

China's Pork Market Starts a New Cycle

A Different Cycle in a Transitional Time

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Summary

China's pork market starts a new cycle

- We believe this cycle started in mid-2022, when hog prices emerged from a trough that lasted one year and caused great losses for the industry.
- The new cycle will be different from previous ones. This cycle will see less price volatility, will be slightly shorter, and will see more government monitoring.



The main drivers that will influence this cycle include policies, new industry structures, sustainability, and consumer trends

- Policy will remain the key driving force for industry development and direction. Policy changes reflect the government's priorities.
- The industry is more consolidated than in previous cycles. Top farming companies have increased their market share, helping to smooth out cycle volatility.
- Achieving sustainability in China requires balancing food security and environmental protection. Large parcels of land for livestock production will be increasingly difficult to find.
- Consumers are becoming more segmented and more sophisticated: Value growth is increasingly important as a result.



The new cycle will offer market opportunities to both local and global players

- Cost leaders were the survivors from the previous cycle. But in the longer term, winners will be those who are not only cost leaders but are also able to integrate supply chains.



Takeaway: Three areas will offer considerable growth potential in the new cycle



Productivity development

- The government has identified genetics as a core strategic development area. Future development will focus on establishing a breeding system that is independent from the foreign breeder supply.
- New technology (e.g. automated equipment, robots, AI, etc.) can be adopted to reduce costs.



Market consolidation

- In addition to market consolidation, with the exit of small players, we will see rising competition among large players.
- In a slow-growing market, competitiveness will come from cost, quality, market reputation, and sustainability.



International trade

- Given the strategic importance of its pork supply, China will continue to import pork as an important supplement to its domestic supply. Although the import volume is expected to decline in 2022, China will remain the world's largest importer.
- Importers will shift to a combination of trading and own processing/distribution.

Outline of the paper



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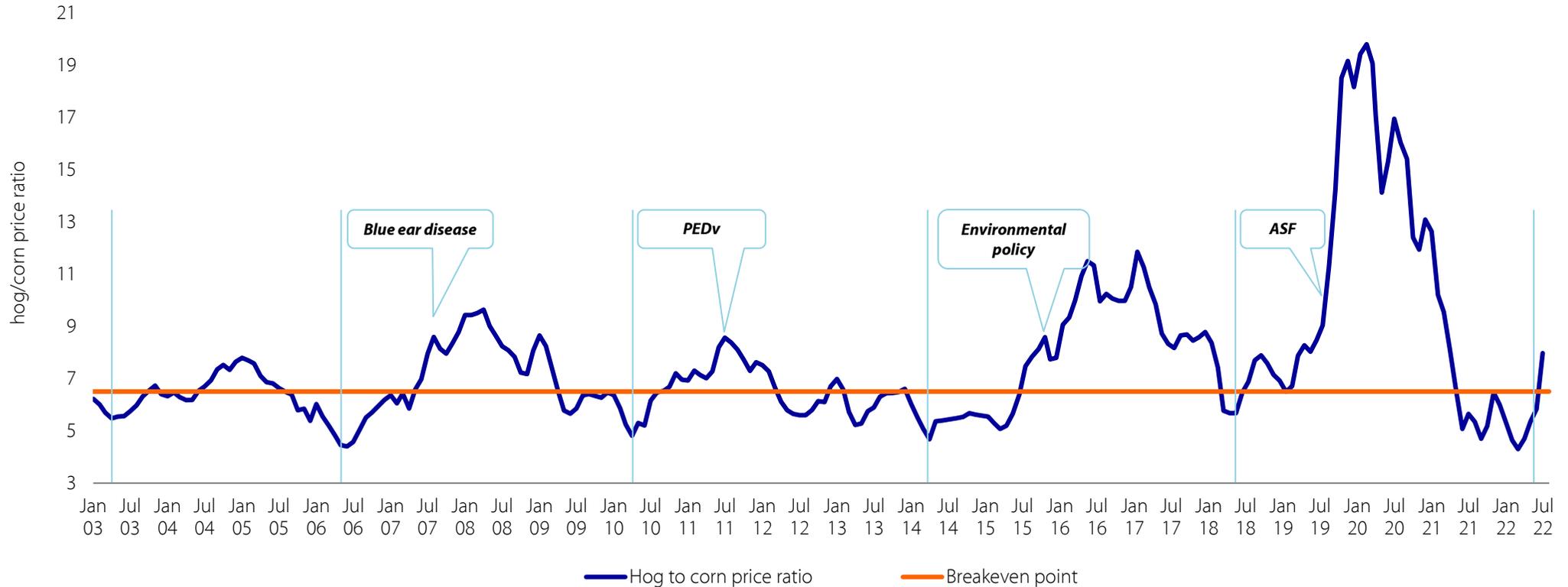


1

China's pork market is starting a new cycle

1.1 The pork market is entering a new cycle in mid-2022

Figure 1: China's pork market went through five cycles between January 2003 and June 2022



- We believe that China's pork market is entering a new upward cycle, which started in June 2022.
- Between January 2003 and June 2022, China's pork market has gone through five full cycles, with each cycle lasting around three to four years.
- The new cycle will show some different features from previous ones, as the market is more consolidated, economic growth is slower, and the social focus has changed.
- We expect the new cycle to have less price volatility and a slightly shorter length compared to previous cycles.
- Cost leaders were the survivors from the previous cycle. But in the longer term, winners will be those who are not only cost leaders but are also able to integrate supply chains.

The new cycle started with sharply rising prices, but is expected to be less volatile than the previous cycle

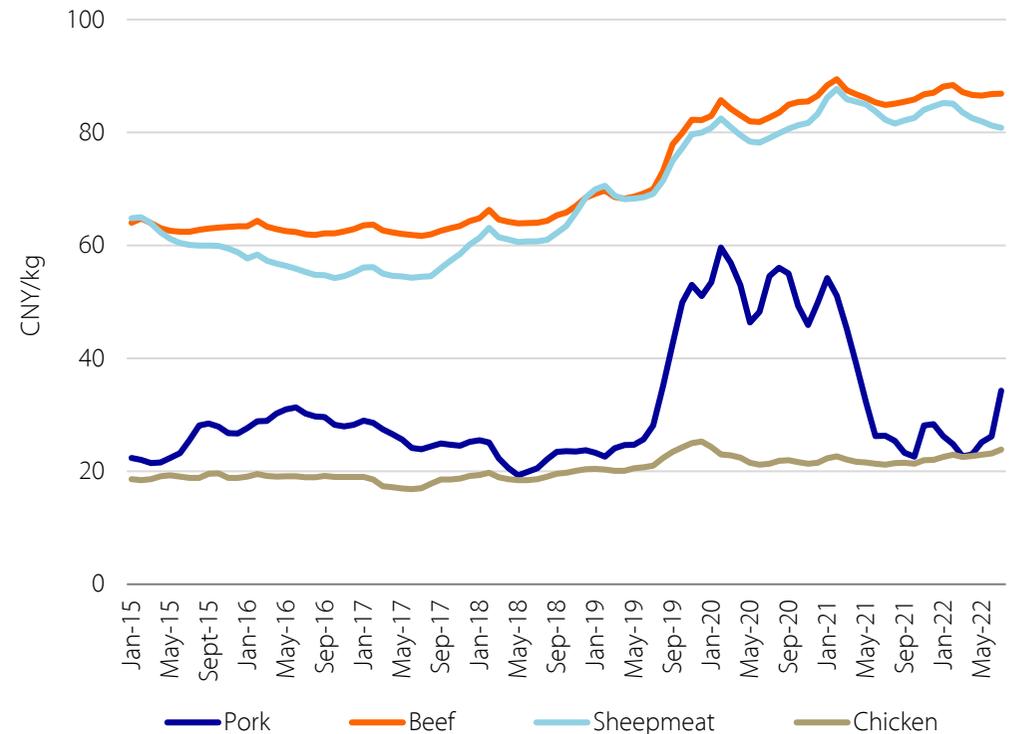


- The sow herd started to decline in June 2021, as farmers made losses from April 2021. The reduction accelerated in Q1 2022 because of deep losses made by producers. This resulted in the hog supply slowing into Q2 2022. Based on official data, the sow herd declined by 6.3% YOY by the end of Q2 2022. But the price performance between April and July indicates a possible deeper decline in the sow herd (see Figure 2).
- Having taken deep losses for around a year, farmers lacked the financial ability to restock their herds despite the rising prices. Government measures to curb the rising prices also dampened the investment signal. We believe herd restocking and expansion will be slow in 2022.
- The correlation between pork prices and other species' prices seems to have declined materially (see Figure 3). In the past, rising pork prices would drive up the prices of other proteins. But the rising pork prices have had no obvious impact on other prices in the retail market, year-to-date. However, the correlation remains obvious in some B2B channels, such as group dining and sausage processing, as switching to cheaper proteins is more feasible in those channels.

Figure 2: Hog and piglet prices on upward track



Figure 3: Retail prices of different species



1.2 Why this cycle will be different

- Every cycle is different, as each is triggered by different factors and the industry is at different stages of development. But, despite these differences, each cycle has pushed the pork industry to move closer toward consolidation, industrialization, and modernization, though progress has moved back and forth, instead of following a linear path.
- The current cycle will be different again, as market conditions have changed. Other factors are also at play and could influence the cycle, including China being in a transition period of economic and technological development, new trends that are influencing consumers, and social issues that put climate change and emissions reduction under the spotlight.

Four market conditions will shape this cycle



With uncertainties ahead...

While certain identified factors will shape this cycle, additional uncertainties could potentially influence the process



The slowing economy could impact investment and demand

- While pork is the staple food for Chinese consumers and is less vulnerable to economic volatility than many non-staple products, a very weak economy could potentially lead to a reduction in pork consumption.
- We will watch how China's economy performs, what policies the government enacts, and how the global economy performs and affects China.



Covid policy could have a big impact on both supply and demand

- If Covid continues to spread or Covid policies are not relaxed in the near term, the economy would be impacted further, and a certain quantity of Chinese consumers would worry about travel or dining out. This will impact demand via foodservice.



Climate change could affect feed grain availability and price

- China's pork production relies on imports of soybeans and some other feed grains, such as corn and DDGS. Given potential changes in extreme weather events under a changing climate, and how this could affect the grain & oilseed supply, China's pork producers could face higher market risks and management costs, which might challenge herd expansion.

How this cycle might be different

How this cycle will likely evolve in the coming years



Less capex investment and less price volatility is expected

Due to aggressive expansion in 2020 and 2021, considerable new capacity and new farms were added. In the current cycle, players will focus on better utilizing this expanded capacity and improving productivity to reduce production costs.

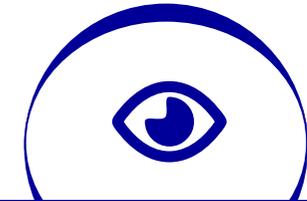
This cycle will not experience the extreme volatility seen in the previous cycle, which was driven by ASF outbreaks between 2018 and early 2022. The supply shortage that created that volatility is unlikely to occur again, due to greatly improved biosecurity. Therefore, prices would not go to previous peak levels.



This cycle may be shorter, with higher consolidation

Given the further expansion of large-scale farms, smallholders will gradually lose overall market share, but will still hold a solid footing in remote and mountainous regions.

We expect this cycle to be a bit shorter than previous ones, as large-scale players can respond quickly by ramping up supply.



Government will monitor price movements, to manage CPI pressures

Inflation has been manageable in China through August 2022, but has potential to rise further in the rest of 2022. We believe China's government will take many steps to control CPI. Pork is one key item in the CPI basket, so keeping pork prices stable is important for a stable CPI.

The associated measures to curb any price rises will in turn impact the investment appetite and slow down herd replenishment in 2022. This will impact smallholders' interests and facilitate further consolidation.



2

Drivers that will continue to influence the new cycle

2.1 Policy will continue to be a key driving force

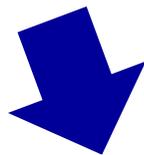
Government policies have responded to priorities in three different periods



01 Environmental focus 2015-June 2018

Environmental Law implementation

'National Sustainable Agriculture Development Plan (2015-2030)' – divided China hog farming into three development zones: Optimized, Moderate, and Protected development areas



Consequences

- Closure of small hog farms across China, particularly in the southeast
- Farming shifted to larger, integrated farming units in the north and northeast

02 Control the spreading of ASF August 2018-2021

- First ASF case in August 2018
- Live hog transportation restricted into/out of affected areas
- Ban on feeding pigs restaurant leftovers
- Strengthened supervision of live hog collection in slaughterhouses
- Prohibition on the use of pig blood as animal feed
- Stricter standards established for slaughterhouses and related equipment
- Illegal slaughtering closely controlled by the government to prevent diseased pigs and pork from entering the market
- Release of live hog transport guidelines
- Promotion of 'point-to-point' hog transportation between qualified farms and slaughterhouses
- A series of policies were released, such as:
 - Establishment of monitoring/tracking system
 - Strengthening of prevention mechanisms on animal epidemics
 - Development of agriculture insurance and commodity futures markets
 - Promotion of 'corporate-farmer' model in hog farming

Consequences

- Exit of small farmers
- Large panic liquidation
- Unbalanced supply leading to huge price gap, which resulted in illegal transportation, further spreading disease

03 Stabilizing production and prices 2022 onward

Governmental measures to stabilize pork production:

- Various support measures for breeding companies and slaughterhouses, e.g. monetary subsidies
- Expanding the reserve of frozen meat
- Standardization of large-scale pig farming
- Political tasks for provincial governors and mayors

- No.1 Document of 2022 emphasized pork production stabilization, reflecting the strategic importance of pork production to the economy and consumer demand
- The government continues to use strategic reserves to stabilize market prices, to avoid supply shortages in the future.
- Financial support to leading companies

Consequences

- Many farms shift focus to productivity improvement and cost reduction
- New investment slows down/is suspended
- Technology adoption is a priority, to reduce costs and waste, and to improve biosecurity



Implications of the evolving regulatory framework

Policy will continue to support the pork sector, which is a strategically important contributor to China's food security goals. The regulatory framework has evolved over the past decades. Currently, the pork sector has entered a new stage, with maturing demand, limited volume growth, and rising focus on value and service, while production growth is relatively stagnant. Government policies will support the industry in upgrading and sustainable development, and in the pivot toward more market mechanisms, technology innovation, and integration/coordination of the supply chain.

Unchanged policies



Positioning pork in overall food security goals

Pork remains a strategically important food to China, due to its dominance in animal protein consumption. Because the pork supply is part of China's food security policy, it will continue to receive favorable policy support going forward.



Ongoing support for large farms and industry upgrading

More policy support favors scaled farms. The aim is to improve efficiency, to reduce grain & oilseed use for the same output, reduce the cost of production, and deliver a stable supply, better food safety, waste management, and less pollution.



Sustainable development

China has long focused on pollution prevention. While China has recently set an ambitious goal for carbon emissions reductions, the sustainability focus for livestock production remains on pollution reduction (soil, water, air), food safety (disease prevention, food production and handling during distribution), the circular economy, and better use of waste resources (biomass and natural fertilizer). Achieving a balance between food security, sustainable development, and pollution reduction will continue to be the focus.

Changed policies



The way the government intervenes in the market

Previously, the government offered direct subsidies to scaled farms and directly intervened in retail prices when necessary. The government is now reducing this direct intervention, and instead is improving disclosure of sow and hog herd inventory data. The frozen pork reserve policy remains for the dual purposes of price intervention and food security.



Live hog transportation restrictions

This policy was officially launched during ASF outbreaks. It is not completely new but its implementation was challenging because of China's economic and geographic situation: Slaughtering is located close to consumer markets in the south and east, while farming is close to grain production in the north. The policy was implemented in recent years to reduce the spreading of disease. This has driven more players to adopt a vertical integration model so they can better design the geographic distribution of their own farms.



Technology innovation

Recent policies increasingly prioritize technology development. Big data platforms, digitalization, AI adoption, and genetics technology development are expected to receive more investment and become important tools that help reduce production costs, better plan production, and improve efficiency in the coming five to ten years.

2.2 Potential for further industry consolidation

Structural change has been accelerating in the industry in recent years. But relative to other countries, such as North America, for example, China's industry structure is still fragmented, offering considerable room for further consolidation. During the transition from small-scale to large-scale farming, not only did many small producers exit and larger ones expand, but the marketplace reorganized itself and distribution changed. E-commerce and the gradual closing of wet markets will provide more opportunities to large companies.

Figure 4: ASF accelerated industry consolidation, with small producers exiting the market and larger ones growing – this trend will continue

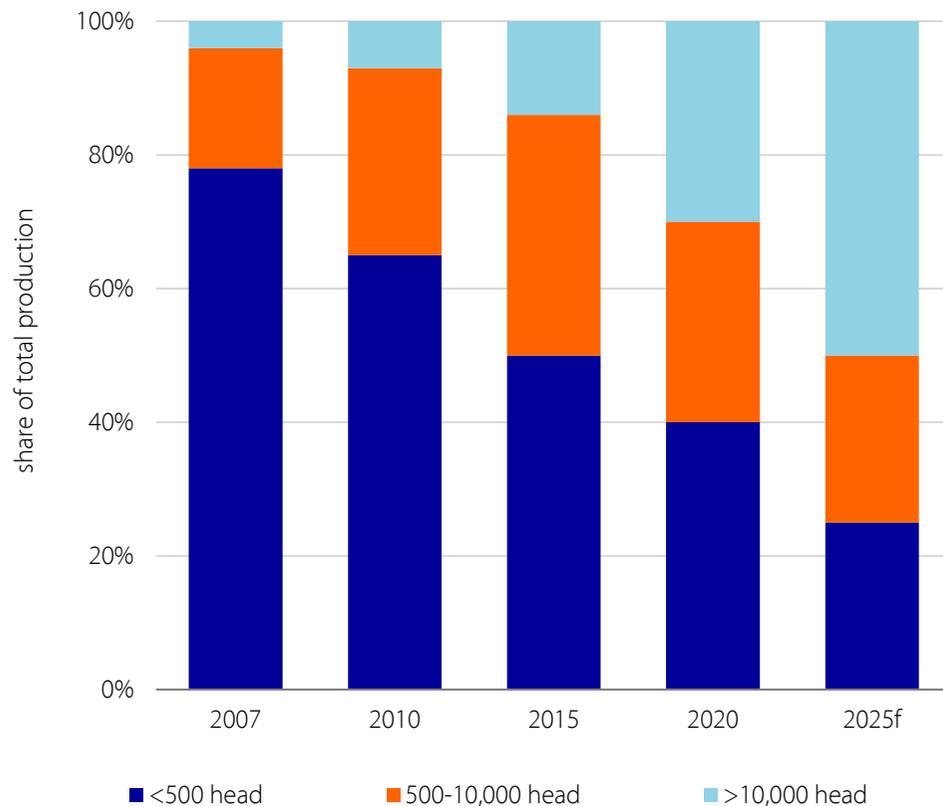
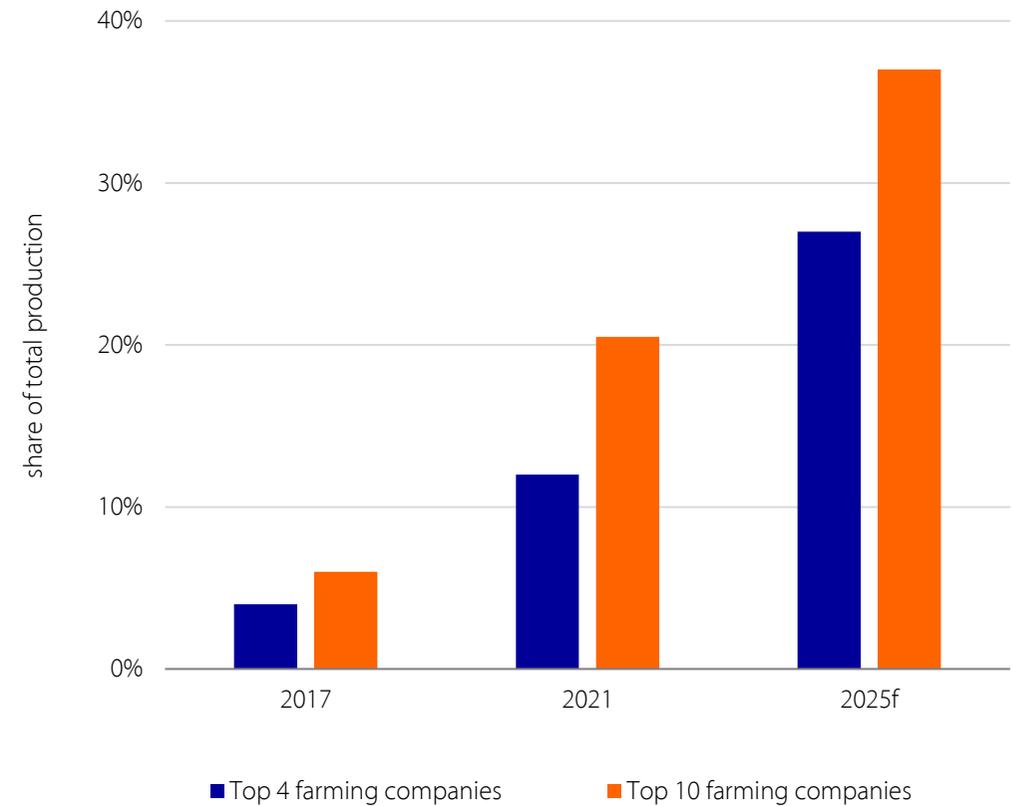


Figure 5: Leading farming companies will continue to see the fastest growth

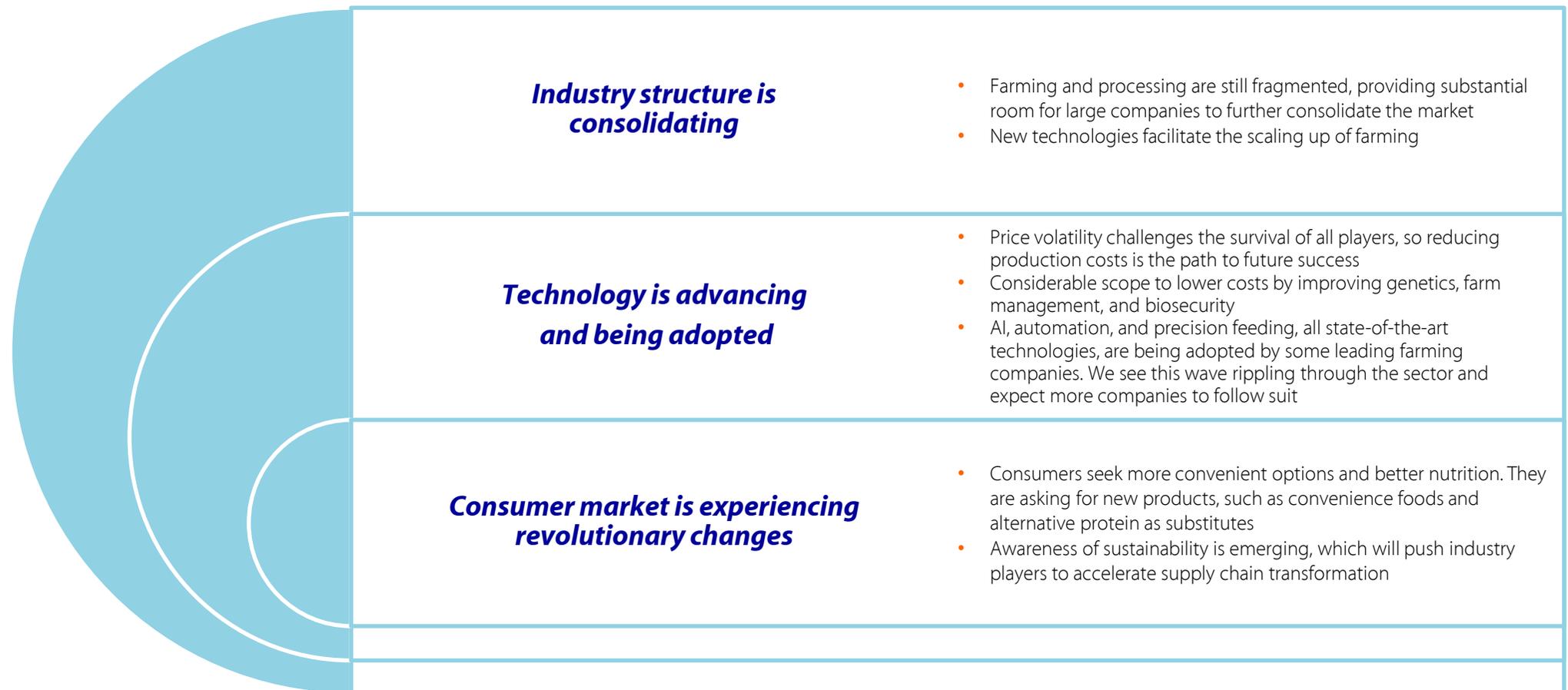


Industry evolution is not linear – it is driven by at least three waves of change that overlap and proceed simultaneously



China's pork supply chain is built on the contradiction of fragmented and small-scale production in a very large market. Pork industry development is not well-balanced, with average productivity still far behind European and North American pork chains. But some local players are now leading the world through innovations such as multi-level housing. At the same time, consumer awareness of safety and brand, and the evolution of distribution channels, are on a par with or leading what is seen in other parts of the world. We see three waves of change taking place at the same time (see Figure 6).

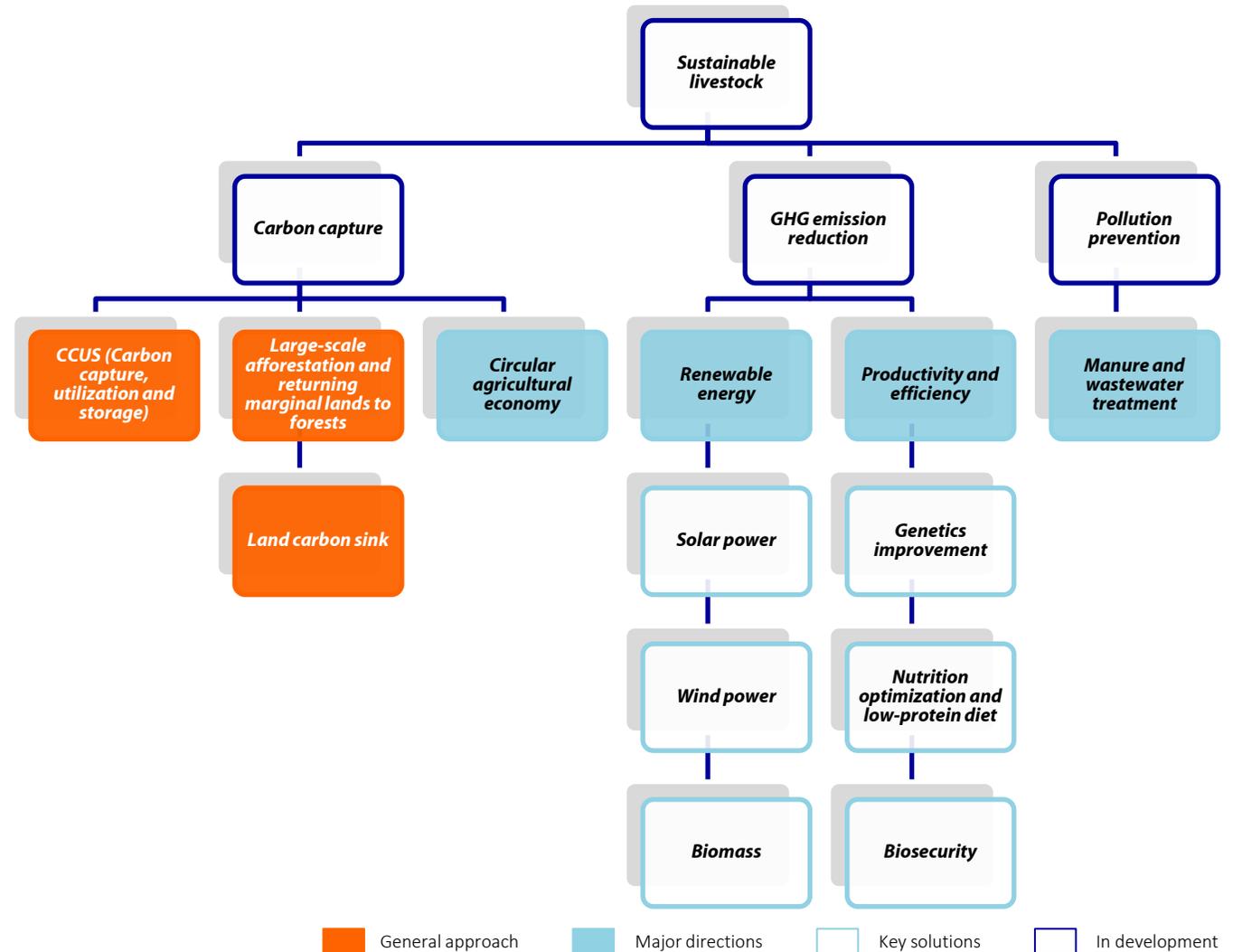
Figure 6: Three waves of industry evolution in China



2.3 Sustainability goals require China's pork players to react

- Agriculture is an important focal point for China's sustainability policies.
- China's government has focused on preventing pollution from livestock production. The requirements for water and waste treatment have led to farms closing during several waves of policy implementation since 2015. Large parcels of land for livestock production will be increasingly difficult to find in the future.
- Regional differences in geography and natural resources are recognized under the general guidelines set by the central government.
- Environmental policies are strictly implemented in relatively developed regions. Underdeveloped regions will follow in the coming years.
- Circular economy models are highly encouraged. Electricity generated from biomass and organic fertilizer production from waste treatment can receive tax breaks or subsidies.
- Distributed solar and wind power is being installed on the roofs of more and more pig houses, mainly sponsored by power companies.

Figure 7: Many sustainable farming approaches receive support in China



2.4 Changing consumer demand

Consumers are becoming more segmented and more sophisticated: Value growth is increasingly important as a result



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Focus on convenience

- In a slowing economy, consumers seek more value for money, but this will not slow the trend toward convenience and service.
- Rising demand for convenience, such as ready-to-eat, ready-to-cook, and ready-to-heat products, boosts the further processing sector. A number of players extend downstream to manufacture convenience foods and combine service with products.

2

Consumer sophistication

- While the mass market remains the largest part of total consumption, its share is declining.
- Some consumers increasingly consider nutrition, health, food safety, freshness, and taste, on top of price.
- A rapidly growing middle class, a young consumer generation, and a wealthy class form some of these new consumer groups.
- Trading up and trading down proceed in parallel.

3

Distribution channel revolution

- A combination of online and offline foodservice and food retail, has cultivated new consumer purchasing habits.
- Standardization and industrialization of foodservice requires more efficient processing of food ingredients, including pork. B2B is an emerging segment, which targets foodservice and catering by offering ready-to-prepare products.

Animal protein consumption is becoming more diverse

Figure 8: The share of poultry and beef expand at the expense of pork in total animal protein consumption

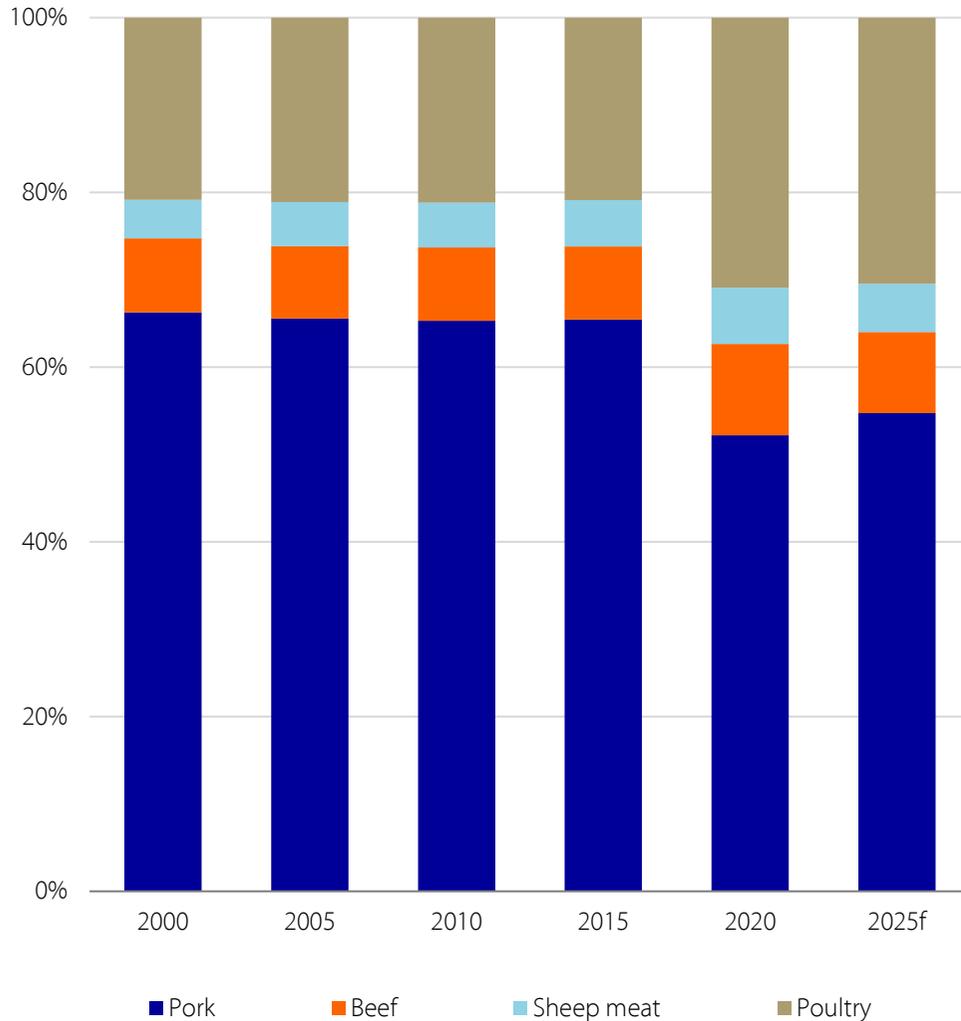
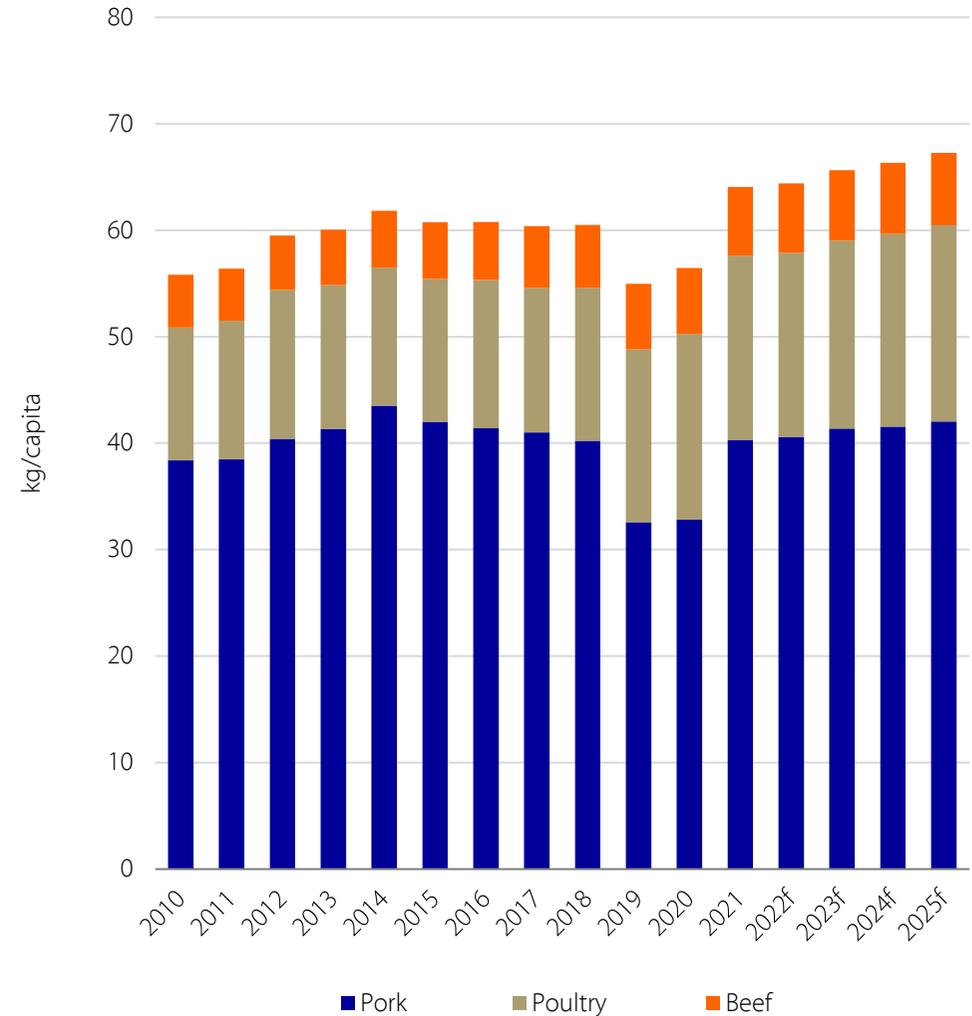


Figure 9: Pork consumption may have peaked on a per capita basis





3

Implications of the new cycle for pork sector companies

Opportunities for local and global players in the pork supply chain

3.1 Cost of production needs to decrease (and has potential to do so) through improved technology, management, and scale



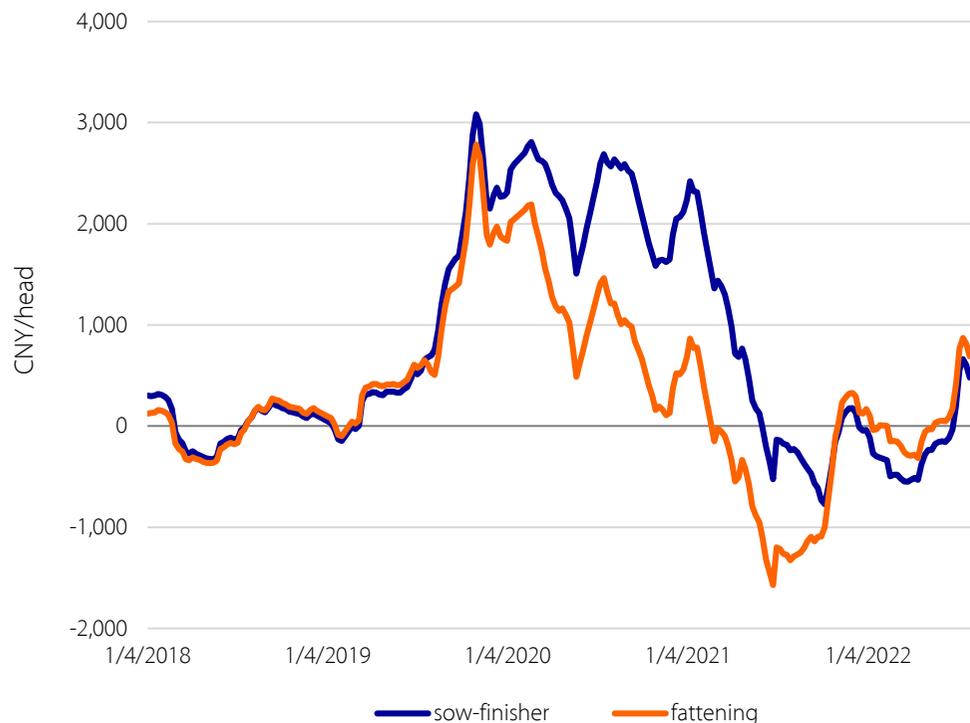
Sow-finisher model

- An integrated supply chain where players own and operate sow farms and fattening farms

Fattening model

- Producers focusing on only fattening, with piglets purchased from the market

Figure 10: Profit margin of two farming models, 2018-August 2022



Opportunities to reduce production costs

Technology

- Improve genetics
- Adopt AI and 'big data' technologies – early identification of disease pressure to reduce mortality rate
- Automate, for example, to reduce labor costs

Management

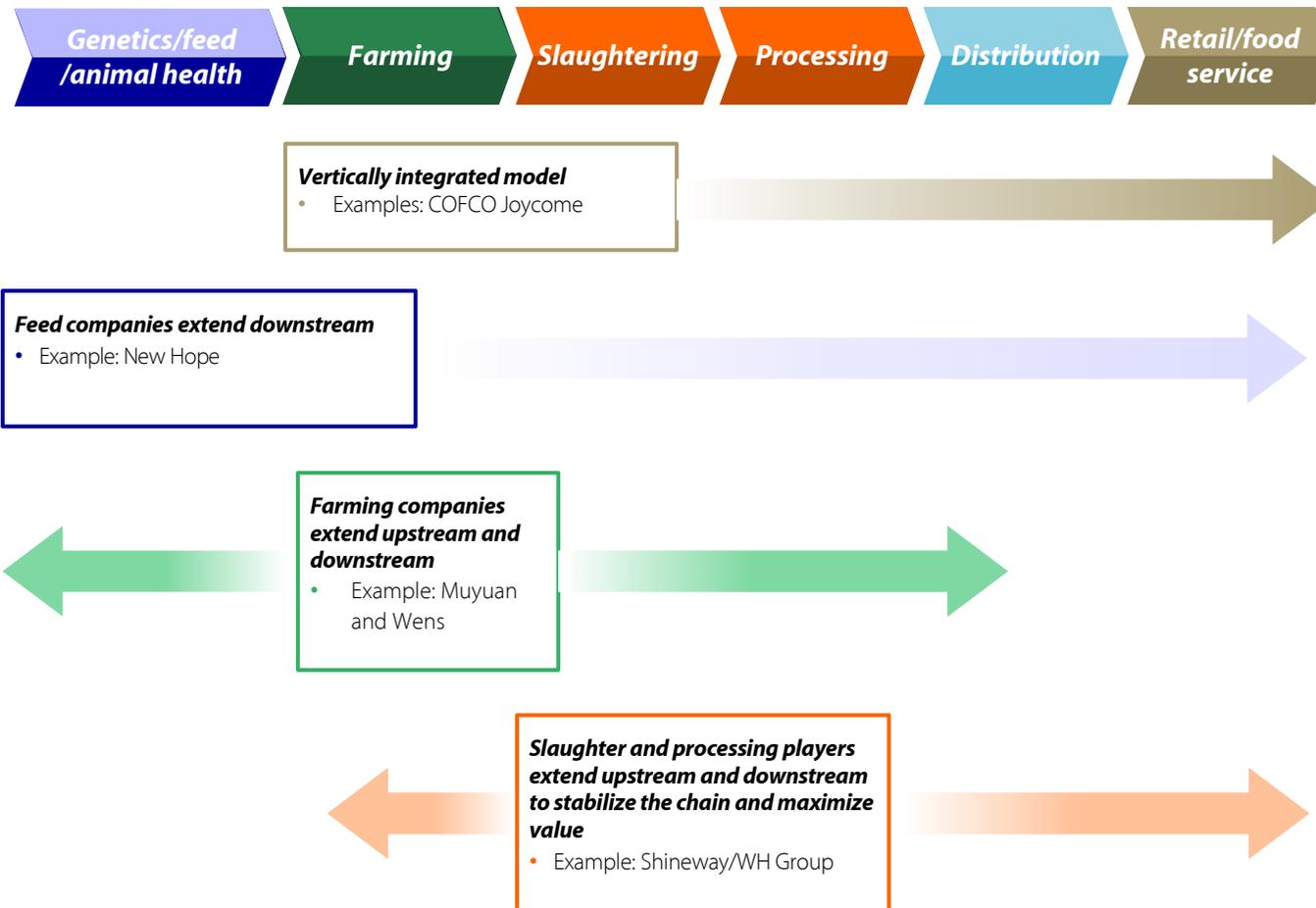
- Hedge feed costs
- Improve feed conversion efficiency
- Improve technical performance
- Reduce waste
- Adopt a circular economy model

Scale

- Fully utilize existing capacity to reduce costs
- Form partnerships with upstream or downstream players of similar scale

Players adopt different business models, but one key trend is to achieve supply chain stability through more vertical integration

Adapting business models, adopting technologies, moving in two directions: cost leader and value driven



Competition in traditional value pockets

Key upstream dynamics

- Consolidation of farming sector led by large companies
- Seeking cost reduction through improved technologies, genetics, and biosecurity
- Forward integration of farming companies will create competition with meat processors

Competitiveness

- Rising bargaining power
- Scale

Relevance

- Supply chain management

Key downstream dynamics

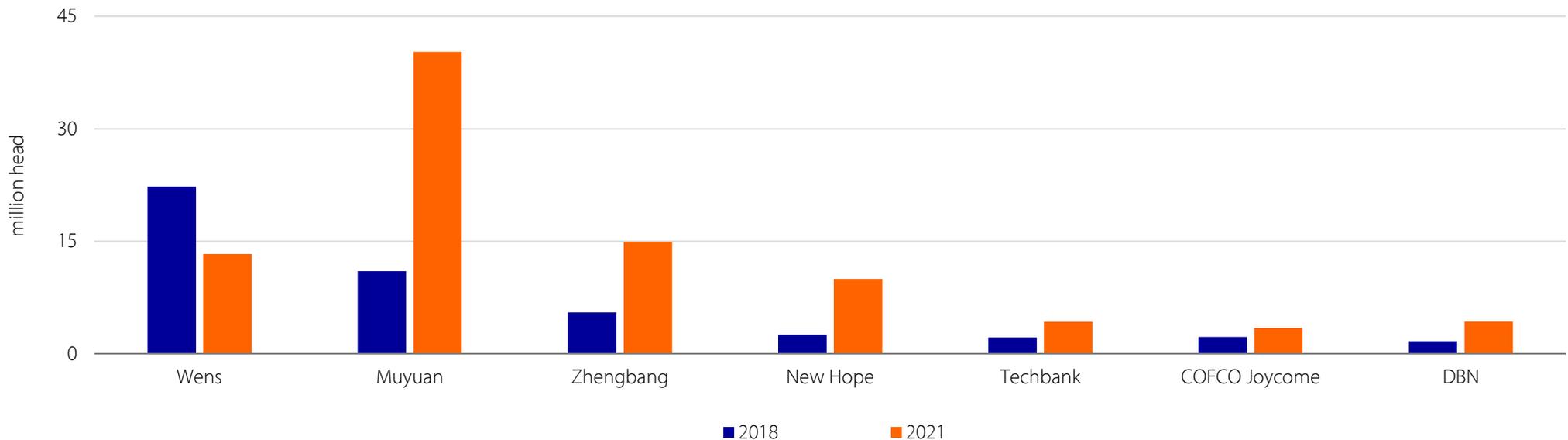
- Product innovation to differentiate and brand development to target different consumer groups
- Penetration into online platforms to reduce middleman costs and better understand consumer needs
- Upstream extension through sourcing agreements or direct investment in farming to secure consistent supply

Top farming players: Investment decisions, farm management, and risk management are important while business models adapt



- There is no one-size-fits-all business model: Some players have adopted a vertically-integrated model, covering breeding to farming. In contrast, most others use a contract farming model, supplying piglets or sows to farmers and collecting the finished hogs.
- Vertical integration works best during disease outbreaks, while contract farming generally has the advantage of lower costs and lighter asset requirements. But even in a contract farming model, supply chain coordination is tighter than before, with the interests of offtakers and producers interlinked.
- The pork market will continue to be subject to cycles. It's not possible to avoid these, but companies can ride the cycle. In the cycle low, companies need low production costs to provide cash flow without aggressive capital expenditure and to ensure future access to capital.
- ASF has been a catalyst to accelerate the changes seen in recent years. ASF exposed issues in biosecurity, farm management, and risk management, which led to a change in company rankings.
- The key reasons why some companies moved down in the rankings are:
 - Diversification into real estate or other non-F&A sectors; adopting an opportunistic and event-driven strategy
 - Over-expansion: internal management could not keep up with production growth
 - Operational issues: poor farm management, poor biosecurity, low productivity

Figure 11: China's top pig farming players by hog production, 2018 vs. 2021

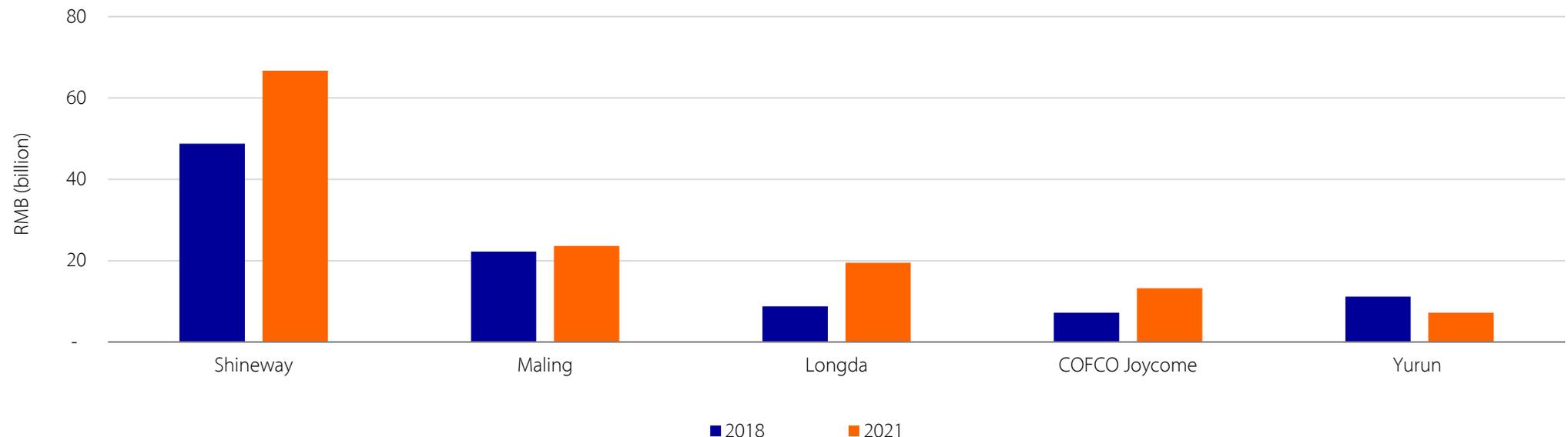


Top processors: Market positioning, investment choices, product strategy, and ability to add value to products drives opportunity



- Very few packers have extended upstream into farming and feed. Longda has extended into farming, but on a relatively small scale. Shineway has plans to invest in farming to improve the consistency of its pig supply, but farming would remain small relative to its processing capacity.
- Leading companies, particularly Shineway, Longda and COFCO Joycome, have successfully expanded their market share by taking advantage of economic scale, branding, and an optimal product mix, particularly when the market was impacted by ASF.
- Other packers have not adapted to market conditions due to:
 - Diversification into real estate or other irrelevant sectors – opportunistic event-driven actions
 - Out-of-date product lines or a lack of new products to meet the rising demand for value-added products
 - Operational issues: poor management of supply chain (hog sourcing), low utilization of capacity
- Slaughter is threatened by farming companies that extend downstream.
- Further processors have growth potential in value-added products and services, such as prepared dishes (ready-to-cook/heat/eat products), B2B service for the rising catering market, and health products.

Figure 12: China's top players in slaughtering/processing by revenue, 2018 vs. 2021

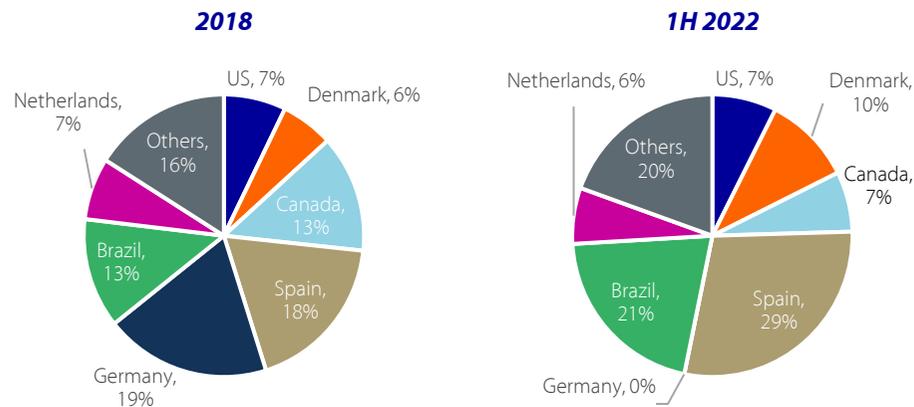


Note: Yurun's revenue is in HKD
Source: Company reports, Rabobank 2022

3.2 Implications for the global market: China's imports will return to a 'normal' range

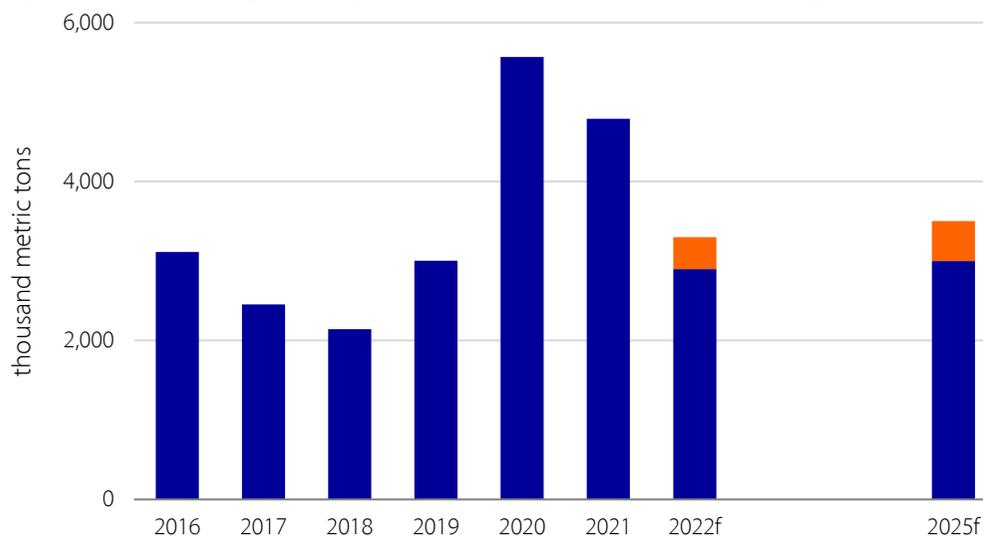


Figure 13: China's imports' origins have changed over the years



- Imports surged in 2020 and 1H 2021, in response to the ASF-induced supply shortage.
- Before ASF, imports fluctuated in the range of 2m to 3m metric tons.
- We expect pork imports to stabilize in the coming years, but the volume will be higher than pre-ASF levels, at around 3m to 3.5m metric tons.
- Import origins have changed greatly, reflecting trade policy, cost competitiveness, and increasing production in some exporting countries. Spain has become the largest origin for China's imports, followed by Brazil, Denmark, the US, and Canada, in 1H 2022. We don't see much change in terms of import origins going forward, but Brazil has the potential to further increase its share.
- We expect China to remain the world's largest pork importer. With imports in the range of 3m to 3.5m metric tons, China's pork self sufficiency would be about 95%, which would meet its food security goal.

Figure 14: China's pork imports will return to a 'normal' range



Opportunities for global companies in China's pork supply chains

- Global genetics players have marketed their genetics to China, but none has nucleus farms or heavy investments in China. More commitment will be required from these companies to capture a significantly larger share of the market.
- Some global grains and feed players focus on feed and poultry, without entering pig farming and slaughtering/processing.
- Some global farming companies have been providing technical support to local partners.
- Global meat processors have a limited presence in China. Typically, these companies engage only in meat processing and product distribution, with some entering slaughtering.



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