

ITA Beijing Machine Tool Desk

First Period Report

(May - August 2024)

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2023 Machine tool market analysis summary

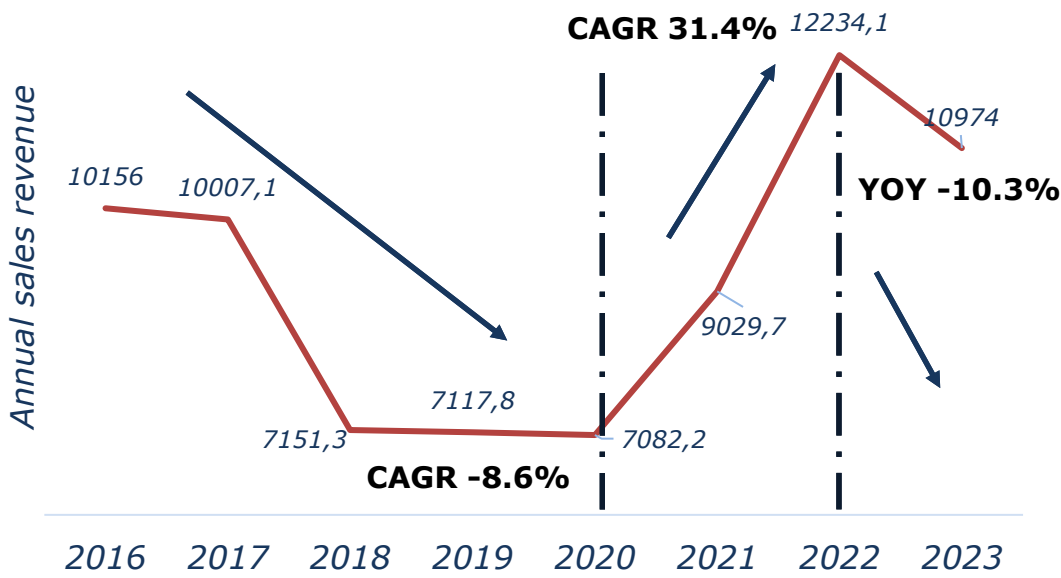
- China's machine tool industry experienced a **10.3% YOY decline** despite a short initial surge at the beginning of the year.
- China's **export** of machines tools has been on an **upward trend**, while the import trend is quite the opposite.
- In 2023, China's **import** of machine tool sector **decreased** for most categories, while the total export stayed almost unchanged.
- China's **FDI inflows and outflows** in the manufacturing sector are overall on an **upward curve** until 2022, despite experienced some sudden slumps in the process.
- Despite the **recent decline** in China's overall FDI (due mainly to various geopolitical factors), this does not necessarily suggest a bleak outlook for foreign investment in the Chinese market in the future.
- Although overall FDI declined in 2023, the overall trend shows that **multinational enterprises continue to increase their investment** in China.
- China's machine tool industry has been monopolized by **foreign manufacturers on the middle-to-high end segments** , while local players are mostly competing for low-to-middle end market segments.

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China's machine tool industry experienced a 10.3% YOY decline despite a short initial surge at the beginning of the year

Sales revenue of China's machine tool industry 2016-2023 (in 100 million RMB)



Sales revenue composition (in 100 million RMB)

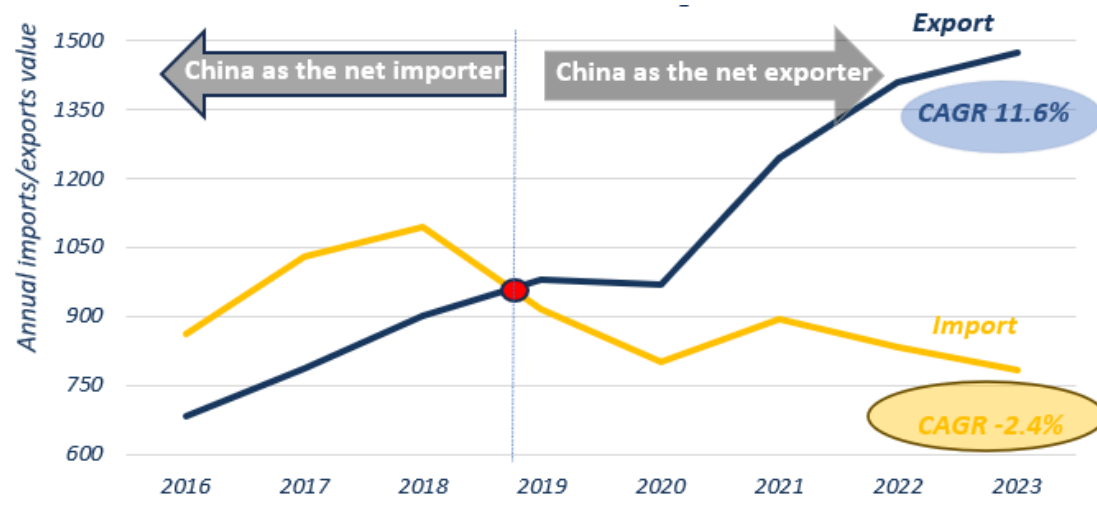
	2016	2017	2018	2019	2020	2021	2022	2023
Metal-cutting machine tools	1679.6	1456.5	1190.1	1073.2	1086.7	1424.7	1709.1	1586
Metal-forming machine tools	936.5	961.7	758.6	694.1	631.2	735.3	828.8	891
Functional parts	584.5	579.3	434.8	430.6	400.6	515.9	637.7	572
CNC equipment	200.3	217.4	206.9	191.6	171.5	194.6	222.1	243.7
Others	6755.1	6792.2	4560.9	4728.3	4792.2	6159.2	8836.4	7681.3

Contrary to expectations following the lifting of COVID lockdowns, China's machine tool industry experienced a 10.3% decline in 2023, despite a brief surge early in the year. The likely reasons for this decline include:

- 1.The rapidly evolving international environment.
- 2.Escalating geopolitical tensions between China and other countries (e.g., the China-U.S. rivalry, the China+1 strategy).
- 3.Insufficient investment in downstream equipment and device production.

China's export of machines tools has kept an upward trend, while the import trend is quite the opposite

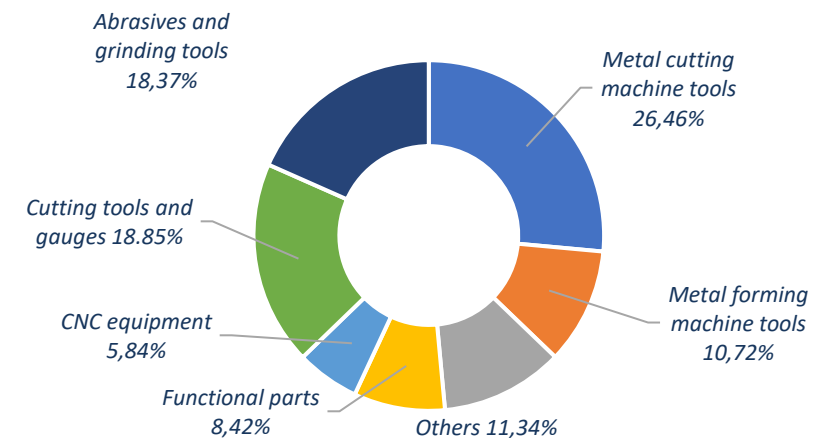
China's Imports and Exports of machine tools 2016-2023 (in 100 million RMB)



- China's machine tool exports has been on a constantly upward trend (with a CAGR of 11.6%), whereas the imports has been decreasing (with a CAGR of -2.4%), despite an initial increase from 2016 to 2018.
- China transitioned from a net importer of to a net exporter of machine tools at around 2019.

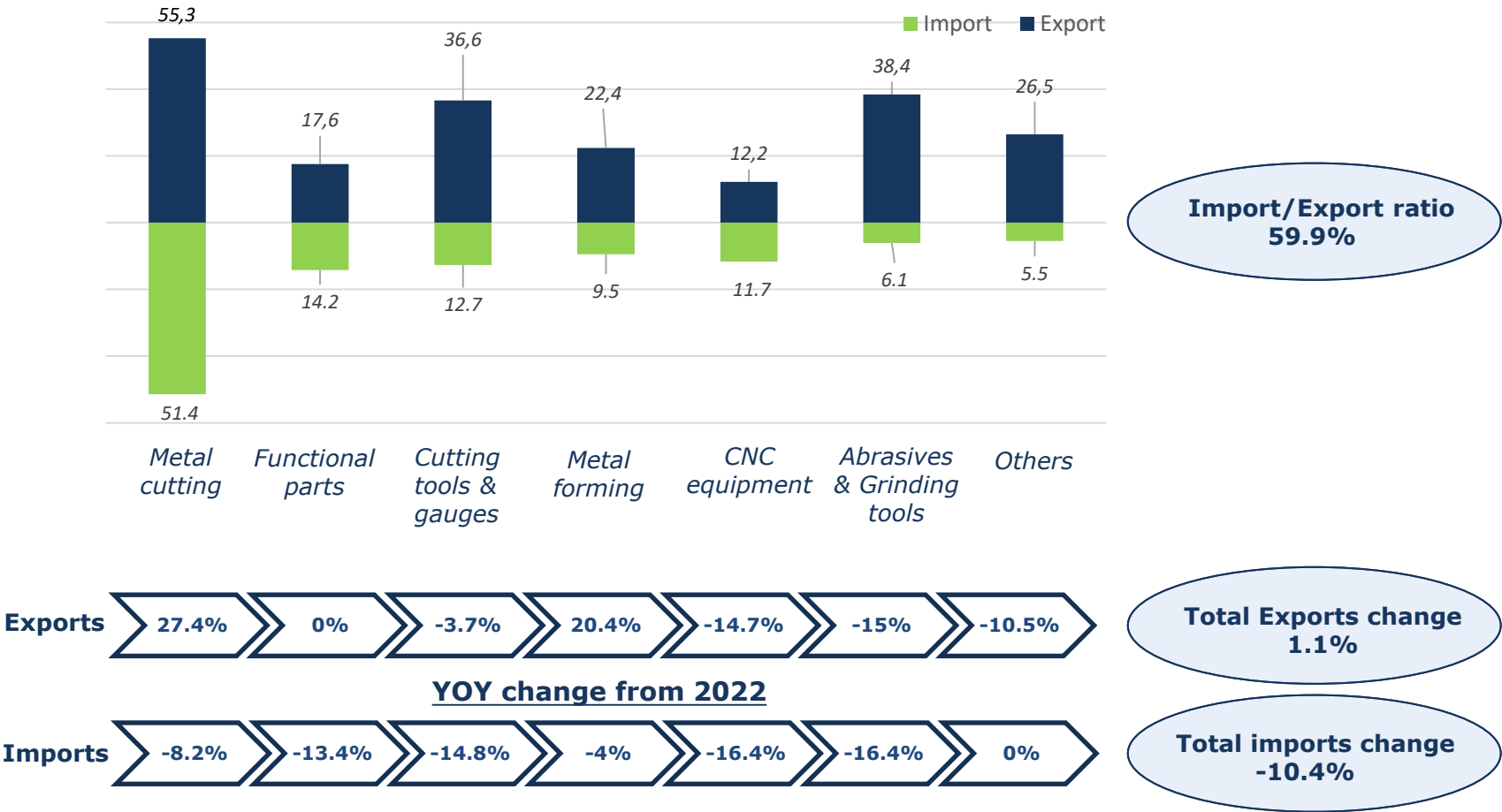
- China's machine tool industry is becoming more and more self-reliant, with the products being more attractive in the international market.

China's exports of machine tools (%) by category, 2024



In 2023, China's import of machine tool sector is decreasing for most categories, while the total export is approximately unchanged

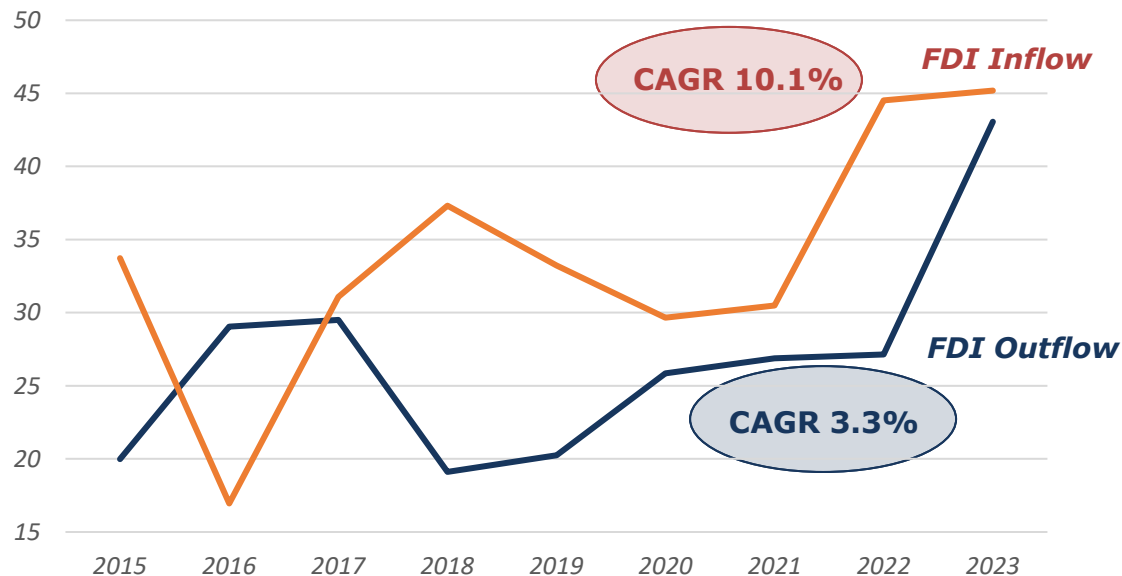
China's import and export of machine tools by category, 2023 (in 100 million USD)



- In 2023, China remained a net exporter in the machine tool sector, with total imports accounting for roughly **60%** of total exports.
- While China's machine tool **imports have declined** across nearly all product categories, export values have remained largely stable. Notably, there has been a significant **increase in exports of metal-cutting and metal-forming machine tools**, contrasted by a decline in other categories.

China's FDI inflows and outflows in the manufacturing sector are overall on an upward slope until 2022, despite sudden slumps in the process

China's FDI in the manufacturing sector,
2015-2022 (in billion USD)



- China's FDI **inflow in the manufacturing sector has been overtaking the outflow** throughout the entire timeframe except in 2016, but the margin is greatly narrowed in 2023 due to the sudden surge of FDI outflow.
- China's FDI inflow has been **steadily increasing, except for the sudden slump in 2016** which decreases FDI inflow by almost a half.
- China's FDI outflow has been **increasing until a significant slump in 2018**, then it is in the process of **recovering to the previous level**, even amid COVID.

China's overall FDI has been plummeting in the past few years, for various reasons, but that doesn't indicate a grim China market for foreign investment

According to the data from State Administration of Foreign Exchange, China's overall FDI was **42.7 billion USD in 2023**, plummeting from around 350 billion USD in 2019, presenting a **CAGR of -41.9% from 2019 to 2023**. But that doesn't mean China's market is grim for foreign investment.

Reason 1:

Since the COVID outbreak in 2020, the global investment environment has been in general downturn. However, China's epidemic prevention/control measures were effective and resumed the work and production earlier than other countries. Thus, the pace of economic recovery at home and abroad was not synchronized, resulting in a certain degree of dislocation in the attraction of foreign capital inflow (foreign companies didn't have enough capacity for investing in China while China could invest outwards).

Reason 2:

Affected by the intensification of the geopolitics power games, the global economy recovery slowdown and the heightening risk of debt, the risk appetite of international investors has dropped significantly, bringing downward pressure on global cross-border direct investment, not just on China.

FDI change in 2023:

- US -3%
- EU (excluding Netherland and Luxemburg) -23%
- India -47%
- Developing economies in Asia -12%

Reason 3:

China's industrial chain is accelerating its transformation toward high-end, intelligent and green production, which correspondingly puts forward higher requirements for the quality of the foreign investment. Also, the increasing innovation ability of Chinese domestic enterprises has intensified market competition and prompted foreign investment to shift to higher-end industries, or otherwise to be wiped out of the market.

Despite the decline of overall FDI in 2023, it's still an overarching trend for multi-national enterprises to increase investment in China

Holistically, the favorable conditions for China's development outweigh the unfavorable factors (reasons as below), and the country's super-sized single market and complete industrial infrastructure are difficult to be replicated.



Steady improvement in the international financial environment

The decline in the scale of China's FDI in 2023 was mainly due to the increase in external debt of foreign countries, against the backdrop of a tightening global financial environment. However, the latest forecast from IMF and the World Bank points out that the global production is expected to continue its stabilizing recover in 2024, leading to a flow of following effects:

Weakening supply chain disturbances - Falling inflation - Lower offshore investment costs - Investors' risk appetites picking up - China's FDI stabilizing and rebounding.



Investment in China has been continuing to generate high returns for foreign companies in the past

According to calculations by the State Bureau of Foreign Exchange, over the past five years, the rate of return on foreign investment is:

China 9.1%;
Emerging Economies 4 to 8%;
Around 3% in Europe and the United States.



China's huge consumer market potential is hard to be replaced

Affected by the increased uncertainty in the international trade environment and the rise in global shipping costs, the reconstruction of the global industrial chain is evolving into closer proximity to the end-consumption market.

According to the research by McKinsey, the consumer market size in China is expected to exceed that of Europe and the United States combined in 2035.



High-level opening-up investment policies are falling into place

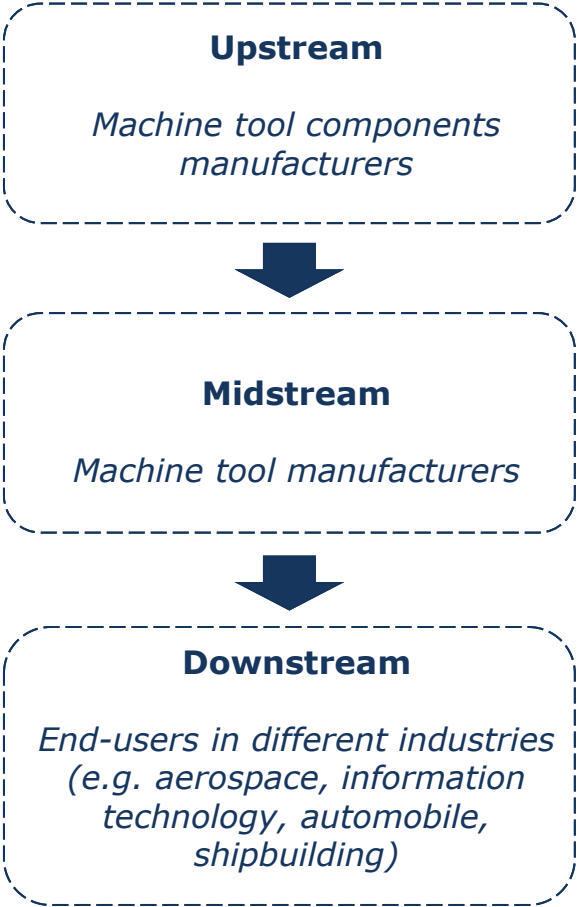
Since 2024 started, central and local governments have been introducing policies to attract foreign investment and optimize the investment environment, covering the areas of cross-border services trade, cross-border data flow, financial liberation, etc.

- 1)The new version of the "2024 Negative List for Foreign Investment Access" will be introduced soon, where there will be no more restrictions on foreign investment access in the manufacturing sector.
- 2)In March 2024, China also introduced the first version of "the Negative List for Cross-Border Trade in services, with the next step being to expand market access in areas such as digital products, telecommunications and healthcare.

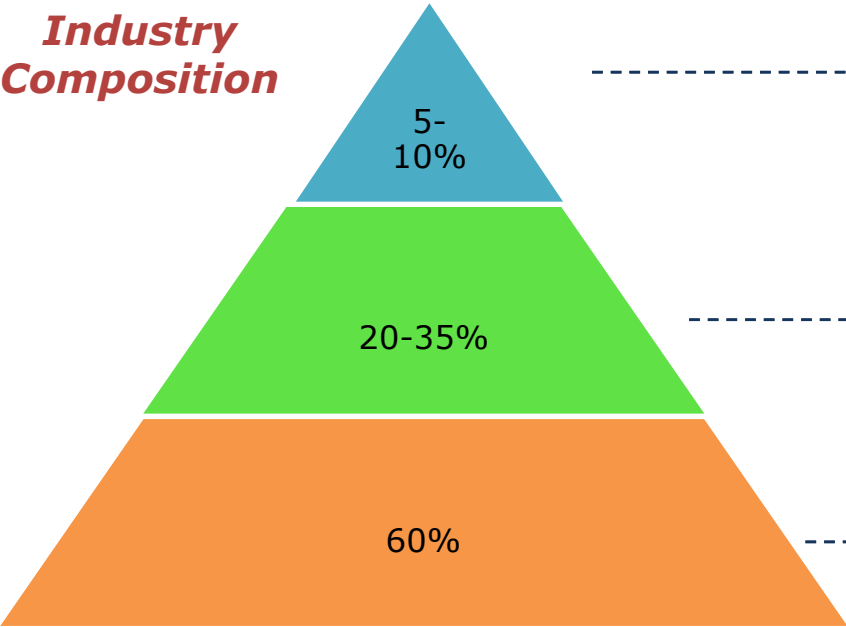
In the first two months of 2024, the number of newly established foreign-invested enterprises in China increased by 34.9% YOY.

Foreign manufacturers dominate China's high-end machine tools, while local firms focus mostly on the low-to-mid range

Upstream-downstream flow



Industry Composition



High-end market: mostly imported, and are dominated by American, German, Japanese and Spanish companies for a long time.

Mid-end market: The main area where Chinese companies and foreign companies compete.

Low-end market: Dominated by local manufacturers competing on quantity and low prices.



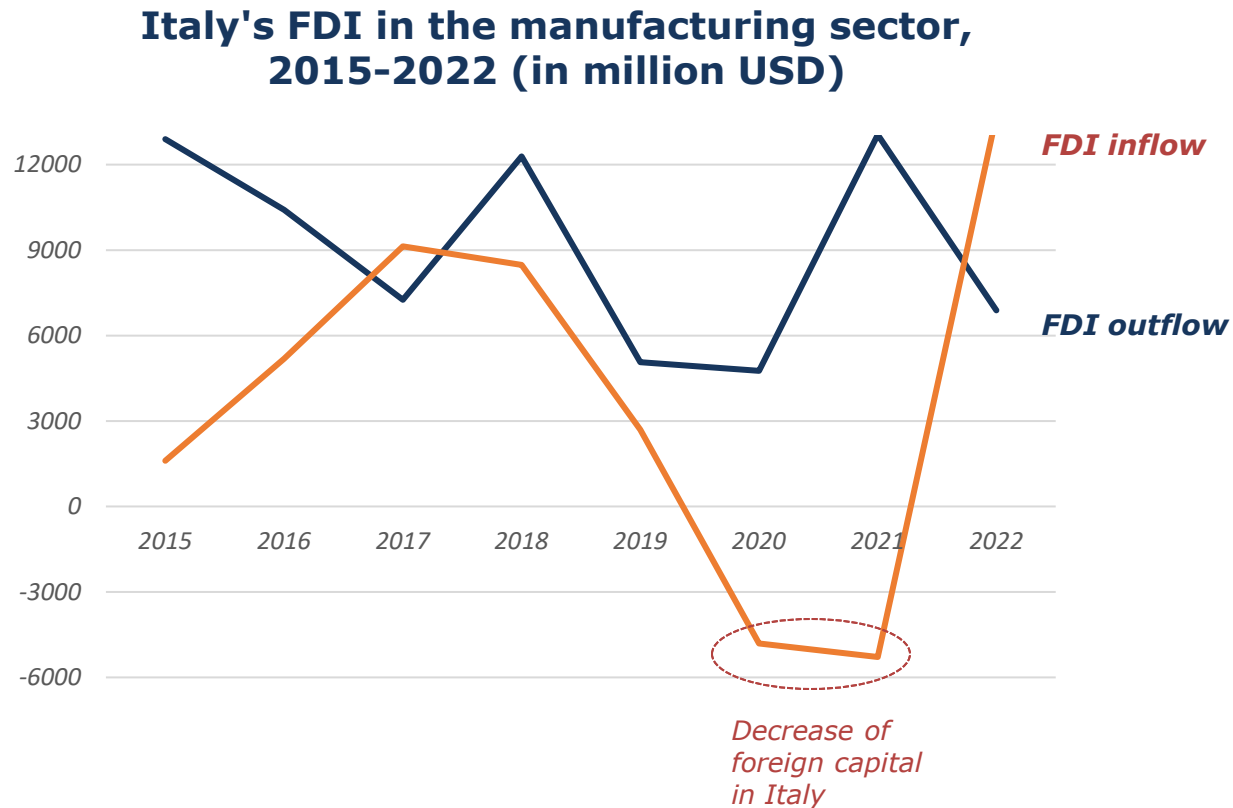
Major local players 	Major foreign players in China 
<ul style="list-style-type: none"> Shenyang Machine Tool Co., Ltd (SMTCL) Dalian Machine Tool Group Corporation Qinchuan Machine Tool Group Co., Ltd (QCMTT) Qizhong CNC Equipment Co., Ltd. Qiqihar No.2 Machine Tool Group Co., Ltd. 	<ul style="list-style-type: none"> DMG Mori China ,Co. Ltd Shanghai(HQ) Trumpf Metal Products (Dongguan) Co. Ltd Amada China Co. Ltd. Shanghai Mazak China Okuma (Changzhou) Machine Tool Co. Ltd

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Italy's FDI inflow and outflow in the manufacturing sector have both been hugely fluctuating, with no clear trend being revealed for the future

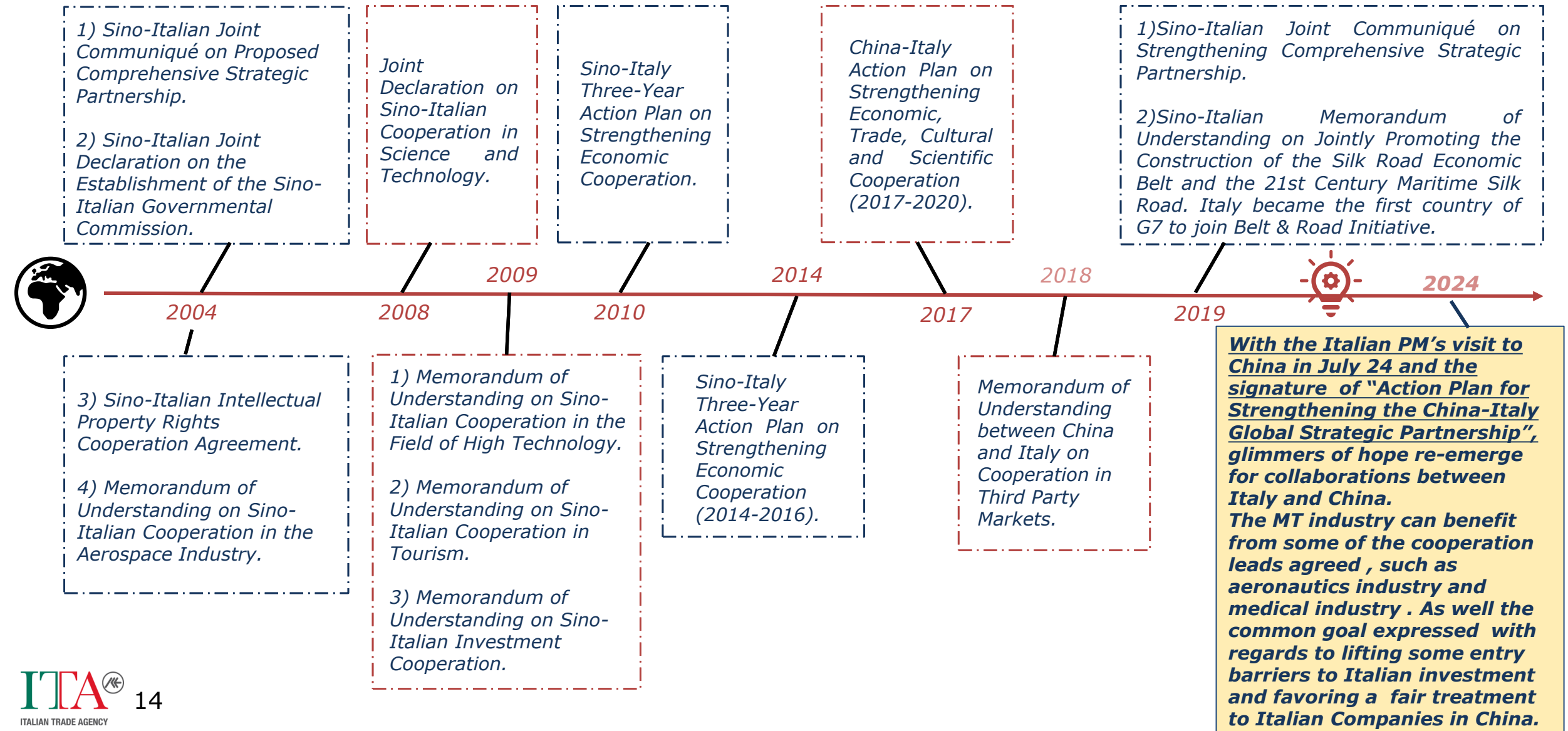


Neither Italy's FDI inflow nor outflow in the manufacturing sector is showing a clear pattern of growth, making it hard to forecast the future FDI dynamics.

Different from China, Italy's FDI outflow exceeds inflow for the majority of the time.

Italy's FDI inflow has been plummeting from 2018 to 2021, even down to negative values during COVID outbreak (2020 and 2021), before a tremendous increase beginning in 2022.

China and Italy has signed a series of significant bilateral agreements since 2004, but this process seems to be halted since 2020



Italy's machine tool trade with China is weakening across most categories, but metal-forming exports are on the rise

Italy's import from China

	Value (in million Euros)	YOY change
Metal-cutting machine tools	7.3	0.2%
Metal-forming machine tools	4.1	-33.8%
Non-conventional machine tools	8.2	-11.50%
Total	19.6	-11.8%

Italy's export to China

	Value (in billion Euros)	YOY Change
Metal-cutting machine tools	57	8.7%
Metal-forming machine tools	15.9	18.2%
Non-conventional machine tools	4.5	15.7%
Total	77.4	12.80%

Italy's trade in the machine tool sector with oriental Asia as a whole (import -41.2%, export +37.3%) is showing a similar pattern to Italy's trade with China, with Italy's machine tool imports on the decline and exports on the rise on a broad basis, based on the data on April 2024).

Italy's machine tool import from China is dropping for most product categories, except a negligible increase in metal-cutting machine tools. On the contrary, Italy's machine tool export to China is displaying a significant increase for all product categories (and in total as well).

Italian firms can thrive in China by innovative customizable products, enhancing aftersales service, and developing high-tech tools

Market Potential

- 1) Western manufacturing companies usually focus on providing high-quality finalized products whereas Chinese competitors satisfy the growing customer demand by providing customized & upgradeable products. Take automobile industry for example, Chinese companies tend to install sensors and actuators ahead of real implementation, which can support upgrades later on, whereas western companies hardly do this apart from Tesla.
- 2) Aftersales services are perceived as a key disadvantage of European manufacturers. Firstly, aftersales services are not timely mainly because some important foreign staff are not in China. Secondly, some technical knowledge are not accessible to Chinese technicians and authorization is not given to them, meaning they cannot solve certain critical problems.
- 3) China's growing emphasis on high-tech machine tools has triggered a demand for high-end high-precision machine tools, 5-axis machine tools and specialized machine tools to produce certain parts of the machine.

Actions that can be implemented

- 1) Italian enterprises could make effort in providing customized, more easily upgradeable products to help clients reduce costs and improve efficiency.
- 2) Italian suppliers can make sure there are enough foreign aftersales service staff in China, and can consider transferring more necessary critical knowledge to local technicians, in reasonable terms.
- 3) Italian enterprises can increase the R&D investment to develop more high-end machine tools. Note that high-end machine tools are most acceptive by the automotive industry in China, but aerospace and railway industries are also looking for providers.



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China's latest economy and market performance summary

- China's economy **maintains an upward trend**, despite a temporary fluctuation in the second season.
- China's economy shows **positive signs** in the aspects of consumer market, employment situation and industrial production.
- According to most recent economic data, China's manufacturing industry displays a **stable outlook**, albeit a mild deterioration.
- Despite the overall decline, China's machine tool industry shows **promise in specific sub-sectors**.

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China's economy in 2024 maintains an upward trend, despite a temporary fluctuation in the second season

Possible reasons for the lower growth in the second season

First season GDP:
+5.3% year-on-year

Severe extreme weather events



Second season GDP:
+4.7% year-on-year

Flooding disasters



The value-added of the

First industry:
+3.5% year-on-year (3,066 billion RMB)



Second Industry:
+5.8% year-on-year (23,653 billion RMB)



Third Industry:
+4.6% year-on-year (34,965 billion RMB)



China's **GDP** displays a positive growth, reaching

61,684 billion RMB.

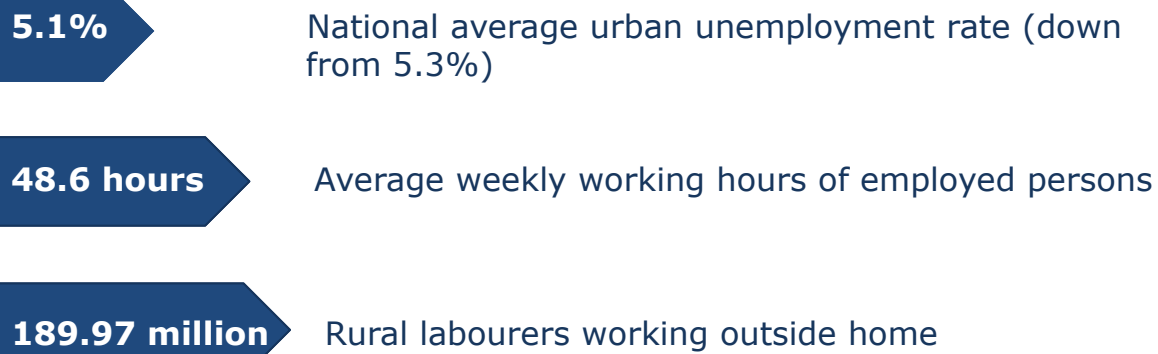
According to the preliminary estimates from the Chinese Bureau of Statistics

China's economy shows positive signs in the aspects of consumer market, employment situation and industrial production

Moderate pick-up of consumer prices

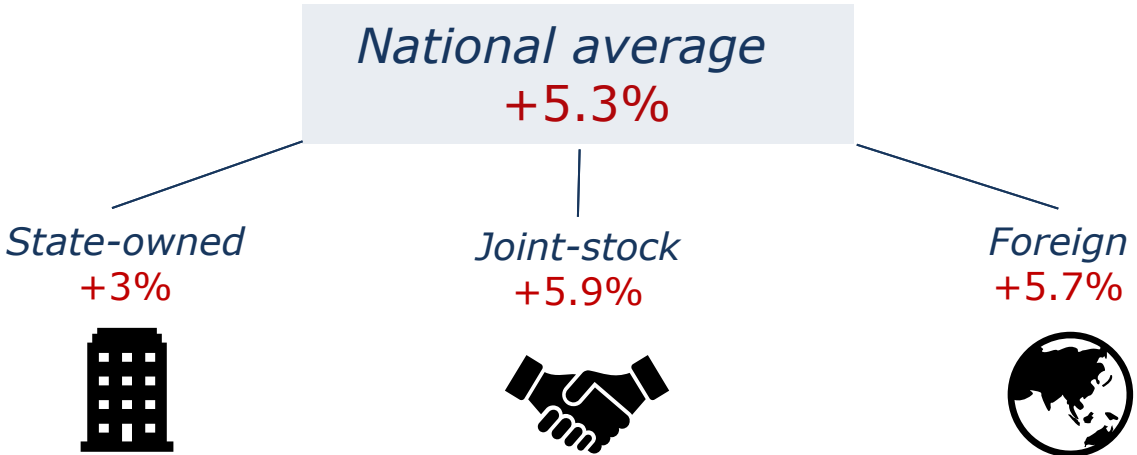


Generally stable labour market, with unemployment rate falling



Decent growth in industrial production

Value-added by enterprise type (companies above the designated size)



Value-added by Product type

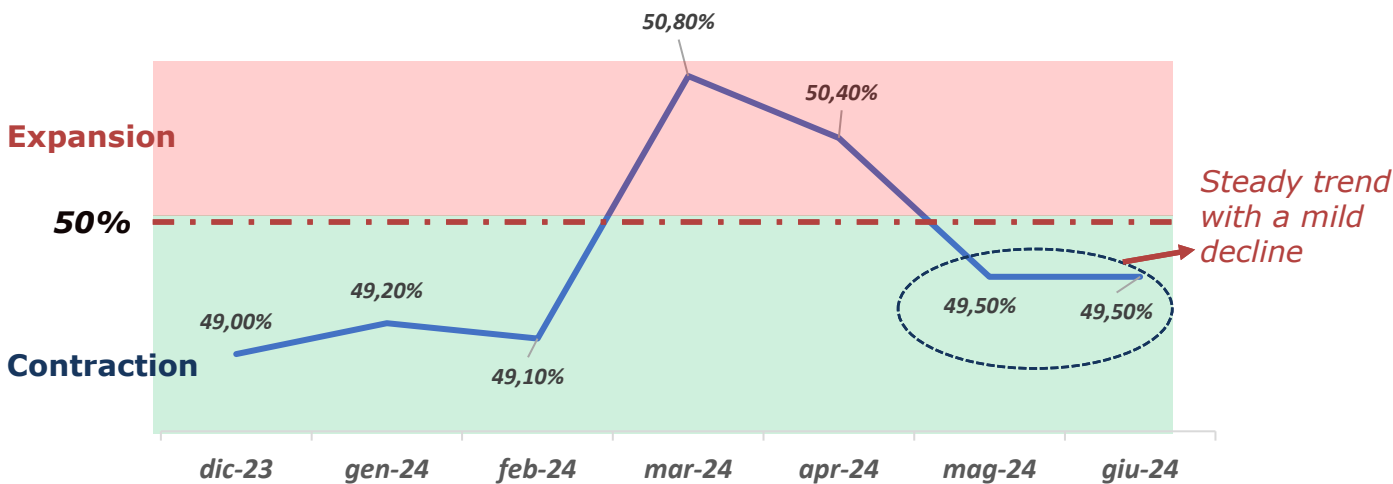
Steel	+3.2%
Cement	10.7%
Non-ferrous metal	7.5%
Automotive	1.8%

New-energy vehicles exhibits the most rapid growth at **37%**, sitting at 1.025 million units.

According to data from June 2024

According to most recent economic data, China's manufacturing industry displays a stable outlook, albeit a mild deterioration

Seasonal Adjusted Purchasing Manager Index (Dec 2023 - Jun 2024)



In the recent 2 months (May, June 2024), the PMI indexes remain unchanged at 49.5%, indicating a stable outlook, despite a slight decline, of China's manufacturing industry.

Note:
PMI index >50%: Industry expansion (compared to prior month)
PMI index =50%: Industry equal balance
PMI index <50%: Industry contraction

	Dec-23	Jan-24	Feb-24	Mar-24	April-24	May-24	Jun-24
New demand	48.7	49	49	53	51.1	49.6	49.5
Raw material inventory	47.7	47.6	47.4	48.1	48.1	47.8	47.6
Employee	47.9	47.6	47.5	48.1	48	48.1	48.1
Delivery Time	50.3	50.8	48.8	50.6	50.4	50.1	49.5

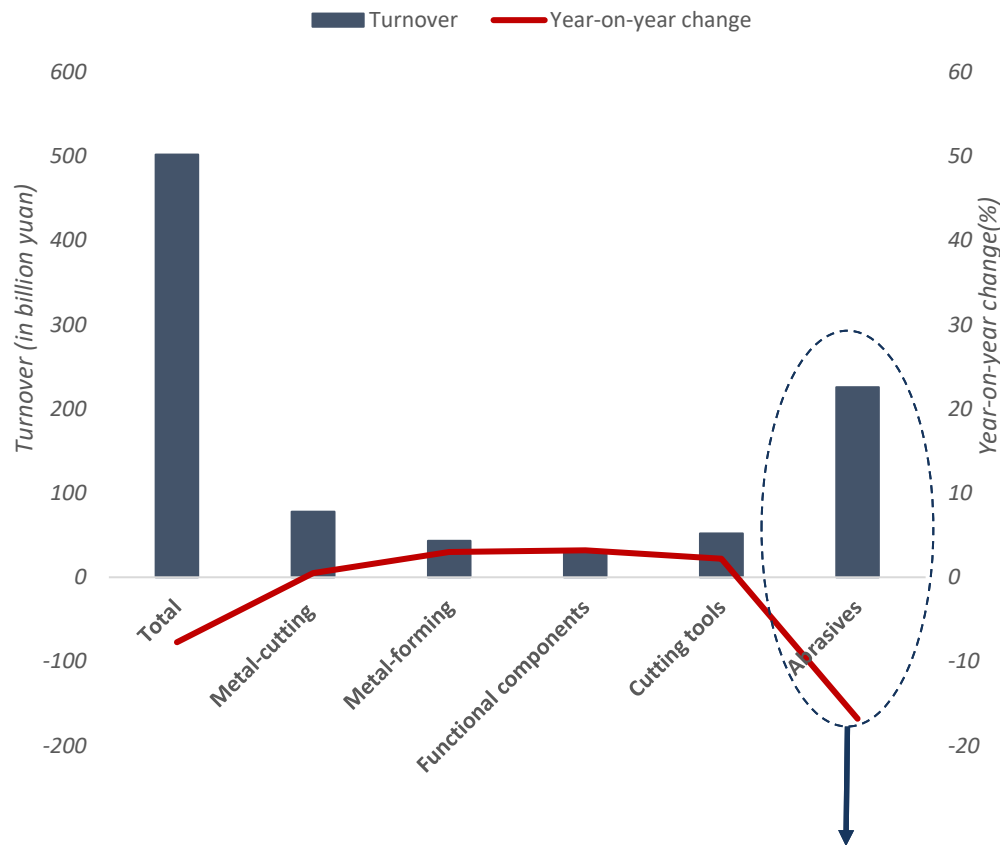
- ➔ An overall **slight decline** in the manufacturing industry demand.
- ➔ The inventory of raw materials continue to **decrease**.
- ➔ The employment situation is **worsening marginally**.
- ➔ The delivery time is showing a **general extension**.

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China's machine tool industry looks perspective in certain sub-sectors, despite the general decline (1/2)

China's machine tool industry turnover, by product category (Jan-Jun 2024)

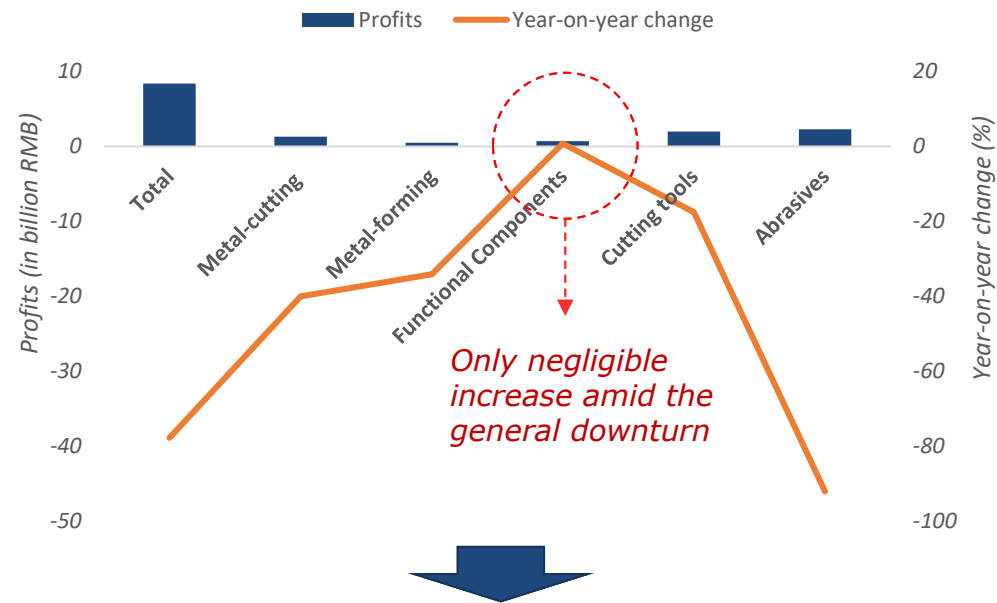


The only and biggest decrease among all machine tool product categories.

- China's machine tool industry experiences a **7.7% decline** in terms of turnover, attributed solely to abrasives which takes the biggest market share among all product categories but displays the biggest decrease **(-16.8%)**.
- The turnover of metal-cutting machine tools remains **approximately unchanged**, while many other categories (Metal-forming machine tools, functional components and cutting tools) shows **a mild increase at 2-4%**.

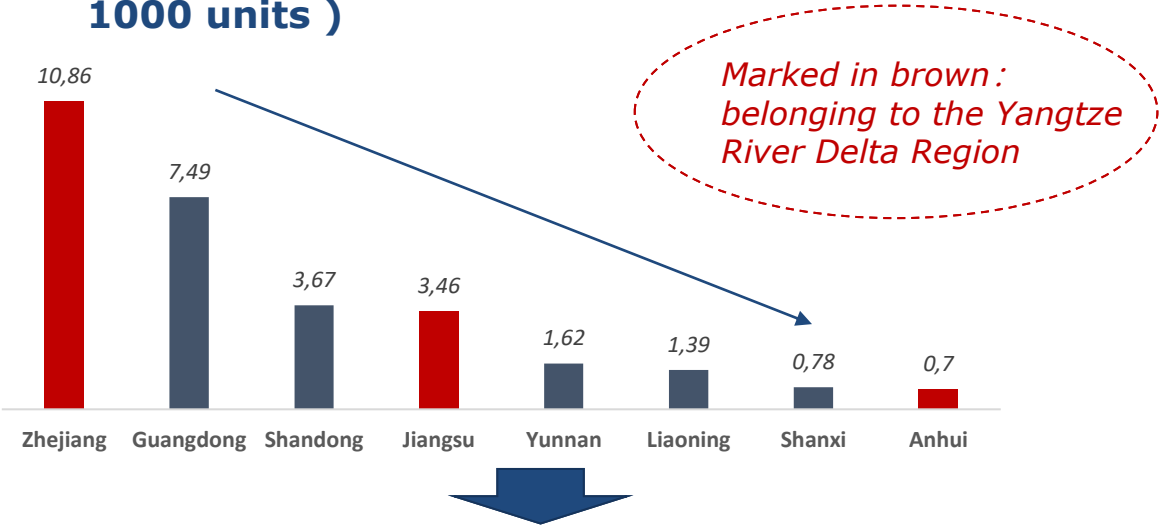
China's machine tool industry looks perspective in certain sub-sectors, despite the general decline (2/2)

China's machine tool industry profits, by product category (Jan-Jun 2024)



Different from the trends observed from the diagram of turnover, the profit diagram shows an obvious downturn for all product categories, except a negligible increase for functional components.

Production quantity of metal-cutting machine tools in China's major manufacturing cities (Jan-Jun 2024, in 1000 units)



According to data from January to June 2024, Zhejiang topped the list in metal-cutting machine tool production (10.86 thousand units), followed by Guangdong and Shandong.

The Yangtze River Delta Region (Zhejiang, Jiangsu, Anhui) are the largest production base for metal-cutting machine tools.

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Supply analysis: China's machine tool manufacturers summary

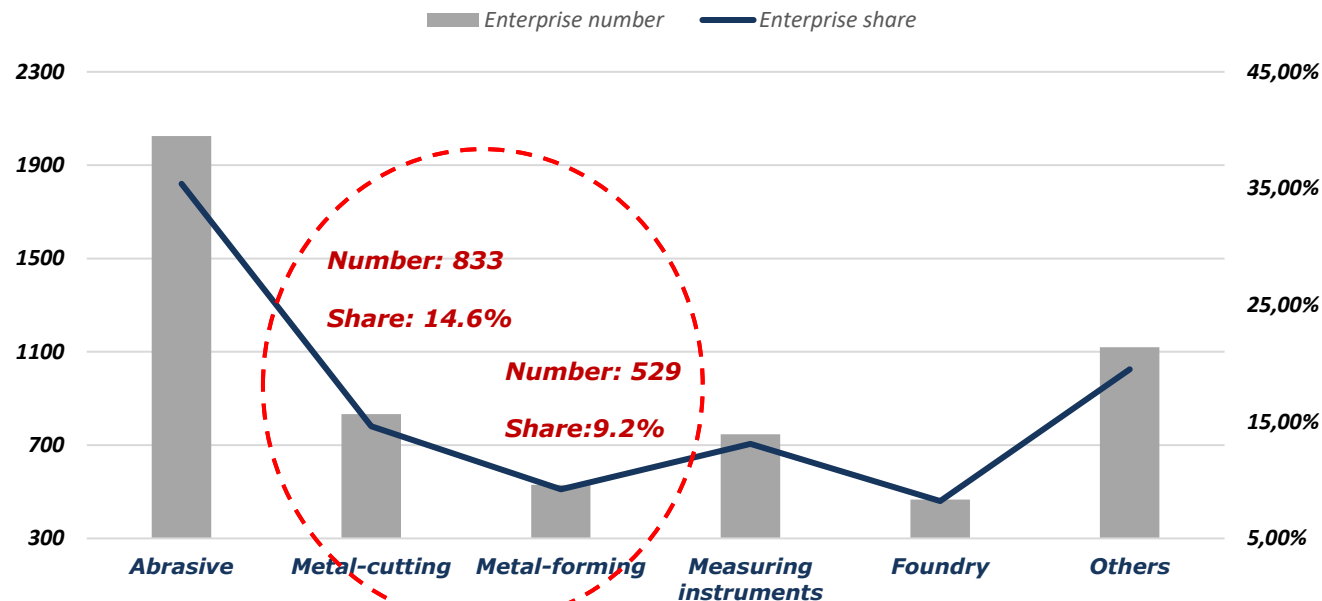
- China's machine tool enterprises can be segmented by product categories, with **metal-cutting machine** tool enterprises **outnumbering metal-forming ones**.
- **East China is the hub** for machine tool companies, most densely concentrated in the Yangtze River Delta Region.
- China's leading machine tool manufacturers tend to be **publicly listed CNC companies** positioned in the second tier, trying to catch up with global leading powers.
- Company introduction: China's top 20 machine tool manufacturers.
- Product/Application information: China's top 20 machine tool manufacturers.
- Company profiles – China's top 20 machine tool manufacturers.

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China's machine tool enterprises can be segmented by product categories, with metal-cutting machine tool enterprises outnumbering metal-forming ones

Number and share of China's machine tool enterprises (above the designated size) by product category, 2020



Metal-cutting machine tool enterprises outnumber metal-forming machine tools enterprises by a significant margin.

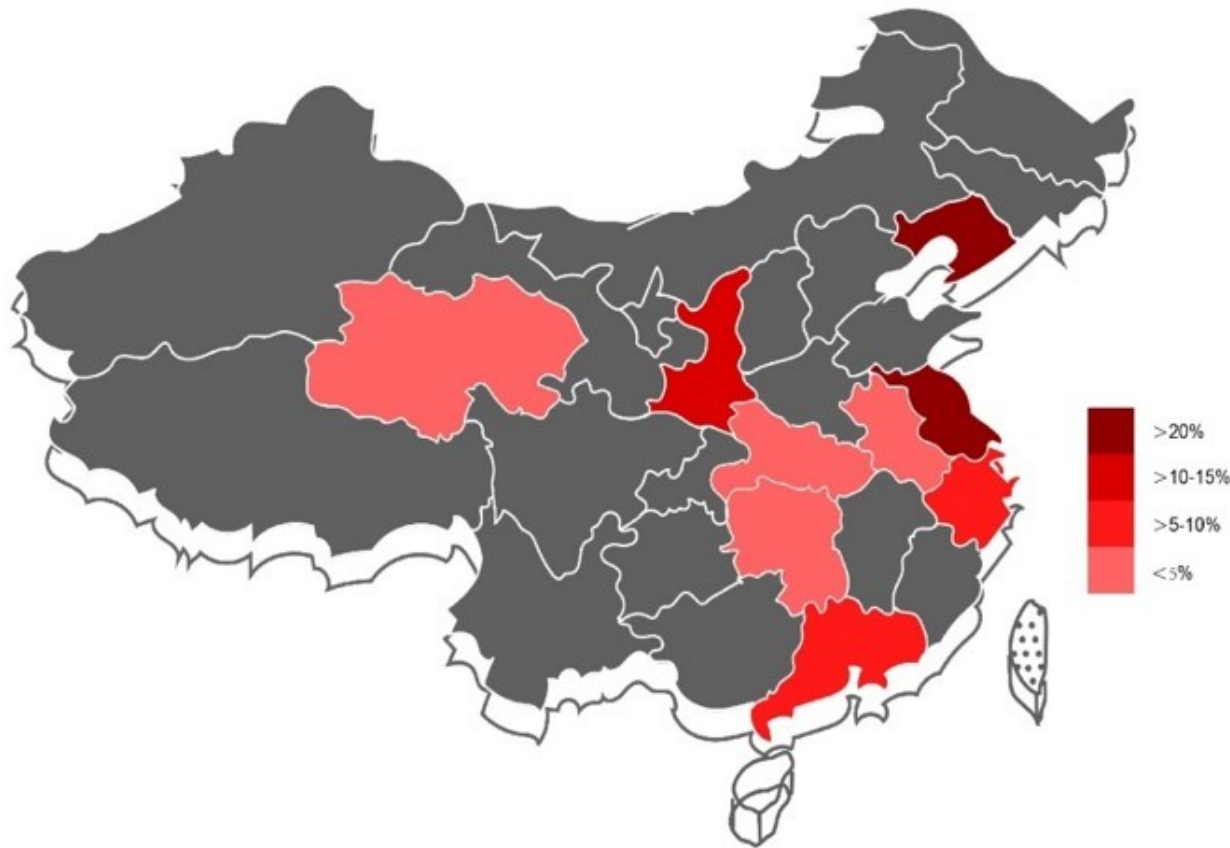
China has a variety of machine tool manufacturing enterprises, with abrasive producers (number) topping the list.

The number of metal-cutting enterprises exceeds that of metal-forming enterprises by approximately 300.

*No official data from the authority was disclosed beginning 2021.

East China is the hub for machine tool companies, most densely concentrated in the Yangtze River Delta Region

Machine tool companies' concentration in mainland China



East China is the main hub for the manufacturers of the machine tool sector, with Liaoning and Jiangsu provinces having the highest industry concentration, followed by other main industrial provinces in Southern part of China such as Zhejiang and Guangdong.

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China's top machine tool manufacturers are mainly publicly listed CNC companies in the second tier, striving to catch up with global leaders

*Based on the 2023 annual reports of the companies under consideration, a comprehensive ranking system is established to reflect each company's business competence, focusing on **four key attributes** as below:*

Registered capital	-----	Main indicator of a company's financial capacity and potential fund-raising ability.
Annual revenue	-----	Insights into the company's market presence and financial performance.
R&D investment	-----	Indicating the company's commitment to innovation and technological advancement.
R&D investment/total revenue (%)	-----	Reflects the importance of research and development within the company's overall strategy.



- The majority of China's machine tool manufacturers are positioned in the second-to-third tier in the industry landscape, competing at low prices and production efficiency.
- However, there are also a number of manufacturers located in the first tier, lead by Qinchuan and Ningbo Haitian, which are competing with foreign manufacturers at quality & advanced technology in the China market.

Four key attributes—capital, revenue, R&D investment, and R&D investment percentage—are used to rank major publicly listed Chinese companies (1/2)

Rank	Company name	Registered capital (million RMB)	score (Fx - LN)	Annual revenue 2023 (Million RMB)	score (Fx - LN)	Investment R&D (Million RMB)	score (Fx - LN)	% RD investment /annual revenue	score (0-5)	Tot Score
1	Guangdong Create Century Intelligent Equipment Group Co., Ltd.	1685.09	7.43	3529	8.17	139.02	4.93	4%	3	15.64
2	Qinchuan Machine Tool & Tool Group Share Co., Ltd.	1009.89	6.92	3761	8.23	199.40	5.30	5%	3	15.20
3	Generic Shenyang Machine Tool Co., Ltd.	2064.75	7.63	1501	7.31	7.78	2.05	1%	3	14.95
4	Ningbo Haitian Precision Machinery Co., Ltd.	522	6.26	3323	8.11	136.66	4.92	4%	3	14.41
5	Zhejiang Rifa Precision Machinery Co., Ltd.	800.24	6.68	2083	7.64	62.38	4.13	3%	3	14.36
6	Zhejiang Tianma Bearing Group Co., Ltd.	1990.18	7.60	801	6.69	44.45	3.79	6%	4	14.34
7	Jiangsu Yawei Machine Tool Co., Ltd.	549.76	6.31	1928	7.56	121.17	4.80	6%	4	13.94
8	Neway CNC Equipment (Suzhou) Co., Ltd.	326.67	5.79	2321	7.75	101.93	4.62	4%	3	13.58
9	Wuxi Huadong Heavy Machinery Co., Ltd.	1007.69	6.92	671	6.51	34.41	3.54	5%	3	13.48
10	Wuhan Huazhong Numerical Control Co., Ltd.	198.69	5.29	2115	7.66	307.92	5.73	15%	5	13.09
11	JDM Jingda Machine (Ningbo) Co., Ltd.	437.89	6.08	709	6.56	33.91	3.52	5%	3	12.69
12	Hunan Yujing Machinery Co., Ltd.	203.96	5.32	1304	7.17	79.94	4.38	6%	4	12.55
13	Nantong Guosheng Electromechanical Industry Co., Ltd.	132	4.88	1104	7.01	55.28	4.01	5%	3	11.94
14	Hiecise Precision Equipment Co., Ltd.	252.17	5.53	479	6.17	33.62	3.51	7%	4	11.77
15	Sijin Intelligent Forming Machinery Co., Ltd.	236.62	5.47	486	6.19	19.86	2.99	4%	3	11.69
16	Yuhuan Numerical Control Machine Tools Co., Ltd.	155.87	5.05	420	6.04	40.51	3.70	10%	4	11.19
17	Zhejiang Haideman Machine Tools Manufacturing Co., Ltd.	75.88	4.33	664	6.50	42.53	3.75	6%	4	10.89
18	Kede Numerical Control Co., Ltd.	101.7	4.62	452	6.11	26.78	3.29	6%	4	10.80
19	Weihai Huadong Automation Co., Ltd.	80	4.38	279	5.63	12.06	2.49	4%	3	10.06
20	Heatking Induction Technology (Shiyan) Co., Ltd.	134	4.90	74	4.30	11.61	2.45	16%	5	9.36

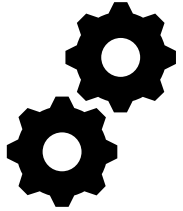
Note: Annual revenue and R&D investment figures are referenced from the 2023 annual reports of these companies.

Four key attributes—capital, revenue, R&D investment, and R&D investment percentage—are used to rank major publicly listed Chinese companies (2/2)



- For attributes 1-3 (registered capital, annual revenue, R&D investment), we simply score and rank the companies by applying the natural logarithm (\ln) due to its mathematical simplicity and consistency in interpretation across different scales.
- For attribute 4, R&D Investment as a Percentage of Total Revenue, we score the companies based on the following scoring system:
 - More than 10%: 5 (perfect score)
 - 6-10%: 4
 - 3-5%: 3
 - Less than 3%: 2

Company introduction: China's top 20 machine tool manufacturers (1/2)



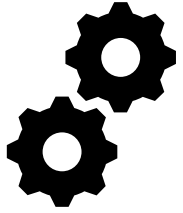
China's top 10 machine tool manufacturers (in descending order by revenue)

Additional Notes

China has maintained its status as world's **largest machine tool producers, importers and consumers**. However, China's domestic products are mostly **targeting mid-to-low end** users with **little supply of high-end CNC products**, therefore lacking behind the global leading powers such as Germany, Japan, and the United States.

Company name	Year of establishment & HQ	Registered capital (million RMB)	Revenue 2023 (Billion RMB)
Qinchuan Machine Tool & Tool Group Share Co., Ltd.	1998 Shaanxi	1009.89	3.76
Guangdong Create Century Intelligent Equipment Group Corporation Limited	2003 Guangdong	1685.09	3.53
Ningbo Haitian Precision Machinery Co., Ltd.	2002 Zhejiang	522.00	3.32
Neway CNC Equipment (Suzhou) Co., Ltd.	1997 Jiangsu	326.67	2.32
Wuhan Huazhong Numerical Control Co., Ltd.	1994 Hubei	198.69	2.11
Zhejiang Rifa Precision Machinery Co., Ltd.	2000 Zhejiang	800.24	2.08
Jiangsu Yawei Machine Tool Co., Ltd.	2000 Jiangsu	549.76	1.93
Generic Shenyang Machine Tool Co., Ltd.	1993 Liaoning	2064.75	1.5
Hunan Yujing Machinery Co., Ltd.	1998 Hunan	203.96	1.3
Nantong Guosheng Electromechanical Industry Co., Ltd.	1999 Jiangsu	132	1.1

Company introduction: China's top 20 machine tool manufacturers (2/2)



China's 11th -20th machine tool manufacturers (in descending order by revenue)

Additional Notes

Although companies listed at the right-hand-side are **not as competitive in terms of revenue**, in comparison to top 10 companies, yet they **still play an unneglectable role** in the machine tool landscape and **launch innovative products applying cutting-edge technology**.

Company name	Year of establishment & HQ	Registered capital (million RMB)	Revenue 2023 (million RMB)
Zhejiang Tianma Bearing Group Co., Ltd.	2002	1990.18	801
JDM Jingda Machine (Ningbo) Co., Ltd.	2002	437.89	709
Wuxi Huadong Heavy Machinery Co., Ltd.	2004	1007.69	671
Zhejiang Haideman Machine Tools Manufacturing Co., Ltd.	1993	75.88	664
Sijin Intelligent Forming Machinery Co., Ltd.	1993	236.62	486
Hiecise Precision Equipment Co., Ltd.	2007	252.17	479
Kede Numerical Control Co., Ltd	2008	101.70	452
Yuhuan Numerical Control Machine Tools Co., Ltd.	2004	155.87	420
Weihai Huadong Automation Co., Ltd.	2002	80.00	279
Heatking Induction Technology (Shiyan) Co., Ltd.	2002	134.00	74

Product/Application information: China's top 20 machine tool manufacturers (1/4)

No.	Company	Main CNC products	Top 3 application industries
1	Qinchuan Machine Tool & Tool Group Share Co., Ltd.	Gear grinders, thread grinders, cylindrical grinders, hobbing machines, gear turning machines, general CNC lathes and machining centres, gantry turning, milling and boring composite machining centres, precision and efficient broaching machines, plastic machinery (hollow machine) and other high-end CNC equipment.	<ul style="list-style-type: none"> Aviation, aerospace, navigation (such as aircraft engines and marine gas turbines) Auto & EV Rail
2	Guangdong Create Century Intelligent Equipment Group Corporation Limited	Drilling and milling machining centre, vertical machining centre, gantry machining centre, horizontal machining centre CNC lathe, precision carving machining centre, and five-axis machining centre.	<ul style="list-style-type: none"> 3C products (the 3C sector has always been its main field of application) Auto & EV Mould
3	Ningbo Haitian Precision Machinery Co., Ltd.	CNC gantry machining centre, CNC horizontal machining centre, CNC horizontal lathe, CNC vertical machining centre, CNC vertical lathe.	<ul style="list-style-type: none"> Aviation & Aerospace Rail Auto parts and mould
4	Neway CNC Equipment (Suzhou) Co., Ltd.	Large machining centre, vertical CNC machine tools, horizontal CNC machine tools.	<ul style="list-style-type: none"> Auto & EV Mould Hydraulics
5	Wuhan Huazhong Numerical Control Co., Ltd.	CNC lathe, CNC milling machine, CNC machining centre, CNC grinder, high-end CNC system	<ul style="list-style-type: none"> CNC (to supply its CNC system to other major CNC producers) Aviation, Aerospace, shipping Auto & EV

Product/Application information: China's top 20 machine tool manufacturers (2/4)

No.	Company	Main CNC products	Top 3 application industries
6	Zhejiang Rifa Precision Machinery Co., Ltd.	<i>In 2014, Rifa Precision Machinery acquired 80% of the equity of Italian MCM Spa (Italy). MCM is the world's leading manufacturer of large horizontal machining centres, heavy-duty machine tools and key components. This has boosted the production capability of Zhejiang Rifa on high-end machines.</i>	<ul style="list-style-type: none"> Aviation & Aerospace Auto & EV Energy and oil and gas
7	Jiangsu Yawei Machine Tool Co., Ltd.	<i>CNC bending machines, CNC turret punches, presses and other host products, as well as sheet metal automated flexible processing equipment, coil processing machinery, etc.</i>	<ul style="list-style-type: none"> Home appliances 3C Auto & EV
8	Shenyang Machine Tool Co., Ltd.	<i>CNC lathes, CNC milling and boring machines, vertical machining centres, horizontal machining centres, gantry machining centres, CNC drilling machines, heavy and large CNC machine tools, high-speed milling centres, laser cutting machines.</i>	<ul style="list-style-type: none"> Auto & EV Aviation & Aerospace Mould
9	Hunan Yujing Machinery Co., Ltd.	<i>Positioned in the field of precision processing machine tools for hard and brittle materials, mainly multi-wire cutting machines, grinding and polishing machines and other precision processing machine tools for hard and brittle materials.</i>	<ul style="list-style-type: none"> Auto & EV Photovoltaic Rail
10	Nantong Guosheng Electromechanical Industry Co., Ltd.	<i>Focus on CNC metal cutting machine tools including five-axis five-linkage gantry, five-axis five-linkage vertical machining, high-speed and high-precision vertical machining, high-speed and high-precision gantry, precision horizontal machining, horizontal boring, large and complex gantry, pentahedral gantry, turning-milling machine tools.</i>	<ul style="list-style-type: none"> Shipping (i.e. marine engine block) Aviation & Aerospace Auto & EV

Product/Application information: China's top 20 machine tool manufacturers (3/4)

No.	Company	Main CNC products	Top 3 application industries
11	Zhejiang Tianma Bearing Group Co., Ltd.	CNC heavy horizontal machine tools, heavy duty deep hole drilling and boring machine, roll lathe, vertical grinder, vertical gear milling machine	<ul style="list-style-type: none"> Automotive New energy Machinery manufacturing and other industries
12	JDM Jingda Machine (Ningbo) Co., Ltd.	High speed precision press, heat exchanger equipment, servo press, stamping equipment, other forming equipment	<ul style="list-style-type: none"> Automotive Home appliances Machinery
13	Wuxi Huadong Heavy Machinery Co., Ltd.	Metal forming machine tools, mining and construction equipment ,environmental protection equipment ,customized equipment	<ul style="list-style-type: none"> Heavy industrial fields such as steel, mining, and ports
14	Zhejiang Haideman Machine Tools Manufacturing Co., Ltd.	Multi-axis turning center, horizontal turning center ,vertical CNC lathe , automated production line	<ul style="list-style-type: none"> Automotive Aerospace Engineering machinery
15	Sijin Intelligent Forming Machinery Co., Ltd.	CNC stamping production line ,CNC forming center ,pipe forming equipment ,flexible welding production line	<ul style="list-style-type: none"> Smart manufacturing New energy

Product/Application information: China's top 20 machine tool manufacturers (4/4)

No.	Company	Main CNC products	Top 3 application industries
16	Hiecise Precision Equipment Co., Ltd.	Precision stamping equipment, precision injection ,moulding equipment ,automated production line, testing Equipment	<ul style="list-style-type: none"> Automotive Rail Aerospace
17	Kede Numerical Control Co., Ltd	CNC machine tools, CNC system, machine tool accessories, industrial software	<ul style="list-style-type: none"> Heavy industry New energy
18	Yuhuan Numerical Control Machine Tools Co., Ltd.	CNC lathe, CNC milling machine, CNC drilling machine, CNC grinder, automated production line	<ul style="list-style-type: none"> Aerospace Automotive Mould Machine tool
19	Weihai Huadong Automation Co., Ltd.	CNC machine tools, CNC system, machine tool accessories, robotics and automation systems, industrial Internet Platform	<ul style="list-style-type: none"> Aerospace Shipbuilding Steel
20	Heatking Induction Technology (Shiyan) Co., Ltd.	Mid- to high-end CNC induction hardening machine tools , induction heating equipment,induction power supply, solenoid valves and electric actuators, smart manufacturing solutions, industrial furnace	<ul style="list-style-type: none"> Automotive Induction heating and heat treatment fields in machinery

China's top 20 machine tool manufacturers

For further information on Chinese companies

Open access information

ITA Beijing can provide a report from China's National Enterprise Credit Information Publicity System with public information on the company (license number, legal representative, shareholders, address, etc.)

Confidential information

ITA Beijing can provide a report with updated information — the availability of which may vary depending on the country — on the requested foreign operator, such as: company name, address, telephone number and website, business carried out, legal form, constitutive data, financial situation, summary and synthetic opinion on the economic-financial situation and solvency.

Requests for services must be submitted after registration (or log-in) to ITA portal:

<https://www.ice.it/it/area-clienti/login>

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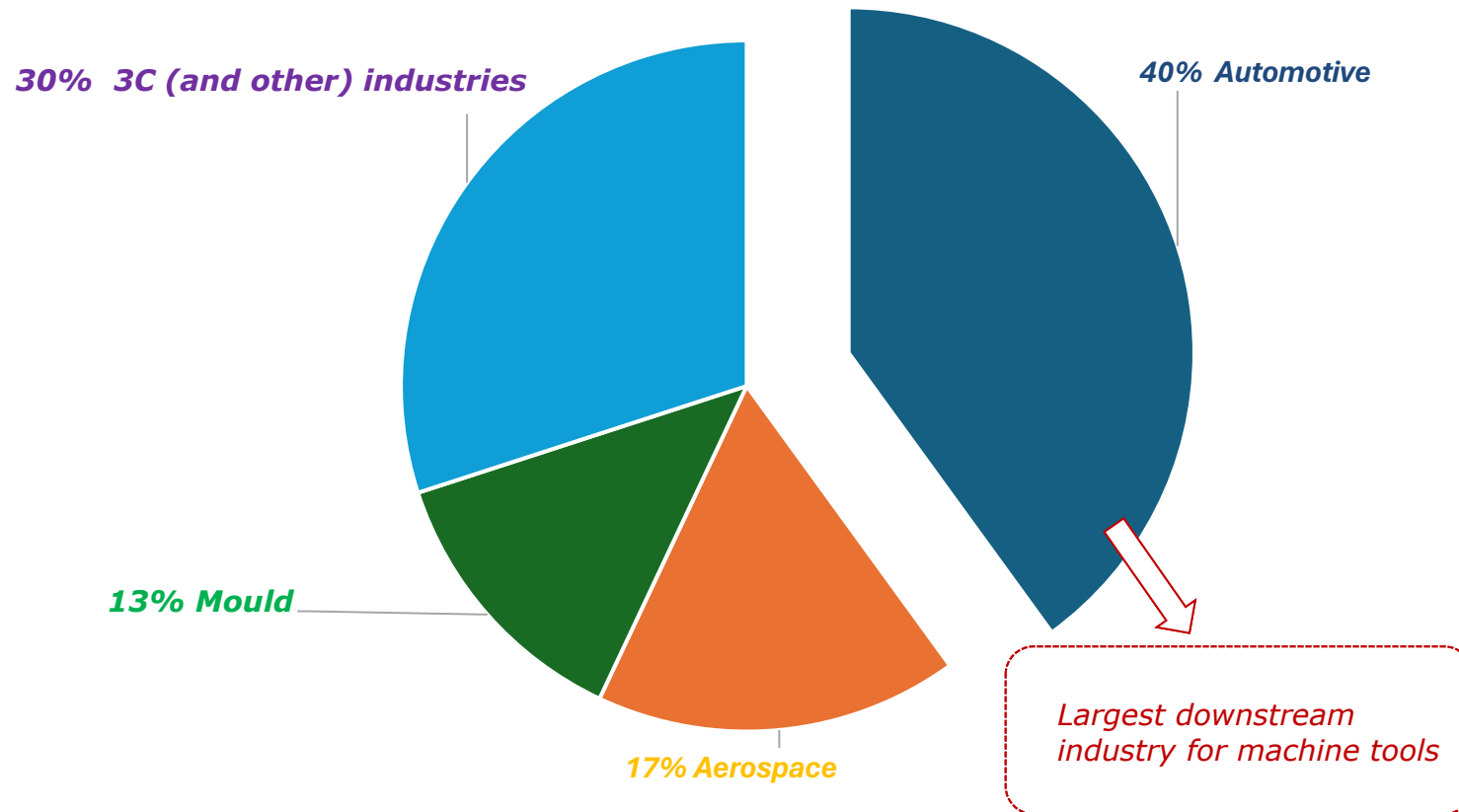
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Demand analysis: downstream application summary

- The machine tool industry plays a **crucial role for key downstream sectors** in China, including automotive, moulds and aerospace Industries.
- As the largest downstream industry for machine tools, **the automotive sector** continues to experience **remarkable expansions**, supported by a variety of government policies.
- From 2021 to 2023, China's auto production experienced a CAGR of 15.8%, while **electric vehicle (EV)** production surged with a CAGR of 64.6%.
- Auto manufacturing enterprises are concentrated in first- and second-tier cities with developed economies and strong industrial foundations .
- China's automotive industry is at the **forefront of cutting-edge technologies** like automation, robotics and AI which can drive efficiency, quality and sustainability.
- **Moulds Making Industry** , as another major downstream sector for machine tools, have widespread applications in both defense and civil industries, particularly in home appliances and automotive .
- China's moulds industry (**the largest in the world**) has seen a steady growth in recent years, with the market size close to 350 billion RMB in 2022 and projected to hit 380 billion RMB by 2025.
- China's moulds industry is undergoing significant transformations through the adoption of advanced technologies and development of effective industry strategies.
- China's moulds industry association conducted an evaluation in 2024, identifying 34 leading mould making suppliers. In3act listed the companies with registered capital over 100 million RMB for further (geographical) analysis.
- The chart reflects a mix of traditional heavy industries and emerging high-tech sectors, as part of regional development strategy.

The machine tool industry plays a crucial role for key downstream sectors in China, including automotive, mould and aerospace

Application distribution by downstream industries



Key takeaways

- The automotive sector takes up close to half (40%) of the machine tool market in terms of downstream application, ranking first among all downstream industries.
- The 3C (computer, communication, and consumer electronics) sector also plays a significant role in the downstream applications of machine tools in China (close to 30% by estimates), included in "Other industries" in the chart.

Source: China briefing, Huajing Industry Research Institute, in3act analysis

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The automotive sector, the largest machine tool industry, is growing rapidly with government support

Government support



EV subsidies

Financial incentives for EV buyers



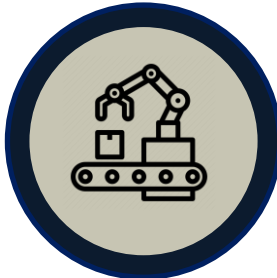
R&D tax incentives

Tax breaks for R&D investments



EV infrastructure investments

Funding for EV charging stations



Made in China 2025

Developing advanced technologies



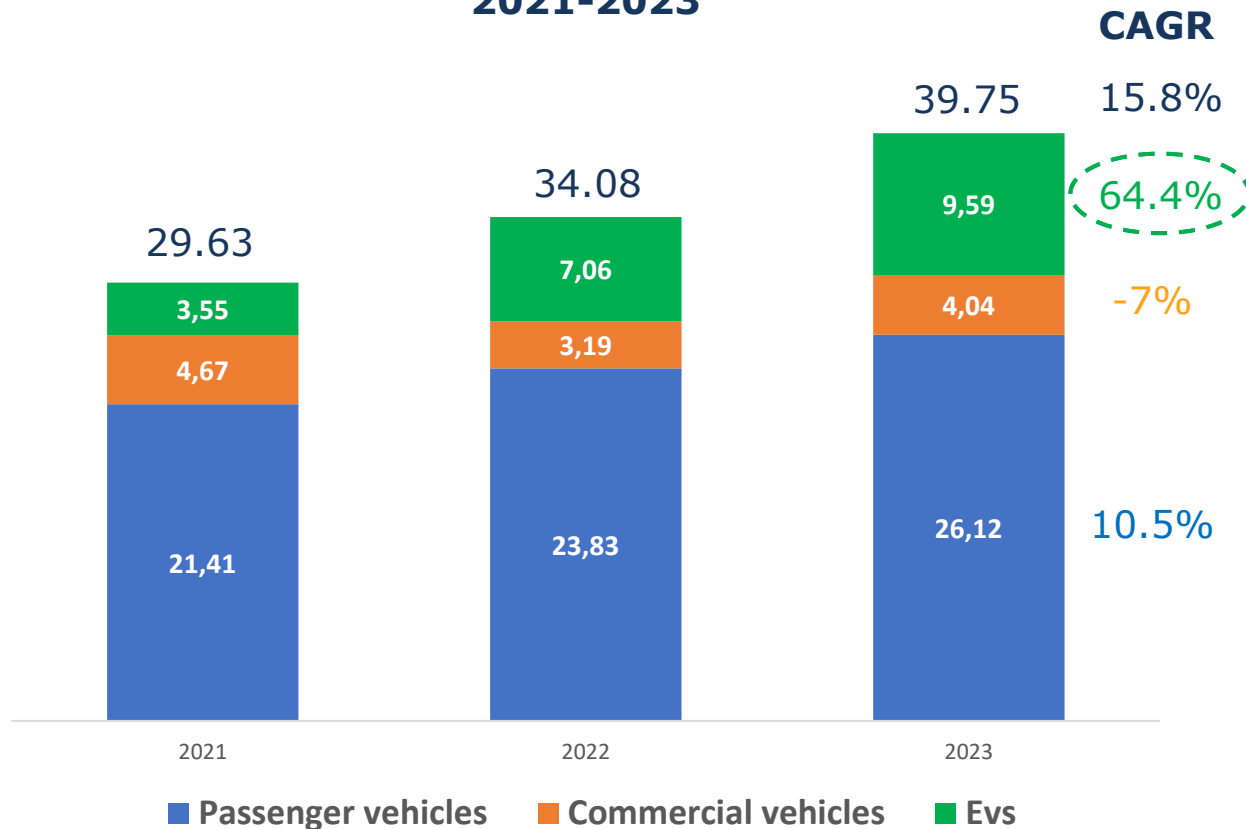
Key takeaways

- The synergy of EV subsidies, R&D tax incentives, infrastructure investments, and initiatives like "Made in China 2025" illustrates a comprehensive approach to developing the electric vehicle market in China.
- As China continues to navigate the phase-out of direct subsidies, creating a self-sustaining and competitive EV market will be crucial in the long term.

Source: China Council for the Promotion of International Trade (CCPIT)

From 2021 to 2023, China's auto production experienced a CAGR of 15.8%, while electric vehicle (EV) production surged with a CAGR of 64.6%

Automotive production by category
2021-2023

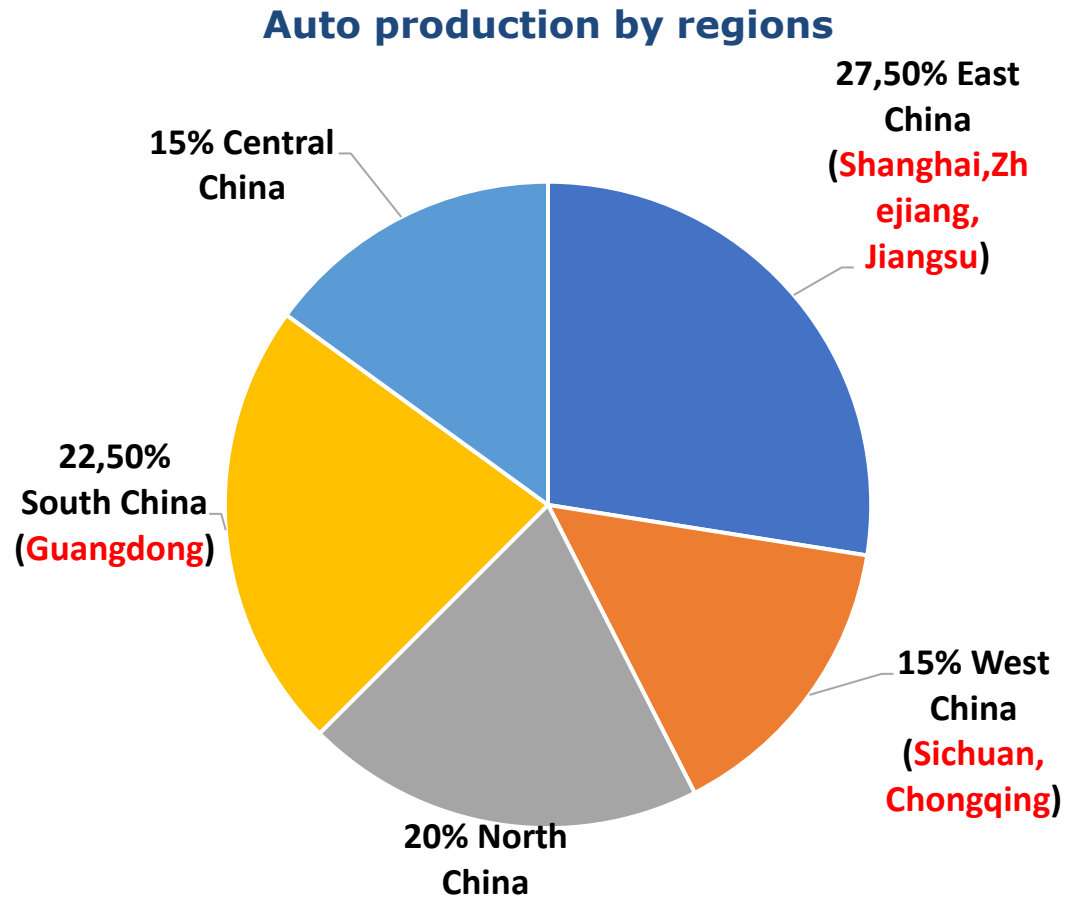


Source: China.gov

Key takeaways

- The automotive sector in China can be divided into three main categories: passenger vehicles, commercial vehicles, and electric vehicles (EVs).
- This sector has experienced a remarkable expansion, primarily driven by a surge in consumer demand for EVs, amidst a growing emphasis on reducing carbon emissions in vehicle production.
- The rapid expansion for EVs can be attributed to a growing emphasis on carbon emission reduction (in vehicle production).

Auto manufacturing enterprises are concentrated in first- and second-tier cities with developed economies and strong industrial foundations



China's leading auto manufacturers (by geographical distribution)



Source: Open data, in3act analysis

China’s automotive industry leads in automation, robotics, and AI, enhancing efficiency, quality, and sustainability

Technology	Level of technology adaption	Key benefits	Major implementers	Observations
Automation and robotics	Mid-high	Enhanced precision and reduced production time	SAIC Motor and BYD	While China has made big strides in automation and robotics which can be applied into auto manufacturing, the adoption of AI and sustainable production technologies is still (lagging and) catching up with global best practices.
Artificial intelligence	Mid	Real-time quality control and predictive maintenance	Geely and NIO	
Sustainable manufacturing	Mid	Energy efficiency and reduced carbon footprint	Tesla and Dongfeng Motor	

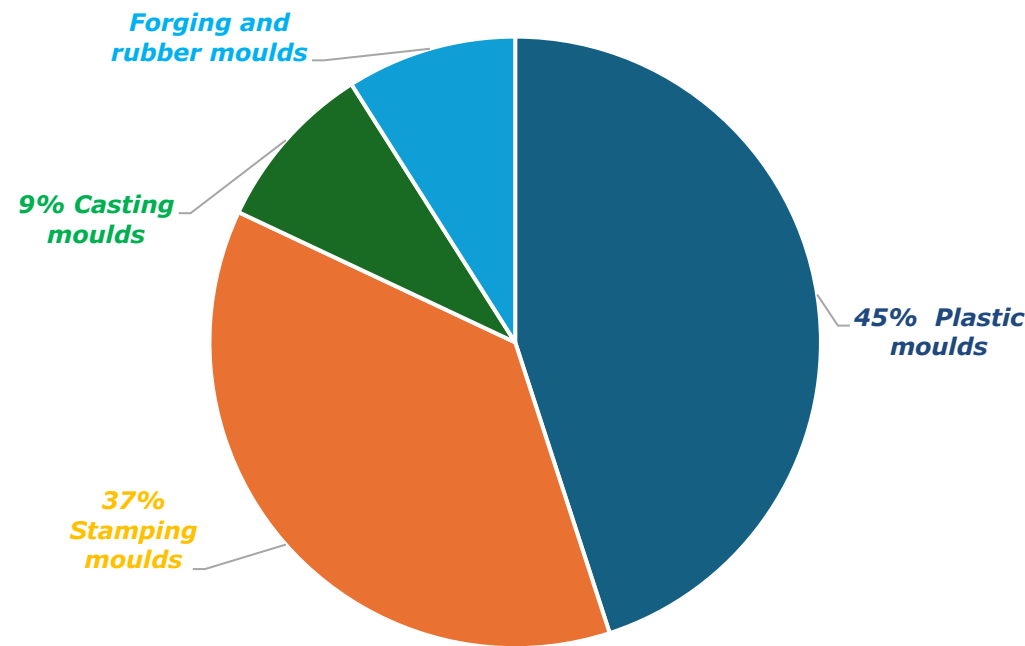
Source: Boston Consulting Group, open data

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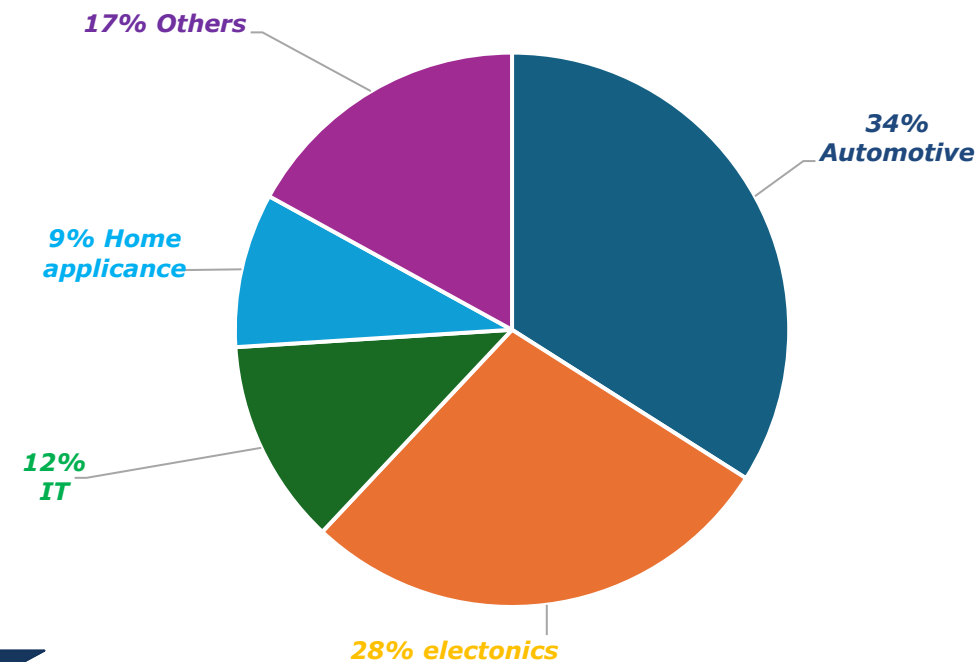
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Moulds making Industry , a key downstream sector for machine tools, are widely used in defense, civil industries, home appliances, and automotive

Mould production market share, 2022



Downstream application of moulds, 2022



Source: China Machine Tool Industry Association, 2022



The diverse downstream applications give rise to unique directions for innovation and specialization for the mould manufacturing industry.

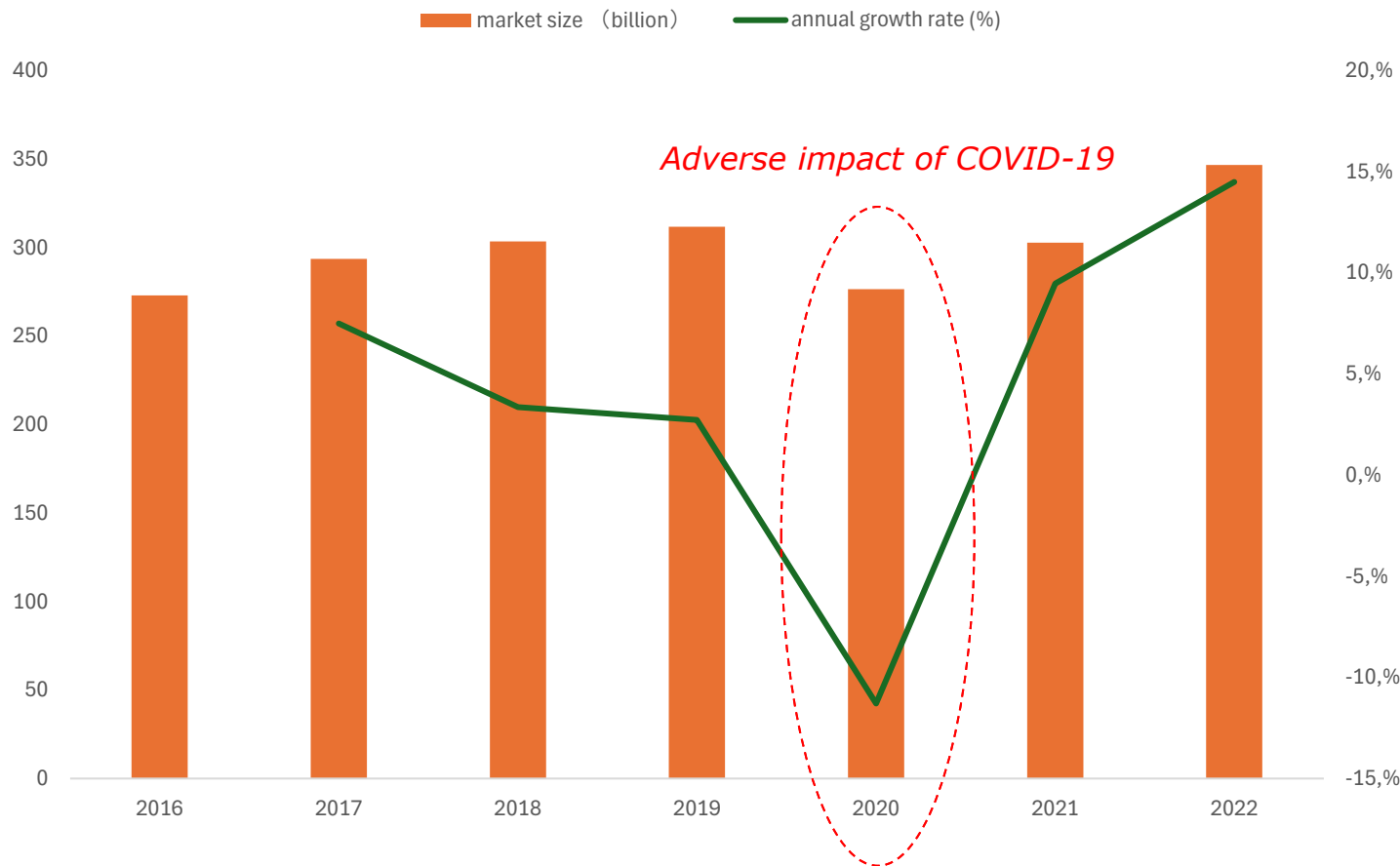
For instance:

Automotive industry	--
Electronics sector	--
Home appliance industry	--

Large-scale, complex and high-precision moulds
Small and highly precise moulds
High-efficiency and cost-effective moulds

China's mould making industry, the world's largest, grew to nearly 350 billion RMB in 2022, with projections of 380 billion RMB by 2025

Market size of China's mould industry, 2016-2022



Source: Intelligence Research Group

Key takeaways

- As the world's largest mould producer and consumer, China's mould industry has experienced a steady growth in recent years with a CAGR of 5%, despite the temporary decline due to the adverse impacts of COVID.
- In 2022, the market size was close to 350 billion yuan, and was projected to hit 380 billion yuan by the end of 2025.
- An increasing market concentration, with expanding operating revenues for leading companies, is observed.

China's mould industry is transforming through advanced technologies and strategic development

Technology upgrading and intelligent manufacturing

The mould industry is accelerating the digital transformation and applying cutting-edge technologies (such as 3D printing, AI, and robots) to improve production efficiency and quality.

Industrial chain and cross-border integration

Mould enterprises are gradually transforming into one-stop service providers, and in the meanwhile, are strengthening cooperation with upstream and downstream companies.

Environmental protection and sustainable development

Mould enterprises are laying more focus on 1) energy conservation 2) emission reduction 3) product lightweighting 4) material replacement.

Region-by-region development

Traditional mould manufacturing centers such as the Yangtze River Delta and Pearl River Delta are maintaining their industry advantages and policy trends. These regions, encompassing cities like Shanghai, Suzhou, Guangzhou, Shenzhen, and Dongguan, are known for the robust industry infrastructure, the dense network of suppliers and manufacturers, a highly skilled workforce, advanced technology, and significant investment in R&D.

Emerging regions such as the southwest and northeast are also developing rapidly, cities like Sichuan and Chongqing are experiencing a rapid industrial growth, driven by constantly-updated government initiatives to attract investment and boost local economies.

Presence on the global stage

Chinese mould companies are actively "going out" to enhance international exposure, including developing potential clients and setting up factories overseas.

China's Mould Industry Association identified 34 leading suppliers in 2024. In3act listed those with over 100 million RMB capital for further analysis

No.	Company name	Location	Registered capital (in million RMB)
1	Tianjin Motor Dies Co., Ltd.	Tianjin	942.05
2	FAW Tooling Die Manufacturing CO.,LTD.	Jilin	436.66
3	Ningbo Heli Mould Technology Co., Ltd	Zhejiang	203.84
4	Zhejiang Jingcheng Mould Machinery Co., LTD	Zhejiang	241.02
5	COSMOPlat Mould (Qingdao) Co., LTD	Shandong	158.36
6	Yesun (Shanghai) Mould Co., Ltd	Shanghai	730.91
7	Botou Xingda Automotive Dies Manufacturing Co., Ltd	Hebei	200.00
8	Zhuhai Gree Precision Mould Co., Ltd.	Guangdong	100.00
9	GZ Tooling Group	Jilin	149.85
10	Hitech Moulds Co., Ltd.	Shandong	125.00
11	Shenzhen ShuMaMo Automotive Technology Co., Ltd.	Guangdong	1437.50
12	Liuzhou Guangling Automotive Technology Co., Ltd.	Guangxi	180.00
13	Pengfei Precision Technology Co., Ltd.	Jiangxi	154.91
14	Chongqing Yuanchuang Automotive System Integration Co., Ltd.	Chongqing	103.80

The chart reflects a mix of traditional heavy industries and emerging high-tech sectors, as part of regional development strategy



Location	Regional focus and industry
Tianjin	A major port city known for advanced manufacturing and logistics, contributing significantly to the Beijing-Tianjin-Hebei (Jing-Jin-Ji) economic region.
Jilin	Part of the northeastern rust belt, historically focused on heavy industry but are now facing economic challenges and thus seeking diversification.
Zhejiang	A rapidly developing coastal province known for its robust private sector and strong emphasis on e-commerce and manufacturing .
Shandong	An economically significant province with a diverse industrial base , including agriculture, manufacturing , and energy.
Shanghai	A global financial hub and major economic center, focusing on services, trade, and high-tech industries .
Hebei	Known for steel production and heavy industry , Hebei is also part of the Jing-Jin-Ji region, which aims for integrated development with Beijing and Tianjin.
Guangdong	The leading province in manufacturing and exports, particularly in electronics and consumer goods, and also a key player in the Greater Bay Area initiative.
Guangxi	A region with a focus on agriculture and tourism (benefiting from its proximity to Southeast Asia and the Belt and Road Initiative).
Jiangxi	Known for its rich natural resources and ceramics industry, it is developing its manufacturing and technology sectors .
Chongqing	A major city in southwest China, focusing on automobile manufacturing , logistics, and serves as the central hub for western development initiatives.

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Regulations & Policy incentives for China's machine tool industry

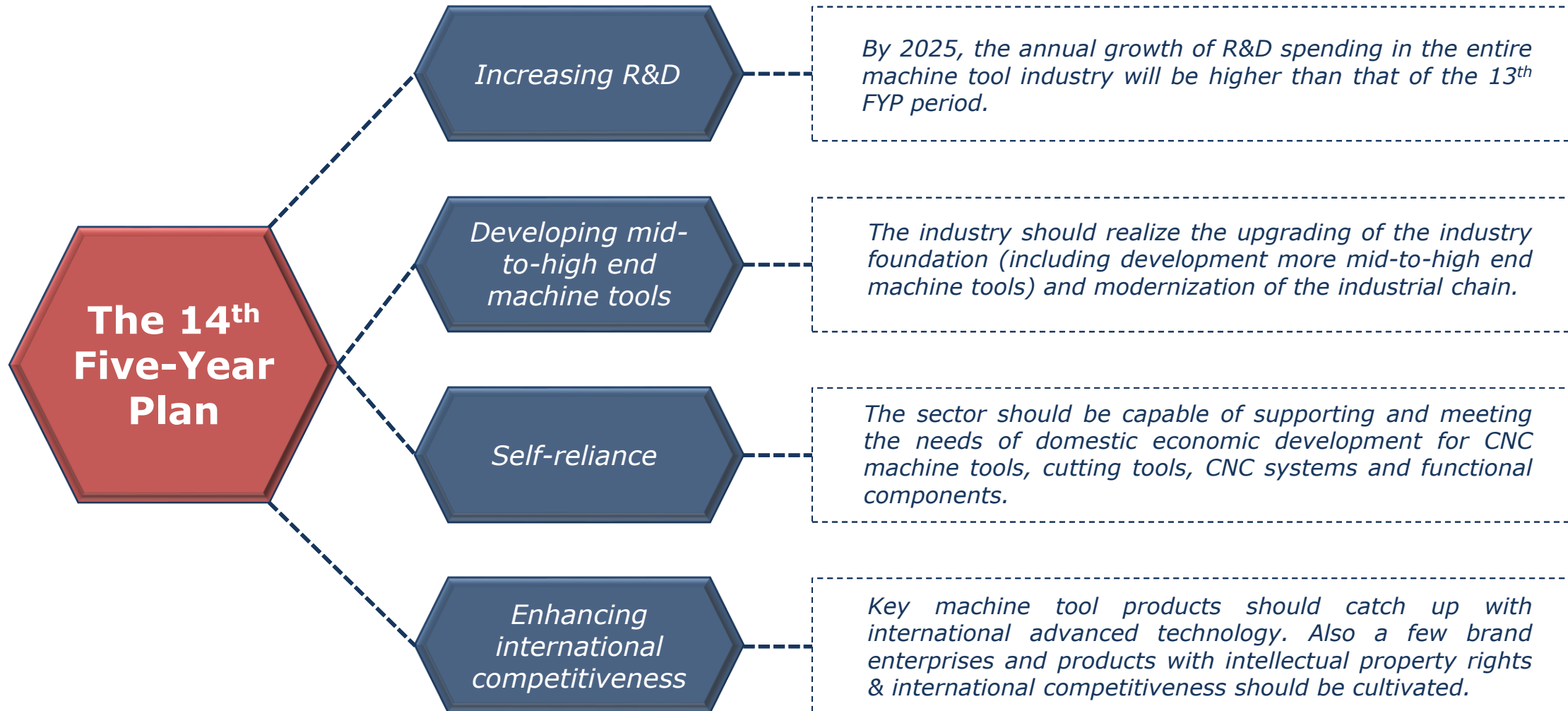
- From 'Made in China 2025' ("MIC 2025") to The 14th Five Year Plan (2021-2025) ("the 14th FYP").
- **China's 14th Five-Year** Plan outlines a few key points for the development of the machine tool industry.
- **MIC 2025** is less mentioned since the beginning of 2020 due to complex factors, but the end goal has never been changed.
- Chinese government has rolled out equipment upgrading plan and consumer trade-in initiatives which indirectly supports the machine tool industry by enhancing the downstream dynamics.
- Case Study: The People's Bank of China (PBOC) has announced a **500-billion-yuan re-lending program in 2024**, as part of the equipment upgrading plan.
- Aforementioned policies entail pros and cons for Italian enterprises looking to enter China market
- Different regions in China have rolled out governmental incentives/programs to support the manufacturing industry.

From 'Made in China 2025' ("MIC 2025") to The 14th Five Year Plan (2021-2025) ("the 14th FYP")

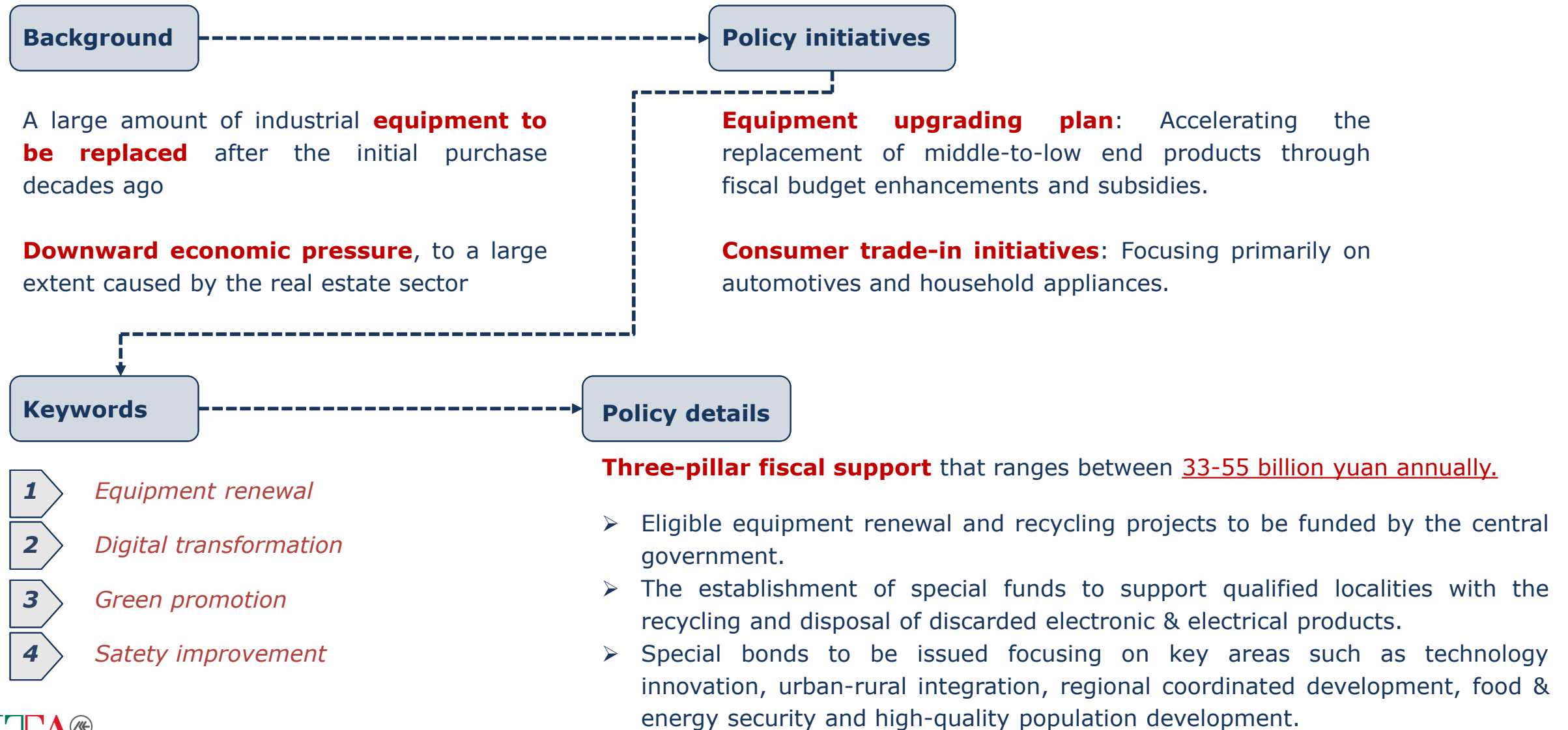
In 2015, China released 'Made in China 2025' ("MIC 2025") as a framework for realizing its technological independence & innovation goals. MIC2025 is a sophisticated and constantly-updating industry strategy that transforms China into a global leading manufacturing powerhouse, in which ten strategic sectors are set as priorities for development, including high-end CNC machine tools & robots.



China's 14th Five-Year Plan outlines a few key points for the development of the machine tool industry



The Chinese government's equipment upgrade plan and trade-in initiatives indirectly support the machine tool industry by boosting downstream dynamics



Case Study: The People's Bank of China (PBOC) has announced a 500 billion yuan re-lending program in 2024, as part of the equipment upgrading plan

In 2022, the PBOC launched a special re-lending program

- Aiming for equipment renewal and transformation.
- A size of 200 billion yuan.
- Turned out to be a big success because it almost facilitated the same amount of equipment renewal and transformation loans.

On April 7th, 2024, in order to push the effort further, the PBOC carried out a new re-lending program

- A size of 500 billion yuan.
- Interest rate 1.75%, one-year term, extendable twice.
- Providing support in key areas like equipment-renewal, digitalization, smart technology and hi-tech.

Feedback from government officials

'The re-lending program resembles the previous 'Quality Improvement and Digital Transformation Policy' aimed at upgrading equipment. Both policies involve government incentives that encourage enterprises to invest in high-end equipment.'

-----Government official A



'Based on the past experience, companies that have successfully applied for these incentives are generally leading enterprises in the mid-to-high tier, mainly state-owned and foreign-funded ones. This suggests that this new program may also predominantly benefit the similar types of companies, focusing on those with abundant resources and a strong market presence.'

-----Government official B



Aforementioned policies entail pros and cons for Italian enterprises looking to enter China market

Pros

Technology transfer and collaboration opportunities: foreign enterprises can participate in equipment and consumer goods renewal projects in the Chinese market through technology transfer and collaboration, thereby enhancing market share and partnerships.

Increased demand due to environmental standards: the policies promoting energy efficiency and environmental protection requirements will drive demand for products which meet international environmental standards, providing opportunities for active players in technology and environmental technologies.



Cons

Market access restrictions: the policies may favor domestic products, leading to restrictions on market access and unfair competition for foreign enterprises.

Technological standard differences: China may enforce standards that require adaptation and adjustments by foreign enterprises, increasing entry costs and risks.

Risk of trade disputes: if foreign enterprises perceive policies as discriminatory or unfavorable, it may lead to trade disputes and international trade frictions, affecting the stability of bilateral trade relations.

Notes

Generally speaking, enterprises that enjoy finance/tax support from multiple levels of government are state-owned enterprises and enterprises supported by national key strategy programs. Foreign-funded enterprises can still enjoy these policies by cooperating with those mentioned above through joint ventures or technological cooperation or there are not too many competitors. However, this policy is not easily enjoyable by small and medium-sized Italian enterprises that rarely receive the relevant information about policy supports.

Different regions in China have rolled out governmental incentives/programs to support the manufacturing industry (1/2)

➤ Incentive policies/programs on China's manufacturing industry (including machine tool industry) by region

Regions	Policy incentivizing direction	Regions	Policy incentivizing direction
Beijing	<i>Development of intelligent instrumentation and control systems, simulation systems, industrial robots, CNC machine tools and intelligent manufacturing information application systems.</i>	Inner Mongolia	<i>Building smart factories and carrying out feasibility analysis for the digital transformation of enterprises. By 2025, the digitization rate of production equipment of industrial enterprises above designated size will reach 60%, and the digitization rate of key production processes will reach 80%.</i>
Tianjin	<i>Development of intelligent equipment, rail transportation equipment and marine equipment, cultivation of high-end CNC machine tools and industrial robots.</i>	Liaoning	<i>Upgrading the manufacturing industry to be more intelligent, high-end, green and service-oriented. Enhancing the industries of large-scale complete sets of equipment, automobiles, functional parts, and high-end CNC machine tools.</i>
Hebei	<i>Strengthening the new materials, new technology, new design research of the bearings, focusing on the development of high-end automotive bearings, as well as high-speed high-precision machine tool bearings.</i>	Shanghai	<i>Support the R&D and industrial application of intelligent robots, and enhance the core technology of high-end CNC machine tools, additive manufacturing equipment, rail transportation equipment, intelligent instrumentation, etc.</i>
Shanxi	<i>Focusing on the development of intelligent coal equipment, rail transportation equipment and representative equipment of new energy vehicles. Creating the industrial clusters of new energy equipment, general aviation, additive manufacturing, high-end CNC machine tools.</i>	Jiangsu	<i>Support the development of high-end CNC machine tools, industrial robots and other digital equipment. Strengthening the application of new sensors, intelligent measuring instruments, industrial control systems and network communication modules</i>

Different regions in China have rolled out governmental incentives/programs to support the manufacturing industry (2/2)

➤ Incentive policies/programs on China's manufacturing industry (including machine tool industry) by region

Regions	Policy incentivizing direction
Zhejiang	<i>Within the border of Taizhou, cash subsidies will be provided to the machine tool equipment enterprises that provide self-developed CNC systems (for the first time) or key functional components, and can form an effective supply chain.</i>
Jiangxi	<i>Promote the deeper development of intelligence, digitalization and networking in the manufacturing sector.</i>
Henan	<i>Enhancing the digitization level of SMEs, and leading 30,000 to 40,000 enterprises to the cloud each year. Implementing a number of demonstration projects for "the replacement of machines with humans", and encouraging enterprises to demonstrate the application of robots (with CNC machine tools) on a large scale.</i>

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