Europe 500 Insurance Index (BEINSUR) for European insurers, the S&P 500 and S&P Financials for US banks and Payments coverage, S5LIFE for US Insurance, the S&P Insurance Select Industry (SPSIINS) for US Non-Life Insurers coverage, and the Bloomberg Emerging Markets Financials Large, Mid and Small Cap Price Return Index (EMLSF) for emerging market banks and insurers and Payments. Ratings are stated relative to the sector (not the market).

The Autonomous brand has three categories of common stock ratings:

- Outperform (OP): Stock will outpace the relevant index by more than 10 pp
- Neutral (N): Stock will perform in line with the market index to within +/-10 pp
- Underperform (UP): Stock will trail the performance of the relevant index by more than 10 pp

Coverage Suspended: Coverage of a company under the Autonomous research brand has been suspended. Ratings and price targets are suspended temporarily, are no longer current, and should therefore not be relied upon.

Not Rated: A rating assigned when the stock cannot be accurately valued, or the performance of the company accurately predicted, at the present time. The covering analyst may continue to publish research reports on the company to update investors on events and developments.

Those denoted as 'Feature' (e.g., Feature Outperform FOP, Feature Under Outperform FUP) are our core ideas.

Not Covered (NC) denotes companies that are not under coverage.

Autonomous brand common stock ratings are based on a 12-month time horizon.

Autonomous brand – preferred stocks

The Autonomous brand has three categories of preferred stock ratings:

- Outperform (OP): The total return of the preferred instrument is expected to outperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Neutral (N): The total return of the preferred instrument is expected to perform in line with preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Underperform (UP): The total return of the preferred instrument is expected to underperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.

Autonomous preferred stock ratings are based on a 6-month time horizon.

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The report may also include reference(s) to published opinions by other Autonomous or Bernstein analysts covering the equity securities of the issuer(s) referenced herein. Please note an investment recommendation for credit instruments published by the author(s) of this report may differ from the published view of the analyst covering equity securities for the issuer(s) contained in this report and vice versa.

CREDIT RATINGS DEFINITIONS

The Autonomous brand has three categories of credit ratings:

- Credit Outperform (C-OP): The total return of the Reference Credit Instrument is expected to outperform the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.
- Credit Neutral (C-N): The total return of the Reference Credit Instrument is expected to perform in line with the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.

- Credit Underperform (C-UP): The total return of the Reference Credit Instrument is expected to underperform the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.

Autonomous credit ratings are based on a 6-month time horizon.

A list of all investment recommendations produced by the author(s) of this report alongside credit ratings history are available upon request.

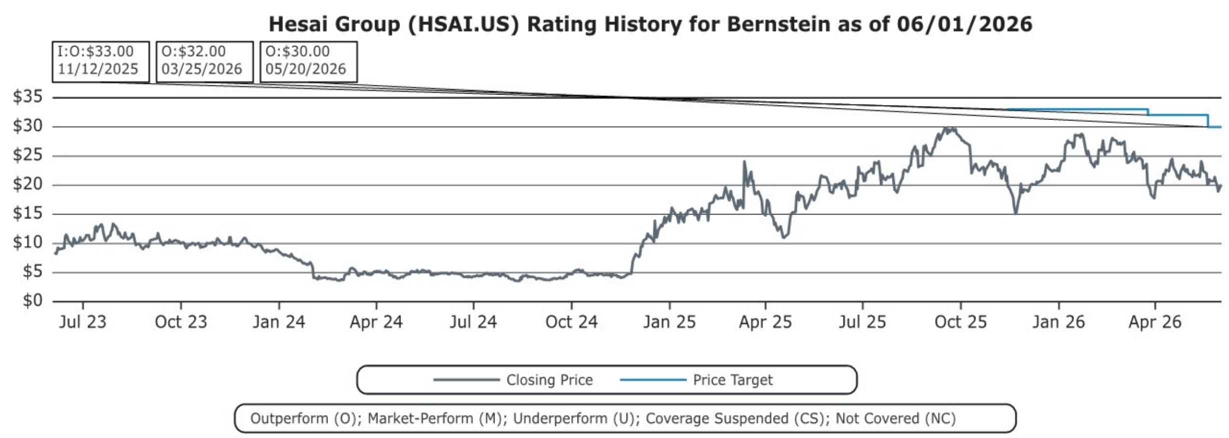
It is at the sole discretion of the Firm as to when to initiate, update and cease research coverage. The Firm has established, maintains and relies on information barriers to control the flow of information contained in one or more areas (i.e. the private side) within the Firm, and into other areas, units, groups or affiliates (i.e. public side) of the Firm

DISTRIBUTION OF EQUITY RATINGS/INVESTMENT BANKING SERVICES

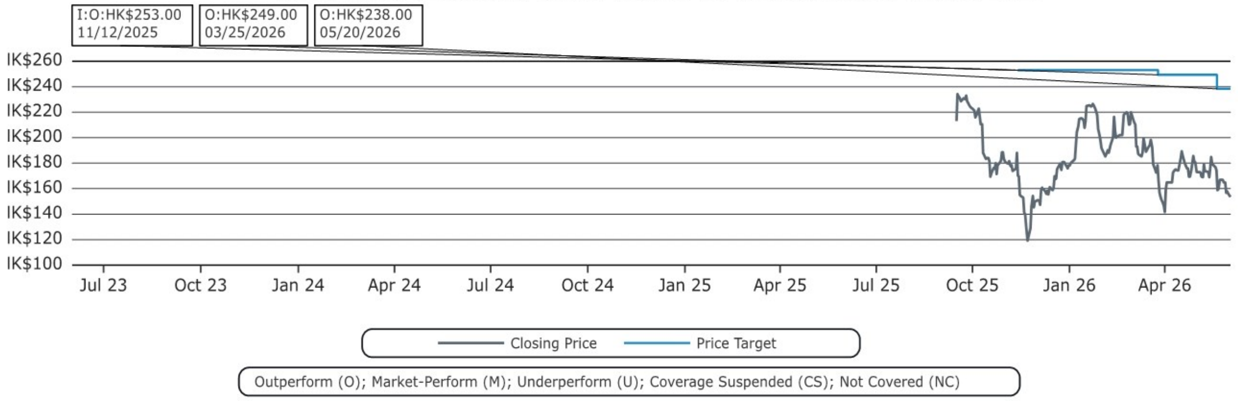
Equity Rating	Market Abuse Regulation (MAR) and FINRA Rating Category	Global Rating Distribution	Investment Banking Relationships*
Outperform	BUY	51.1%	16.5%
Market-Perform (Bernstein Brand) Neutral (Autonomous Brand)	HOLD	36.3%	17.8%
Underperform	SELL	12.6%	14.9%

* These figures represent the percentage of companies within each equity rating category for which affiliates of Bernstein have provided investment banking services within the previous 12 months.
As of March 31, 2026. All figures are updated quarterly.

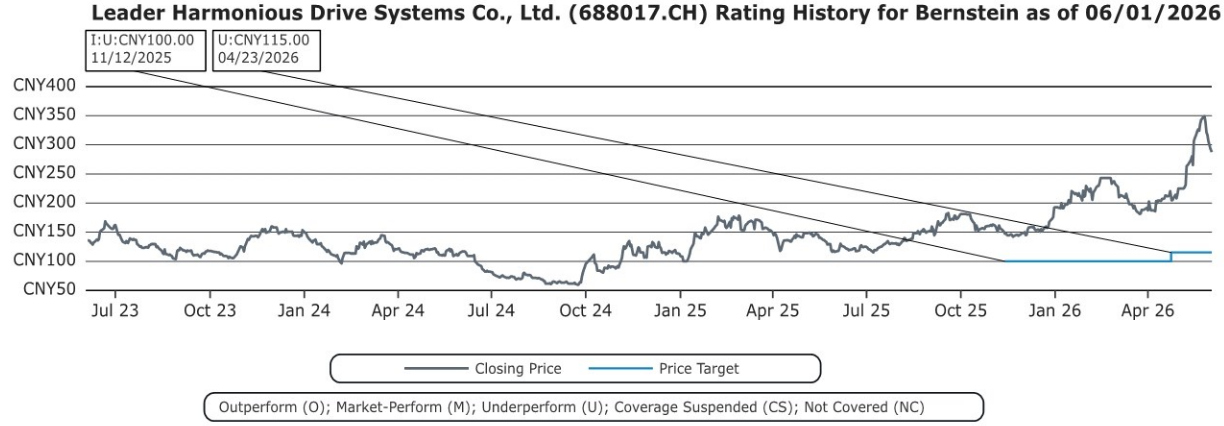
PRICE CHARTS / RATINGS AND PRICE TARGET HISTORY



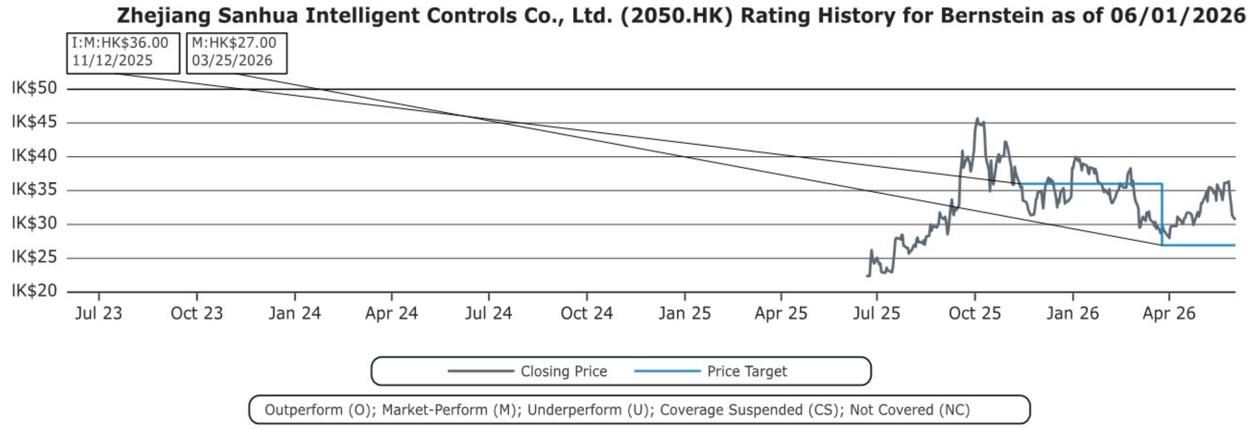
Hesai Group (2525.HK) Rating History for Bernstein as of 06/01/2026

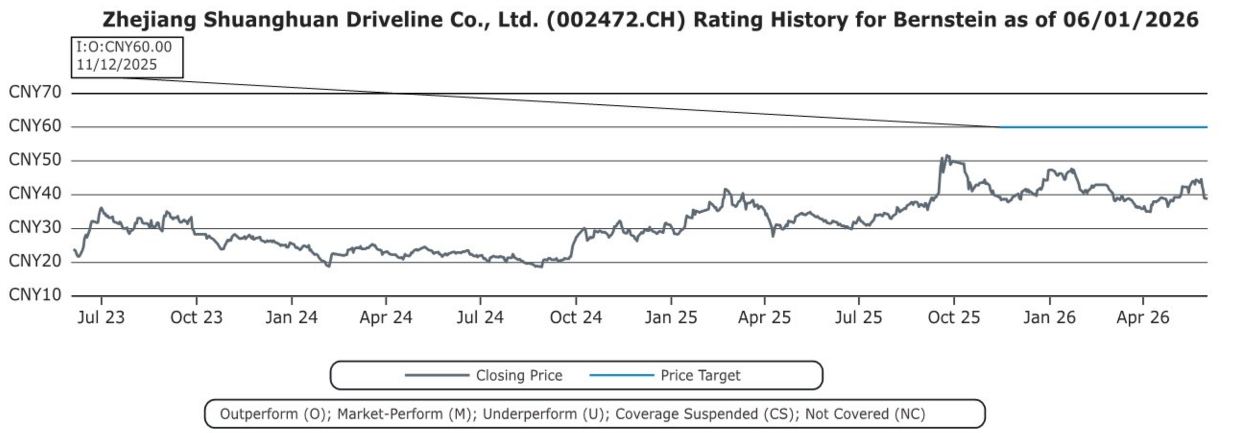


Leader Harmonious Drive Systems Co., Ltd. (688017.CH) Rating History for Bernstein as of 06/01/2026



Ningbo Tuopu Group Co., Ltd. (601689.CH) Rating History for Bernstein as of 06/01/2026





All price target and closing price data in the chart(s) above are denominated in the currency noted in the Ticker Table of this report.

OTHER MATTERS

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+212 Société Générale Africa Technologies & Services; Casablanca, Morocco

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+34 BSG France S.A.; Madrid, Spain

+41 Bernstein Autonomous LLP; Geneva, Switzerland

+49 BSG France S.A.; Frankfurt, Germany

+91 Sanford C. Bernstein (India) Private Limited; Mumbai, India

+852 Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司; Hong Kong, China

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