

## Humanoid Robotics: A scientist, an inventor, an engineer, and a gardener walk into a room ...

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The quest for investable companies in humanoid robotics proves challenging, as there are >150 players crowding every section of the supply chain ([link](#)), and the list keeps growing by the month. This indicates low barrier to entry. The important question, however, is not “barrier to entry” but “room for differentiation”-- in this magnificent place called humanoid robotics, it is easy to enter the door, but through that door is a room with a very high ceiling.

Walking into this room are a scientist, an inventor, an engineer, and a gardener.

The scientist scratches his head and attacks the unknown. The inventor murmurs “why is there something rather than nothing”<sup>1</sup> while he pulls out of his pockets lots of things. The engineer is busy making and modifying things. The gardener, having set up the trellis and planted the seeds, attends to his plants only occasionally.

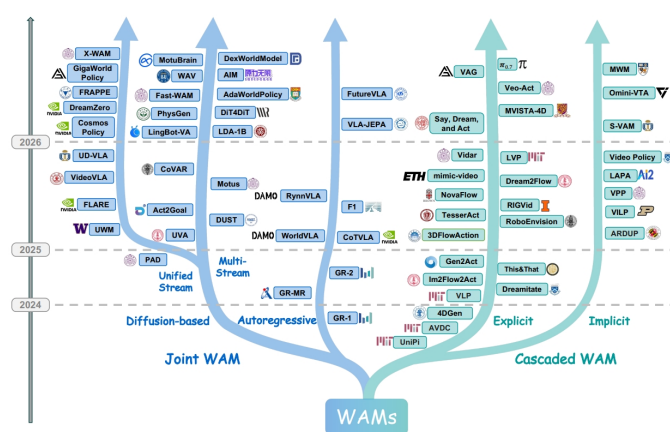
One moves closer and sees: The scientist draws little brains on his sketch board with mysterious words such as VLA, WAM, Latent Space ... The inventor has made a pile of humanoids of various sizes and looks, some with legs, others with wheels, one of which even has eight arms! The engineer’s pile has mostly gears and motors, some assembled into joints, hands and arms, others torn apart. The gardener seems to be away, and his flourishing plants have weird tags such as integrators, skill packages, data labs ...

Our four characters act out the four elements of competitive differentiation in the humanoid robot industry today.

The robotic brain model is a field of active scientific research. In just a few years, the paradigm has evolved from LLM to VLA (vision-language-action) models to many varieties of world models (Exhibit 1). In the quest for a robotic brain model, there is now light at the end of the tunnel, but it’s unclear what lies beyond, and the tunnel remains long. Scientists aspire to lead us through and turn the unknown to the known.

<sup>1</sup> This question, raised by Leibniz, Wittgenstein, and Heidegger among others, is a fundamental inquiry in philosophy and science, which our inventor and the author enjoy exploring in their leisure time.

EXHIBIT 1: Rapid evolution of World Action Models (WAMs)



Note: The link to the source paper: <https://arxiv.org/abs/2605.12090>  
Source: "World Action Models: The Next Frontier in Embodied AI" by Siyin Wang, et. al

A robot is more than the sum of its components, and a robot maker is not just an assembler. This inventor maps out the vast variety of robot applications, translates the desired functions to form factors and technical requirements, such as movement speed and payload, and breaks them down to components specs. He injects into his robots the motion capability (“the cerebellum”). He carefully balances versatility and performance of each design (unique and better than his peers, he strongly believes!). He thinks that he will eventually end up with a few tens of designs to satisfy the practically unlimited use cases in the world.

A component maker watches the inventor closely and constantly adapts its own products. This engineer strives to make things better and cheaper, even though the technology is generally well understood by peers. And “better” is too easy a word, which the engineer fully understands can mean precision, strength, reliability, rigidity, size and weight, energy efficiency ... and many more. One day, the hectic changes caused by the inventor will slow down, and he will finally be able to optimize everything to the extreme.

**EXHIBIT 2: Automation and robotic players and their primary elements of differentiation**

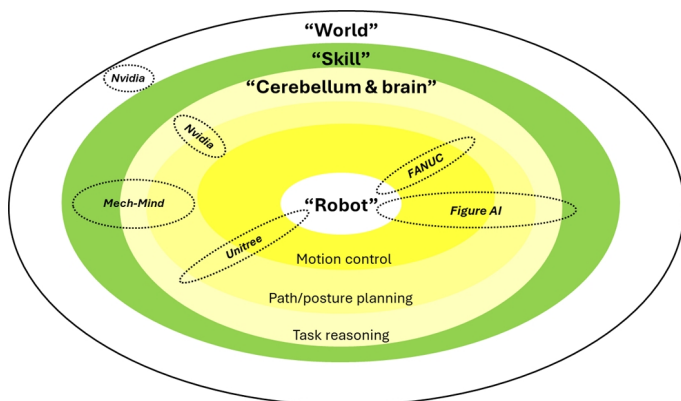
Elements of differentiation \ Industry player	SMC	Harmonic Drive	FANUC	Keyence	Unitree	Physical Intelligence	Academia
Scientist						✓	✓
Inventor			✓	✓	✓		
Engineer	✓	✓	✓				
Gardener			✓		✓		

Note: Unitree and Physical Intelligence are private.  
Source: Bernstein analysis

The final element of differentiation is to become the “owner” of the ecosystem (Exhibit 3). A variety of additional players join force to unlock the industry’s potential. They develop new robotic skill sets, collect data and do training, build accessories, and deploy for users. To be the gardener at the center of the ecosystem is to be the center of gravity of these players. He waits for his plants to bear fruits

robot makers also start to emerge at the center of the ecosystem ([link](#)). He is an inventor also wearing the hats of the scientist and the engineer, and gardening is his weekend job.

**EXHIBIT 3: The Physical AI and Robotic ecosystem**

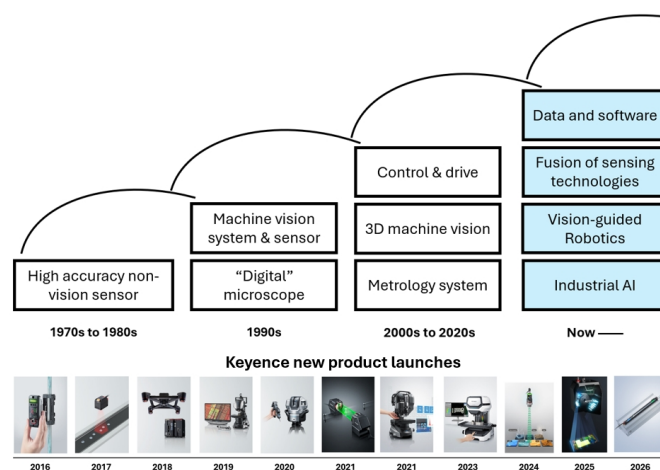


Note: Nvidia is covered by Bernstein U.S. Semiconductors team, Figure AI, Mech-Mind, and Unitree are private.  
Source: Bernstein analysis

Our fable of the industry is clearly simplified, while the reality is entangled. A robot maker, being the inventor, also needs to be a good engineer. A component maker, from time to time, invents new products. It is fair to ask whether robot OEMs or component suppliers are the better segment to invest in. Good investment opportunities arise in both, but structurally, we think robot OEMs commands multiple elements to differentiate, instead of being forced to compete on the narrow path of engineering excellence. Many robot makers have naturally integrated into brain model development, so their products, with the cerebellum and the brain, are advanced hardware-software packages. The best of these

One exits the room of humanoid robotics, and in this magic house he finds many more rooms with our four friends (Exhibit 2). Scientists are more likely present in the newer rooms, such as those tagged “Quantum Computing” and “Fusion Energy”. In other rooms, scientists made their marks and have left; inventors and engineers are the busiest. In some ancient rooms, engineers alone remain working. In the room tagged “Industrial Robotics”, FANUC, the inventor, has a very large pile of things and is right now tending the garden with his friends Nvidia ([link](#)) and Google ([link](#)). In another, Keyence is an inventor with a towering presence (Exhibit 4). His pile has over 6,000 items, and he keeps pulling new stuff from his pockets at amazing speed ([link](#)).

**EXHIBIT 4: Keyence generates ~20% of revenue from new products every year and steadily expands its product scope.**



Source: Keyence, Bernstein analysis

**BERNSTEIN TICKER TABLE**

Ticker	Rating	Cur	10 Jun 2026		TTM Rel. Perf.	Cur	Reported EPS			Reported P/E (x)		
			Closing Price	Price Target			2025A	2026E	2027E	2025A	2026E	2027E
6954.JP (Fanuc)	O	JPY	6,763.00	7,000.00	36.1%	JPY	178.47	207.32	193.15	37.9	32.6	35.0
002747.CH (Estun)	M	CNY	35.80	26.00	40.7%	CNY	0.05	0.31	0.32	716.0	116.5	110.7
2715.HK (Estun)	M	HKD	17.65	17.26	NA	CNY	0.05	0.31	0.32	353.0	57.4	54.6
CGNX (Cognex)	O	USD	58.69	75.00	66.4%	USD	0.67	1.46	1.62	87.6	40.2	36.3
6324.JP (HDSI)	O	JPY	6,240.00	7,800.00	66.7%	JPY	16.99	57.37	79.51	367.3	108.8	78.5
6861.JP (Keyence)	O	JPY	72,890	86,000	(19.5)%	JPY	1,835.63	2,248.48	2,494.78	39.7	32.4	29.2
300124.CH (Inovance)	O	CNY	70.10	82.00	(25.5)%	CNY	1.87	2.19	2.65	37.5	32.0	26.5
JPL			2,519.12									
ASIAX			1,920.52									
SPX			7,266.99									

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

6954.JP, 6861.JP base year is 2026;

Source: Bloomberg, Bernstein estimates and analysis.

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We use EV/EBITDA multiple as the primary valuation method. We set a JPY7,000 target price using an EV/EBITDA multiple of 22.5x against our 1-year forward-looking EBITDA estimates (from the PT date) of JPY 251,396 million. We set the target multiple referencing previous cycles but adjust for secular or competitive trends that we believe are moving multiples higher or lower across multiple cycles. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent target price may deviate from the DCF-implied value.

**Estun Automation Co Ltd**

We use EV/EBITDA multiple as the primary valuation method. Our price target of RMB26.0 (A-share) and HKD 17.3 (H-share) are based on an EV/EBITDA multiple of 35.9x against our 1-year forward EBITDA estimate of RMB677.2mn. We set the multiple referencing previous cycles but adjust for secular or competitive trends that we believe are moving multiples higher or lower across multiple cycles. We set Estun's H-share TP based on the average A/H share premium. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent target price may deviate from the DCF-implied value.

**Cognex Corp**

We use EV/EBITDA multiple as the primary valuation method. We set a USD75.00 price target using an EV/EBITDA multiple of 36.5x against our 1-year forward-looking EBITDA estimates (from the PT date) of USD 333.4 million. We set the multiple referencing previous cycles but adjust for secular or competitive trends that we believe are moving multiples higher or lower across multiple cycles. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent price target may deviate from the DCF-implied value.

**Harmonic Drive Systems Inc**

We use EV/EBITDA multiple as the primary valuation method. We set a JPY 7,800 target price using an EV/EBITDA multiple of 45.5x against our 1-year forward-looking EBITDA estimates (from the PT date) of JPY16,194 mn. We set the target multiple referencing previous cycles but adjust for secular or competitive trends that we believe are moving multiples higher or lower across multiple cycles. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent target price may deviate from the DCF-implied value.

**Keyence Corp**

We use EV/EBITDA multiple as the primary valuation method. We set a JPY86,000 target price using an EV/EBITDA multiple of 21.5x against our 1-year forward-looking EBITDA estimates (from the PT date) of JPY 831,323 million. We apply our target multiple on the upcoming cycle peak to get the enterprise value, and discount it back to derive our price target. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent target price may deviate from the DCF-implied value.

## Shenzhen Inovance Technolo-A

We use EV/EBITDA multiple as the primary valuation method. We set a RMB82 target price using an EV/EBITDA multiple of 24.0x against our 1-year forward-looking EBITDA estimates (from the PT date) of RMB 8971.6 million. We set the multiple referencing previous cycles but adjust for secular or competitive trends that we believe are moving multiples higher or lower across multiple cycles. We use DCF as reference for the company's long-term intrinsic value. As we move along the different stages of a cycle, the time-dependent target price may deviate from the DCF-implied value.

## RISKS

### FANUC Corp

FANUC's end user markets are cyclical in nature. The risks are mainly associated with the global macro economy and currency. The downside risks include 1) delayed or weaker than expected global automation demand, 2) losing market share to competitors, and 3) appreciation of JPY.

### Estun Automation Co Ltd

The risks to our view on Estun are mainly associated with China and global macro economy, including industrial capex cycles, trade frictions, and currency. In addition, the integration of Cloos and realization of planned synergies are important to our thesis and sources of additional risks. The upside risks include 1) faster than expected margin expansion; 2) faster than expected market share gain. The downside risks include 1) weaker than expected automation demands in China; 2) delayed or slower than expected in operating and net margin improvement; 3) delayed or slower than expected market share gain.

### Cognex Corp

Similar to Keyence, the risks are mainly associated with the global macro economy and the overall utilization of manufacturing capacity in the major economies. The downside risks include: 1) delayed or weaker than expected global automation demands, 2) delayed or slower than expected progress in "emerging customer" program, 3) delayed or slower than expected in the integration of Moritex and realization of planned synergies.

### Harmonic Drive Systems Inc

The risks to our view on HDSI are mainly associated with the global macro economy, including industrial capex cycles, competition and currency. As HDSI has >50% of global share in strain wave reducer, potential change in competitive landscape would be a more relevant risk than to other companies. Therefore, the downside risks include: 1) weaker than expected global robot demand, 2) losing market share to competitors, and 3) appreciation of JPY.

### Keyence Corp

The risks are mainly associated with the global macro economy. Our analysis shows that company's growth correlates with the overall utilization of manufacturing capacity in the major economies. Fluctuations in utilization may lead to unexpected near term fluctuations in growth rates. A global recession as severe as that of 2009 may even result in decline in Keyence's revenue. In addition, there is currency risk associated with the exchange rate of JPY. Therefore, the downside risks include: 1) weaker than expected overall utilization, 2) delayed or weaker than expected global automation demand, and 3) appreciation of JPY.

## Shenzhen Inovance Technolo-A

The risks to our view on Inovance are mainly associated with macro economy, including industrial capex cycles, trade frictions, and currency. The downside risks to our view on Inovance include 1) weaker than expected automation demands in China, 2) weaker or slower than expected share gain in China in segments besides servo motor and VFD, 3) weaker than expected EV demands.

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

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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).

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

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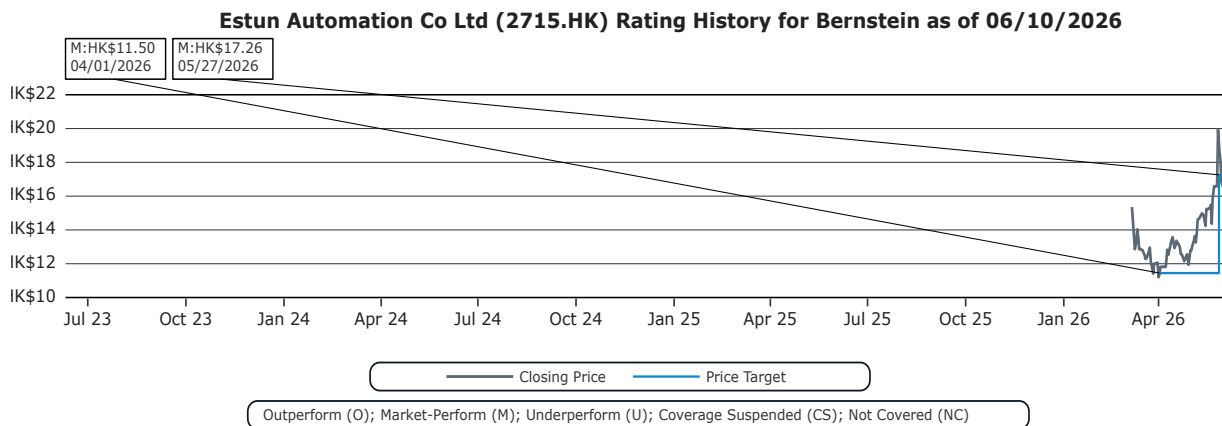
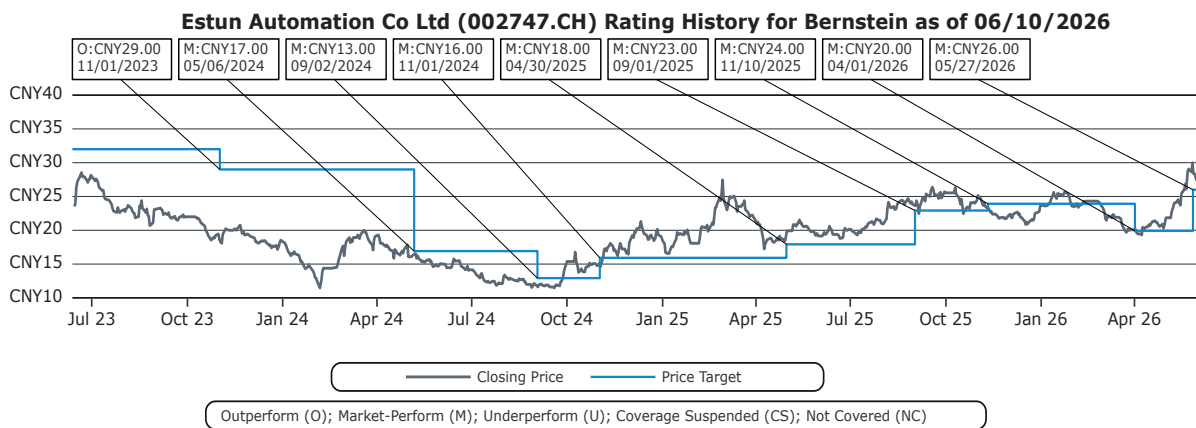
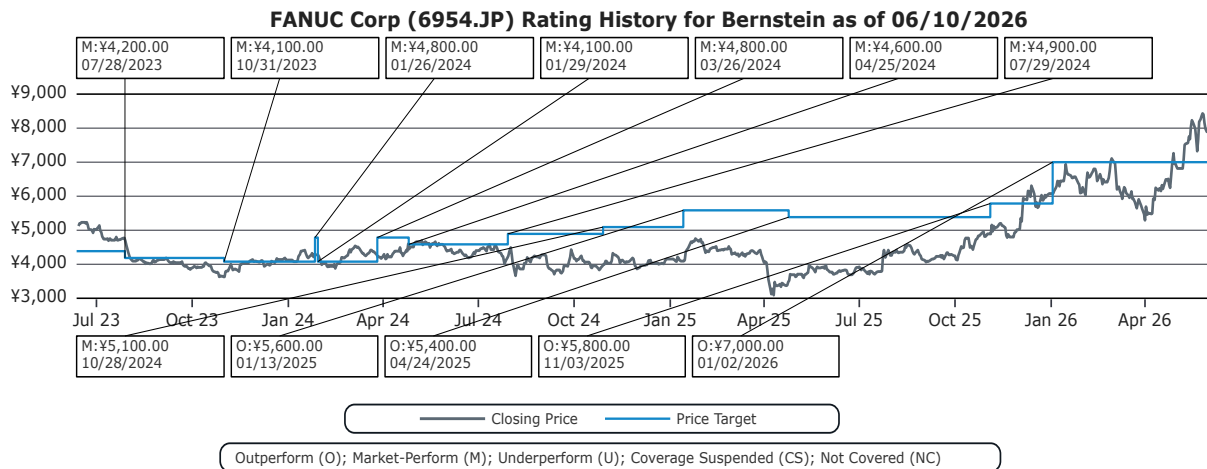
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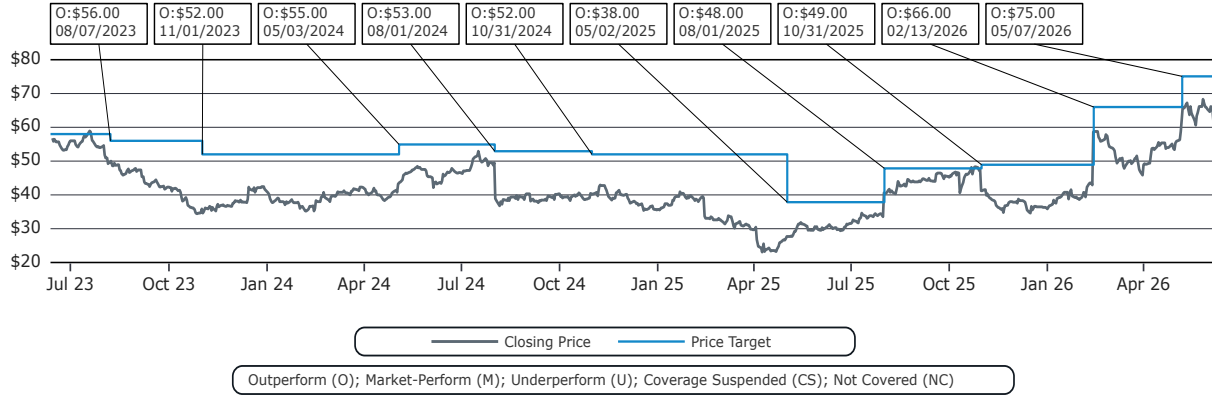
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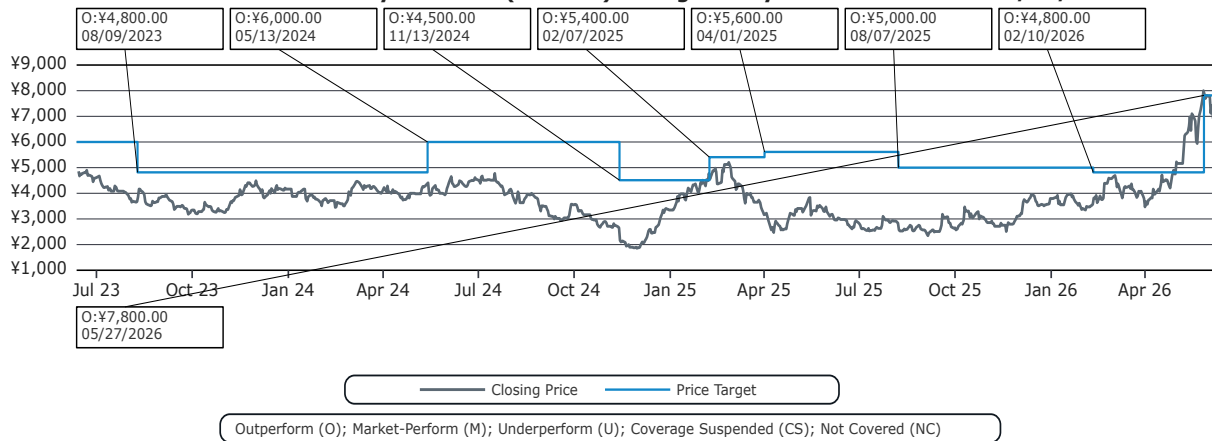
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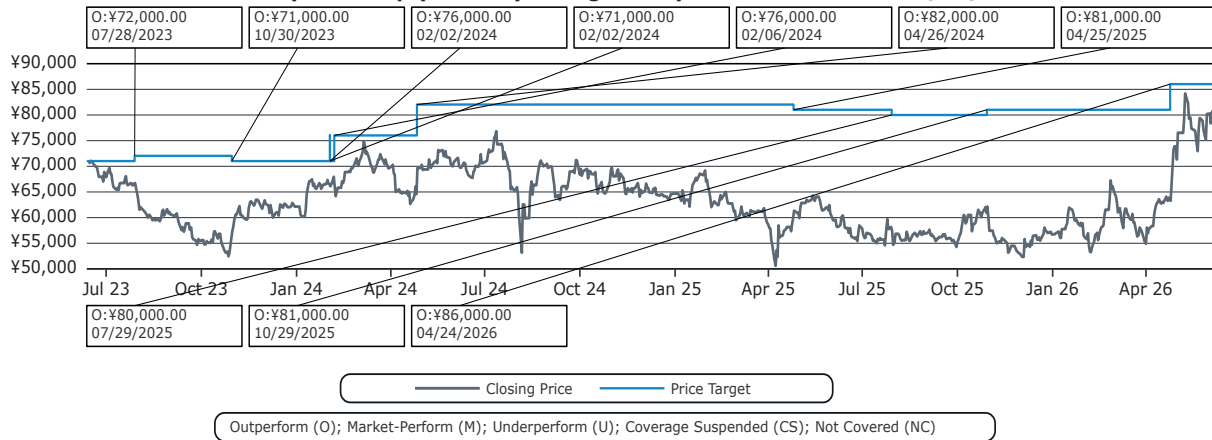
**Cognex Corp (CGNX) Rating History for Bernstein as of 06/10/2026**

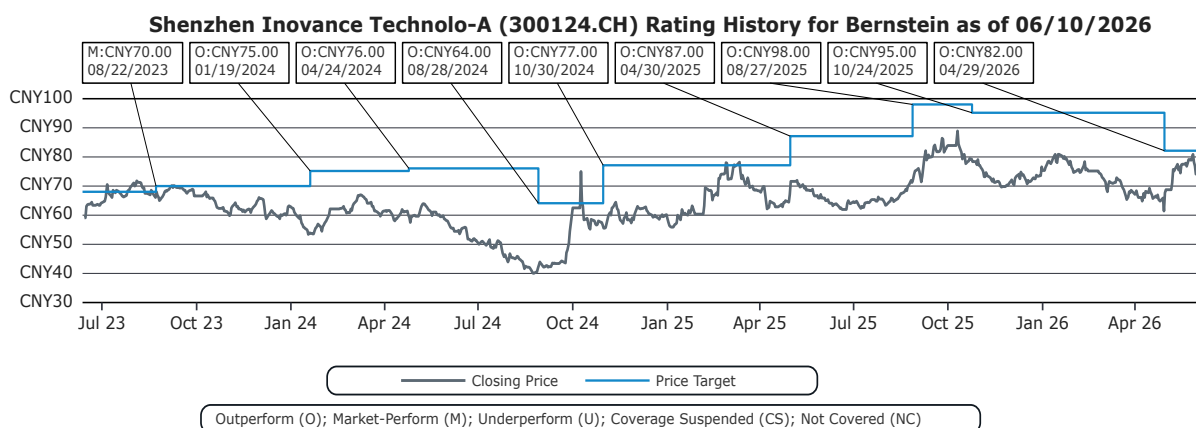


**Harmonic Drive Systems Inc (6324.JP) Rating History for Bernstein as of 06/10/2026**



**Keyence Corp (6861.JP) Rating History for Bernstein as of 06/10/2026**





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.

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