

# A German Lesson for China's Manufacturing Sector

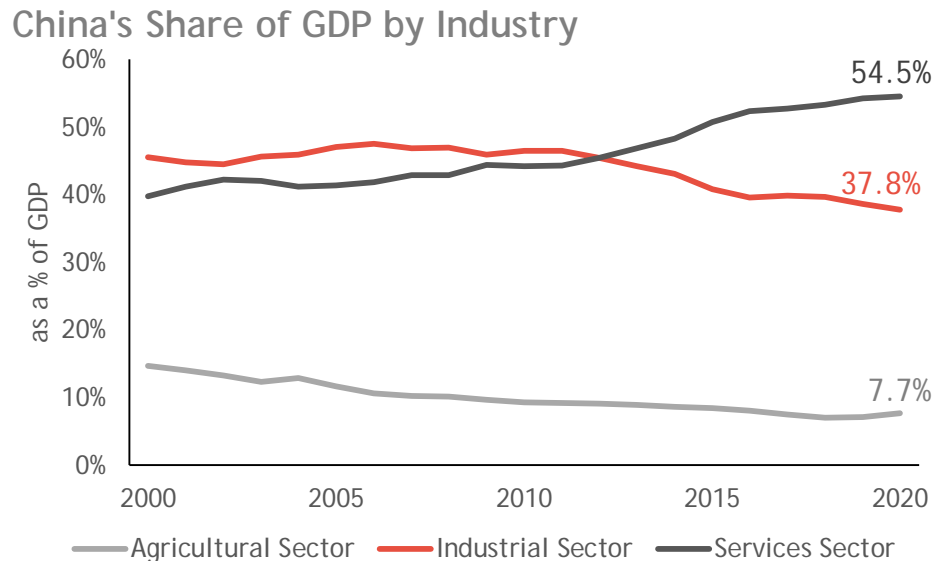
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Economic Research Department  
17 September 2021



# China seeks to maintain a balanced GDP profile

## China's services output has outgrown its industrial sector since 2012



Source: National Bureau of Statistics, PRC

- The services sector's share of GDP has risen by around 10 percentage points over the past decade as part of an aim to shift to a more consumption-driven economic structure.

## China now looking for a more balanced economic structure

### ▶ Services sector already large enough

While the services sector is important to the economy and receives support, it is now regarded as being sufficiently large. It is preferred not to have further expansion at the expense of the manufacturing sector.

### ▶ Manufacturing self sufficiency to be maintained

China seeks to maintain its manufacturing core in order to remain unencumbered by political tensions, and has identified 15 strategically important industries in the 14th Five-Year Plan.

# China is driving advanced manufacturing

## Official shift in tone about economic structure

*“The value-added of the **tertiary industry** accounted for a **larger share** of the economy.”*

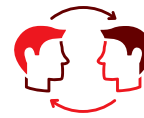
-- 13th Five-Year Plan (2015-2020)



*“To keep the **share of manufacturing sector** to the overall economy **stable**.”*

-- 14th Five-Year Plan (2021-2025)

## Why advanced manufacturing is a key matter of urgency



### US-China tensions

Geopolitical tension is expected to continue in the medium to long run. China is eager to push home-grown technology and innovation.



### Shrinking population

China needs to adopt automation in factories to maintain productivity.



### Support for dual-circulation model

Upgrading the industrial chain will also involve upgrading the labour force, boosting incomes, and in turn lifting domestic demand.



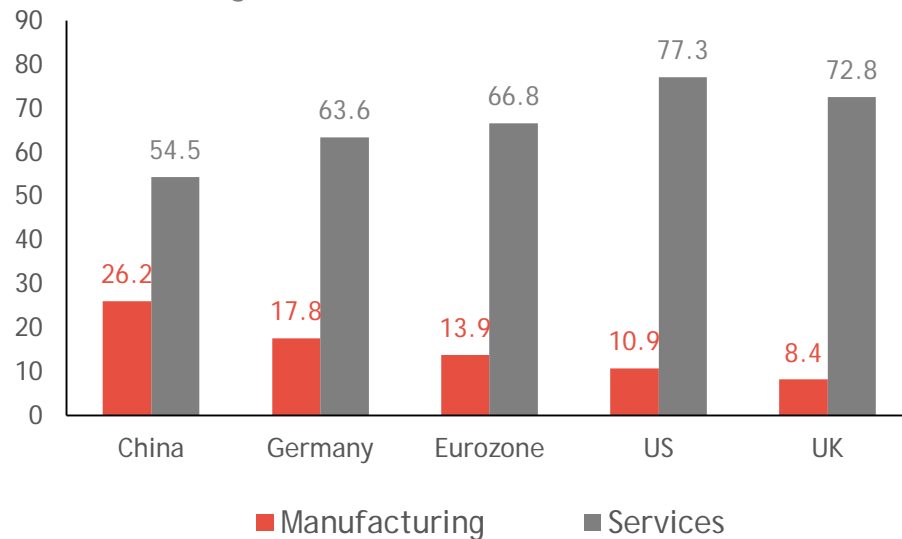
### Competition from emerging countries

As production costs rise, moving up the value chain is a must, amid fierce competition from lower-cost emerging economies.

# Germany serves as a possible model for China

## Advanced manufacturing has long been a key strength of the German economy

Manufacturing and Services Sector to GDP Ratio (%)



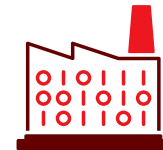
Source: World Bank (data for the US is 2019 figure and Japan the 2018 figure)

- It has recently been widely discussed whether German institutional design can be a reference point for China.
- Back in 2015, the “Made in China 2025” plan was said to be inspired by Germany’s Industry 4.0 strategy.

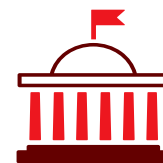
## Some characteristics of the German economy



Strong vocational training



Flourishing mid-sized manufacturers



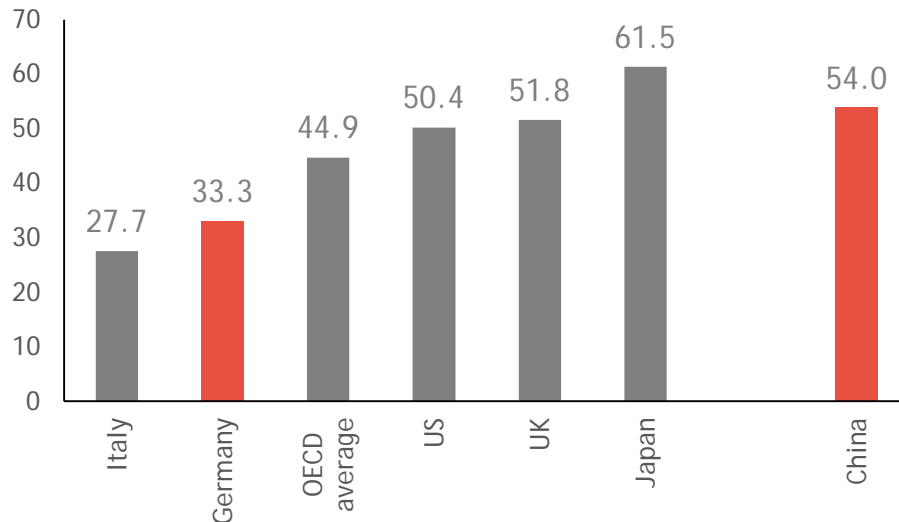
Bank-dominated financial system

# Vocational training is a viable education path in Germany



## Low share of university graduates, as many young people choose vocational education

Share of population aged 25-34 with tertiary education



Sources: OECD; Ministry of Education, PRC

Remark: 2019 figure; China's statistics covered those aged 18-22

- Only 33% of German students chose to pursue a university degree in 2019, significantly below the OECD average (45%).

## Dual-track vocational education training



### Standardised training programme

The Vocational Training Act has standardised the system across Germany, coordinating the state, the private sector, and trade unions.



### Apprenticeship + Classroom

Students are trained in a company for 3 to 5 days per week, and spend around 60 days a year in a vocational school, to be prepared for work in their chosen fields.



### A flexible system

At 10 years old, children choose between an academic school, a vocational track, or in between. They can choose to switch tracks later on.

# Meanwhile, China's manufacturing sector faces a skills shortage



Coastal factories are reporting difficulties in recruiting skilled workers

 **22 million**

Currently, China is short of **22 million** skilled technicians

(2019 CCTV Business Channel)

 **600,000**

National chip talent gap is estimated to be about **600,000** specialists

(South China Normal University)

Recent college grads are unsuited or unwilling to go into manufacturing

 **19.6%**

Unemployment rate for degree holders was **19.6%** in June 2020, compared with a national total of 5.7%

(National Bureau of Statistics, PRC)

 **29%**

Of Tsinghua University's 46 electrical engineering PhD graduates from 2020, only **29%** work in electricity/other energy sectors. The rest are in education, finance, & others.

(Global Times, "Chip talent inadequacy exposed", 28 Jul 2021)

# China is promoting vocational education



Chinese President Xi Jinping (April 2021):

*"Promote bachelor-level vocational education and bring about a number of quality vocational education institutions and programmes."*

*"Cultivate more high-quality technical professionals."*

## German vocational training model is preferred by the government



Shenzhen has introduced **German model in vocational training** within the Shenzhen Institute of Information Technology (2017).



The **Ministry of Education** (MoE) has signed a deal with **Bosch**, a German automotive parts conglomerate, to bring vocational education resources to China's vocational schools (2020).

## But it will take time for vocational training to be accepted by the public

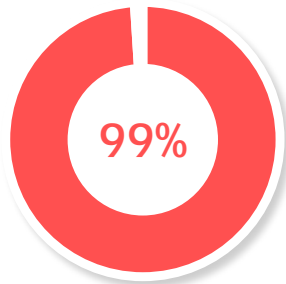
- In early June, MoE approved **13 private colleges** to **merge with vocational colleges** and become vocational universities.
- While there have been protests from students worried their degrees could be "downgraded", the wave of mergers will continue.
- According to news reports, the government's goal is to reset the ratio of junior high school students admitted to **senior high schools** and **vocational schools** from 7:3 to **5:5**.

# German model in fostering innovation - *Mittelstand* firms



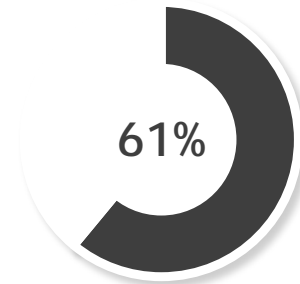
## *Mittelstand* - the backbone of Germany's manufacturing sector

- *Mittelstand* are small and medium-sized enterprises, with annual revenue of up to €50 million and less than 500 employees.
- Usually family-owned firms; considered flexible, highly innovative, and specialised; heavily concentrated in machinery, auto parts, chemicals, and electrical equipment.



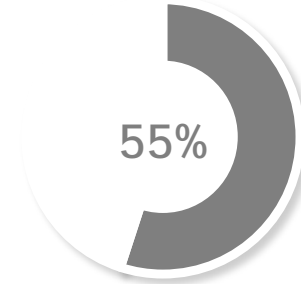
Share of firms

In 2019, about 3.54 million *Mittelstand* firms in Germany, or 99% of total no. of enterprises.



Net value added

They had a share of almost 61% in total net value added in Germany in 2019.



Employment share

About 19.24 million workers employed by *Mittelstand* firms, or 55% of total employment.

(Source: IfM BONN)



# China is now seeking to grow SMEs into “little giants”



Helping manufacturers to be homegrown champions of innovation

## China targets *Mittelstand* firms for acquisitions

- In 2014-20, there were 300 Chinese acquisitions of German companies, including many *Mittelstand* firms.



## Nurture small and medium-sized manufacturers to become “little giants”

- In August, China shortlisted 2,930 “little giant companies” (innovative SMEs) to be moulded into future champions in high-tech sectors. 90% of these companies are from the manufacturing sector.
- According to China’s plan announced in June, by 2025 the government will be nurturing 10,000 “little giant” enterprises specialising in niche sectors and 1,000 enterprises that are champions in a single industry, as well as groups of leading companies.

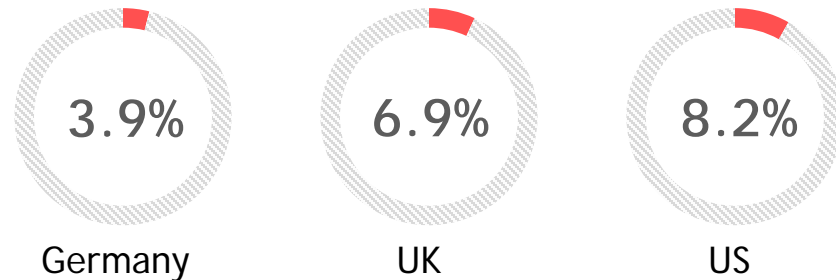
# Germany has a bank-dominated financial sector



Germany is light in finance and heavy in manufacturing

## Financial services represent a low share of GDP

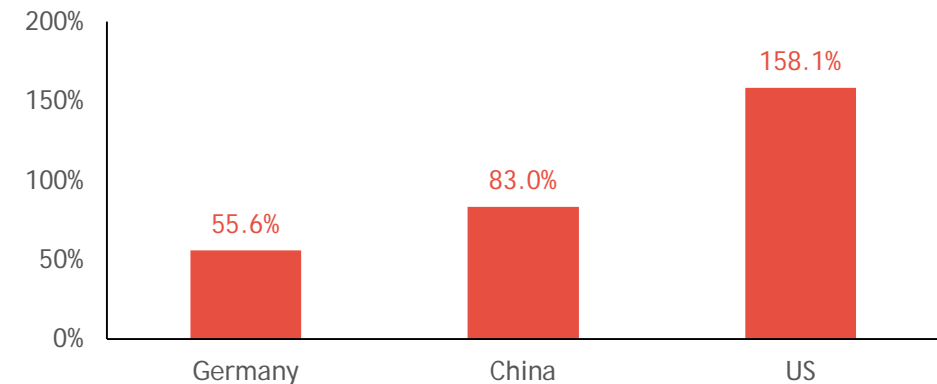
Germany's value of financial services was 3.9% of GDP (2020), compared with 8.2% in the US (2020) and 6.9% in the UK (2019)



## Equity market less developed

Germany's financial system is dominated by banks. Capital market plays a less important role, with a much lower market capitalisation per GDP than the US.

### Listed companies' market capitalisation (% of GDP)



Source: World Bank (data for the US is 2019 figure, others are 2020 data)

# 3 pillars of the German banking system



## Germany's 3-pillar banking system

With a less developed capital market, corporate finance is largely provided in the form of bank loans. The banking sector is mainly comprised of (1) private commercial banks, (2) public sector banks, and (3) cooperative banks.

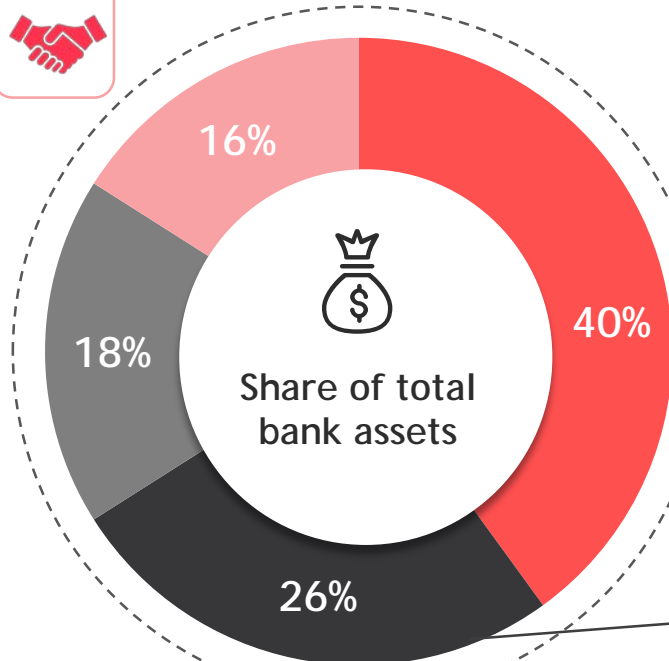
### Others - specialised institutions

- Includes mortgage banks, auto and other consumer finance banks, securities banks, and subsidiaries with diverse business focuses.



### (3) Cooperative banks

- Locally rooted
- About 840, or 50% of total number of financial institutions
- Simple business model with mandates to **support business activities, not exclusively to maximise profit**



### (1) Private commercial banks

- Profit-oriented
- Involved in **88% of German exports**



### (2) Public-sector banks

- Some directly compete with commercial banks
- Some have a mandate to **provide cheap financing to SMEs**

# German banks emphasise stability & long-term relationships



## Pros and cons of Germany's financial system

### PROS

#### Long-term relationship between firms & banks

- Companies typically rely on their house bank for financing.
- Banks have a close relationship with their clients, providing long-term loans which allow **firms to pursue long-term, stable growth strategies** instead of merely maximising market value.

#### Highly stable financial sector

- Public and cooperative banks are not profit-oriented, and their **lending is less cyclical**. They engage in less risky activity and are **less affected by financial crises**.

#### Low funding costs for companies

- With greater competition between public banks, **customers can pay lower interest rates and banking fees**.

### CONS

#### Lower profitability for banks

- Since most banks have a social mission, they are less profitable, especially in the EU's current low interest rate environment.

#### Less competition and innovation in banking industry

- As banks have fostered long-term relationships with companies, there is less market competition or urgency to innovate.

#### Lagging behind in terms of startups

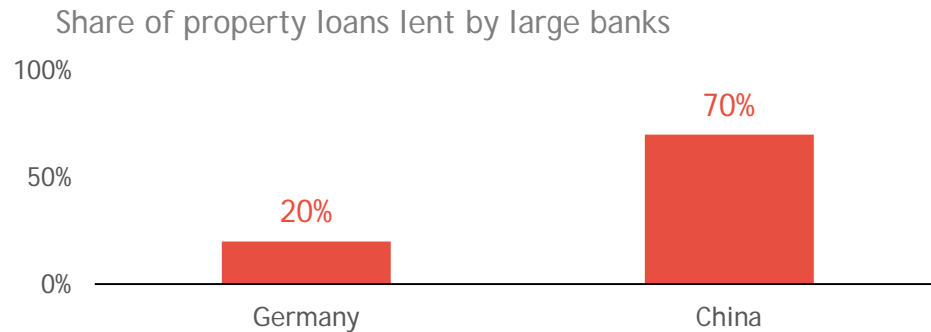
- With less developed equity and venture capital markets, Germany has fewer **unicorns** ( $\geq$ US\$1bn in valuation) than its peers (**16 in Germany vs 31 in the UK, 378 in the US, and 155 in China**).

# China beginning to address the challenge of financing SMEs



## Germany's financial system as a guide for helping SMEs

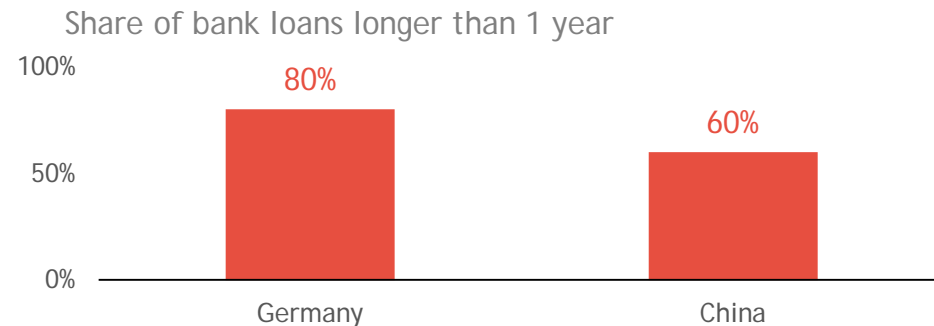
### China's large banks more inclined toward property lending



### China trying to develop more fundraising platforms for SMEs

- A new **stock exchange in Beijing** will be launched to serve innovative SMEs, as a part of a reform of Beijing's "New Third Board" (NEEQ).

### China's banks less engaged in long-term lending



### Banks asked to play a role

- Banks are being asked to focus on increasing **long-term credit** to advanced manufacturing, strategically emerging industries, and sectors that are helping build self-sufficiency in supply chains.

Source: HuaChuang Securities

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