AlixPartners

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LOWER DEMAND IN CHINA IS CHANGING GLOBAL CHEMICALS MARKETS:

Opportunity or threat?

The pace of domestic demand growth in China remains slower than anticipated following a short-lived post-pandemic spending boom. The implications for the global economy, including the chemicals industry, in which China has become a major player across multiple market segments, are widespread and significant.

The Chinese chemical industry has developed into both a major source of growth and a destination for investment over the past two decades, leading to new capacity additions and steadily increasing global market share for Chinese production. The energy transition led many Chinese energy companies to invest heavily in integrated refinery-petrochemical complexes in anticipation of plateauing demand for refined fuels.

These mega chemical facilities produce olefins and aromatics; primary building-block feedstocks for the production of chemical derivatives used in the majority of chemical segments. In addition, over the last five years, China has strategically focused its chemicals production downstream into specialty chemical production to fulfill rapidly growing domestic consumption, along with export opportunities.

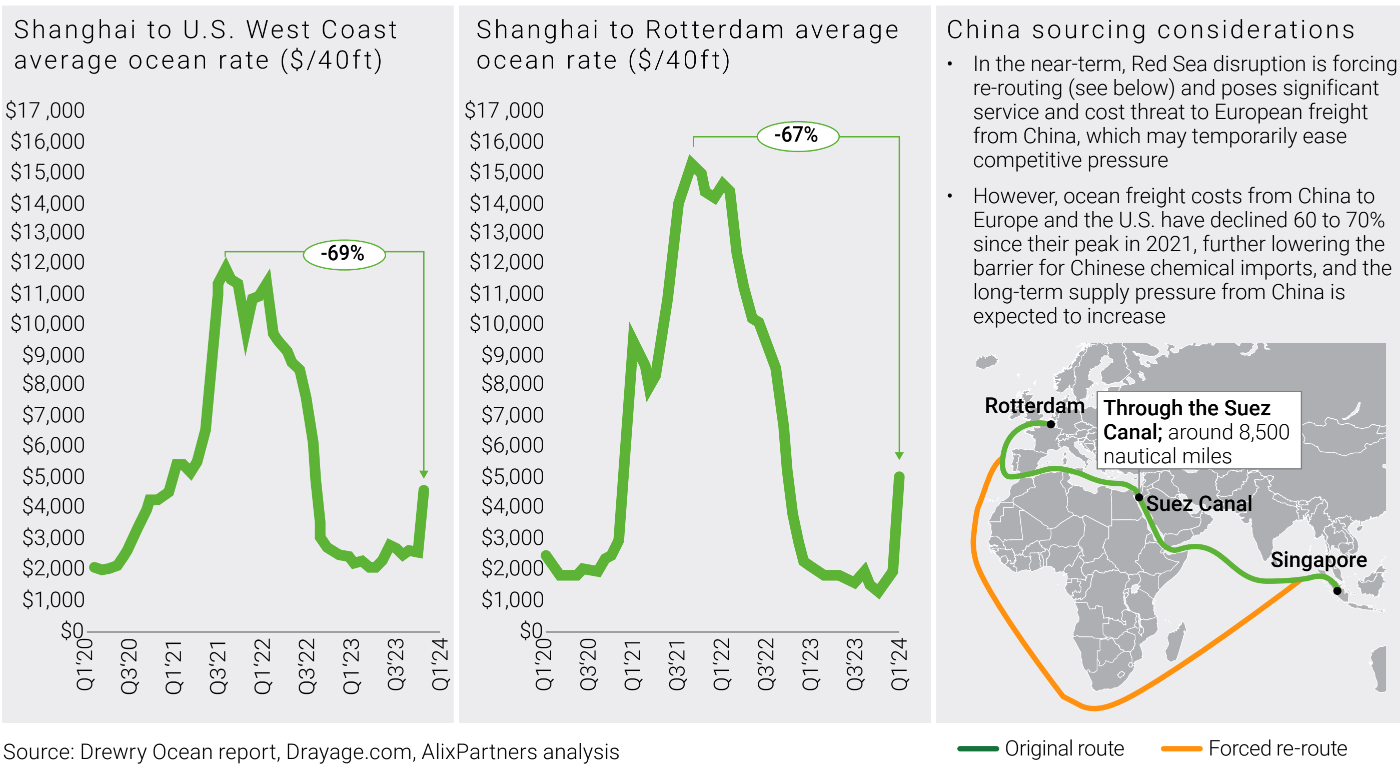
As Chinese domestic demand cools, however, there is immediate downward pressure on demand experienced by global chemical companies exporting to China. This sets the scene for shifting competitive industry dynamics on Western chemical suppliers, as Chinese companies turn outward for further growth opportunities.

RECENT CALM BEFORE THE STORM

During the period from 2020 to 2022, the level of Chinese influence on the chemical industry was relatively subdued due to logistical challenges, geopolitical tension, and China's zero-COVID-19 policy. These issues made it difficult for Chinese products to amass considerable global volume. More recently, the threat of Chinese imports for European chemical companies has been blunted by conflicts in the Red Sea.

Relief is likely to be short-lived if Middle East geopolitical tensions de-escalate. Furthermore, Chinese chemical exports could enjoy a significant tailwind from a 60-70% decline in freight costs from China to Europe since peaking in 2021, lowering the long-term barrier for Chinese exports into Western markets (Figure 1).

FIGURE 1: LONG-TERM CHINA – U.S. AND CHINA – EUROPE FREIGHT COST TRENDS, AND IMPACT OF SHORT-TERM RED SEA DYNAMICS



Source: Drewry Ocean report, Drayage.com, AlixPartners analysis

Considering lower domestic demand, significant capacity build-up, and easing logistics costs for the Chinese chemical industry, AlixPartners has analyzed how much China could influence a shift in global chemical industry dynamics by analyzing over 500 public and private global chemical companies across major market segments (see Table 1).

The potential for a shift across each market segment is assessed across four dimensions, as outlined below.

1 **MARKET SHARE:** Current market share of China-based companies' revenue (% share of global industry peers)

2 **MARKET SHARE GROWTH:** Growth rate of China-based companies' market share in the last five years

3 **EXPORT SHARE:** China's export value share of the global markets

4 **EXPORT SHARE GROWTH:** Growth rate of China-based companies' export share in the last five years

In market segments at high risk of a shift in dynamics, China is not only gaining market share, but also significantly growing its exports to challenge established market players in other regions globally.

TABLE 1: ALIXPARTNERS' CHEMICAL SUB-SEGMENT EVALUATIONS AND DEFINITIONS

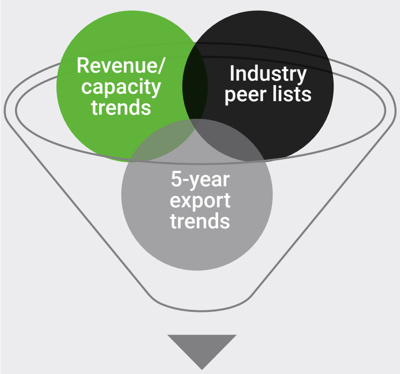
Segment	Sub-segment	Sub-segment definitions
Commodity Chemicals		
Basic & Commodity Chemicals	Monomers & Plastics	Ethylene, Propylene, Styrene, Xylene, and their associated polymers (PE, PP, PS, PET), Synthetic Rubber
Fertilizers	Nitrogen (N)	Fertilizers with nitrogen as the primary nutrient; examples include Ammonia, Urea, Ammonium Nitrate, etc.
	Phosphorus (P)	Fertilizers with phosphorus as primary nutrient; examples include Mono- and Di-ammonium Phosphate
	Potassium (K)	Fertilizers with potassium as primary nutrient; examples include Potassium Chloride, Potassium Sulphate
Specialty Chemicals		
Paints and Coatings	Resins and Formulations	Polymer emulsions and fully formulated paint and coatings products
	Pigments	White pigments (e.g., titanium dioxide), and color pigments, and dyes
Consumer Chemicals	Flavors, Fragrances, and Nutrition (FF&N)	Natural and chemically derived aroma compounds used for food, beverage, and cosmetics applications
	Textiles	Synthetic fibers (e.g. polyester, polypropylene, nylon, urethane), primarily for clothing
	Home and Personal Care (H&PC)	Chemicals for household sanitization and personal hygiene (e.g. anti-microbials, detergents, etc.)
Construction Chemicals	Piping and Sidings (P&S)	Piping and sidings for residential, commercial, and industrial buildings, primarily polyvinyl chloride (PVC)-based
	Insulation, Furniture & Bedding (IF&B)	Building insulation, home appliances, furniture and bedding, primarily polyurethane (PU)-based
	Flooring & Bonding (F&B)	Flooring, adhesive, and waterproofing materials, primarily epoxy-based
Agrochemicals	Differentiated Agrochem	Patented or proprietary active ingredients and formulations for herbicide, fungicide, or insecticide applications; treated seeds & traits
	Generic Agrochem	Off-patent active ingredients and formulations for herbicide, fungicide or insecticide applications, and chemical intermediates for active ingredient manufacturing

CHINA'S CHEMICAL MARKET INFLUENCE IS NOT ONE-SIZE-FITS-ALL

The risk posed by these changes varies widely across different chemical market segments (Figure 2). There is significant risk in post-patent segments with global transport mobility, such as basic and commodity chemicals, generic agrochemicals, and construction chemicals. In contrast, risk in fertilizers and high-grade sub-segments of paints and coatings and consumer chemicals is more limited.

FIGURE 2: ANALYSIS METHODOLOGY AND LEVEL OF CHINA-DRIVEN CHEMICAL INDUSTRY INFLUENCE BY MARKET SEGMENT

Analysis methodology



CHINA MARKET PENETRATION ANALYSIS

1. **Market share** of China-based companies
2. **Market share growth** of China-based companies
3. **Export share** of China as % of global exports
4. **Export share growth** of China vs. global exports

DATA SOURCES

Industry Peer Lists: Coatings World, c&en, CCPIA, Agropages

Revenue/ Capacity Trends: S&P Capital IQ, ifa, Company financial reports

Export Trends: UN Comtrade Database, 中国海关 China Customs

Level of China influence by chemical market segment

Chemical market segment	Sub-segment	(1) 2022 market share	(2) 18-22 market share CAGR	(3) 2022 export share	(4) 18-22 export share CAGR	China disruption risk[1]
Commodity Chemicals						
Basic & Commodity Chemicals	Monomers & Plastics	29%	7%	3%	20%	High
Fertilizers	Nitrogen (N)	34%	0%	8%	-2%	Low
	Phosphorus (P)	36%	0%	19%	-12%	Low
	Potassium (K)	13%	0%	0%	-2%	Low
Specialty Chemicals						
Paints and Coatings	Resins and Formulations	3%	7%	3%	2%	Low
	Pigments	32%	3%	23%	10%	High
Consumer products	Textiles	61%	5%	26%	13%	High
	Flavors, Fragrances, and Nutrition	8%	8%	5%	2%	Low
	Home & Personal Care	4%	16%	9%	21%	High
Building and Construction	Piping and Sidings	41%	-3%	15%	22%	High
	Insulation, Furniture & Bedding	39%	8%	15%	7%	High
	Flooring & Bonding	6%	16%	9%	10%	High
Agro-chemicals	Differentiated Agrochem	0%	0%	22%	12%	Low
	Generic Agrochem	54%	2%			High

1. Our current methodology places greater emphasis on market and export share growth relative to the current market and export share (excludes pharma)
Source: Coatings World, C&EN, IFA, Agropages, S&P CapIQ, CCPIA, company financial reports, UN Comtrade, AlixPartners research and analysis

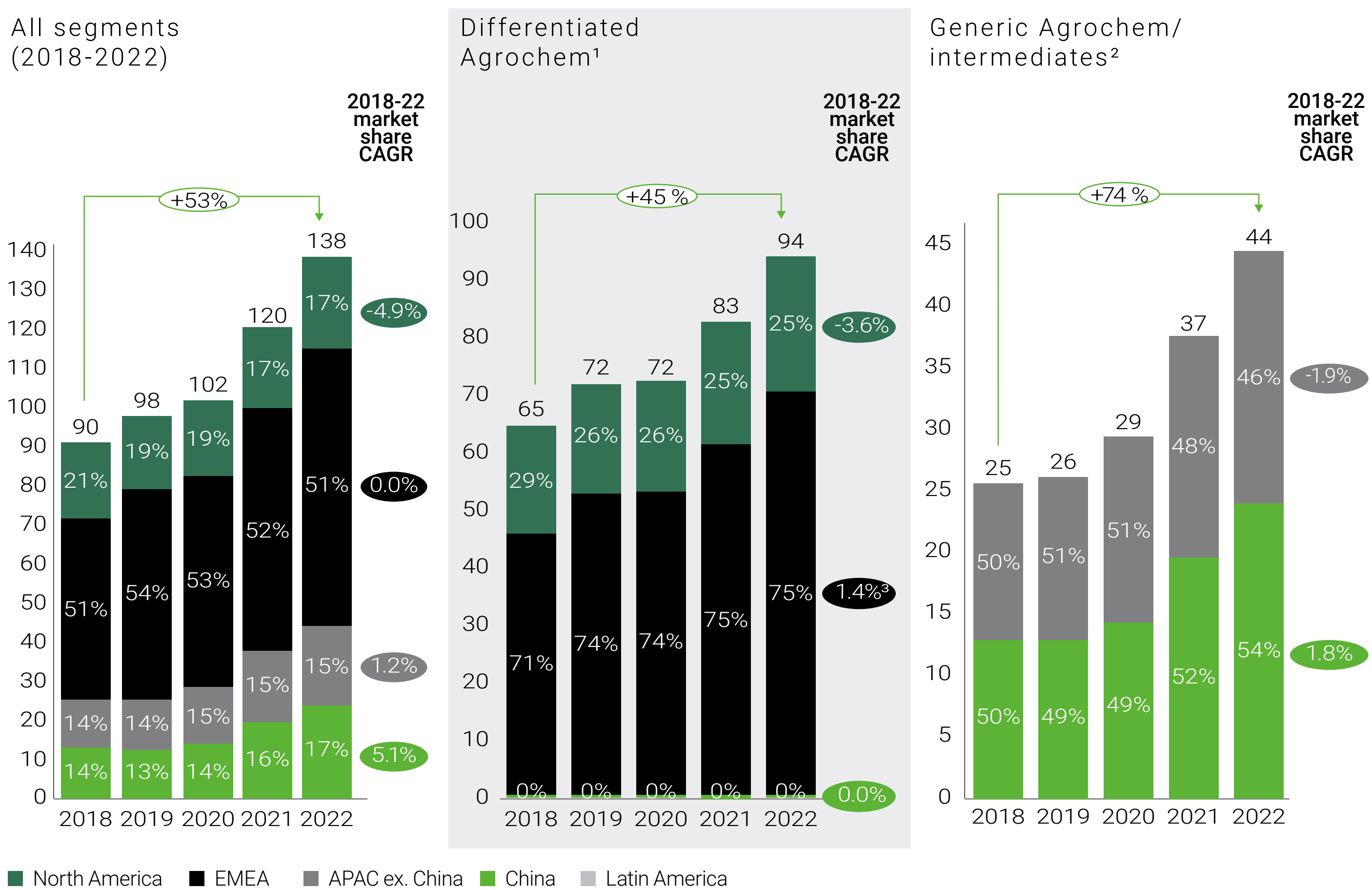
The driving forces and barriers to Chinese influence on shifting dynamics also vary across different chemical market segments. Consider two focus areas: generic agrochemicals, where the influence is high, and flavors, fragrance, and nutrition (FF&N), where it is low.

The **agrochemical industry** is relatively consolidated, with Chinese, Indian, German, and American producers accounting for more than 70% of global revenue. While China-based companies do not have a strong market presence in differentiated agrochemicals, China joins India as juggernauts in generic agrochemicals (Figure 3). Over the past five years, China's agrochemical exports as a share of global exports have steadily risen at a nearly 12% CAGR, driven by generic agrochemicals and intermediates. The exports are primarily heading to Brazil, Australia, and the U.S. (Figure 4).

China benefits from considerably lower cost of capital and manufacturing labor wages versus European and North American competitors, as well as robust access to chemical building blocks from the country's world-scale petrochemical complexes.

These factors provide China with a significant cost advantage, and Chinese companies have begun to support major global agrochemical companies, as toll manufacturers for key agrochemical active ingredients and intermediates. The Chinese government further facilitated this development with export tax rebate programs on key post-patent active ingredients, such as glyphosate. This catalyzed further growth in China's generic agrochemical capacities and market share.

FIGURE 3: AGROCHEMICAL MARKET SHARE TRENDS BY REGION ($BN)



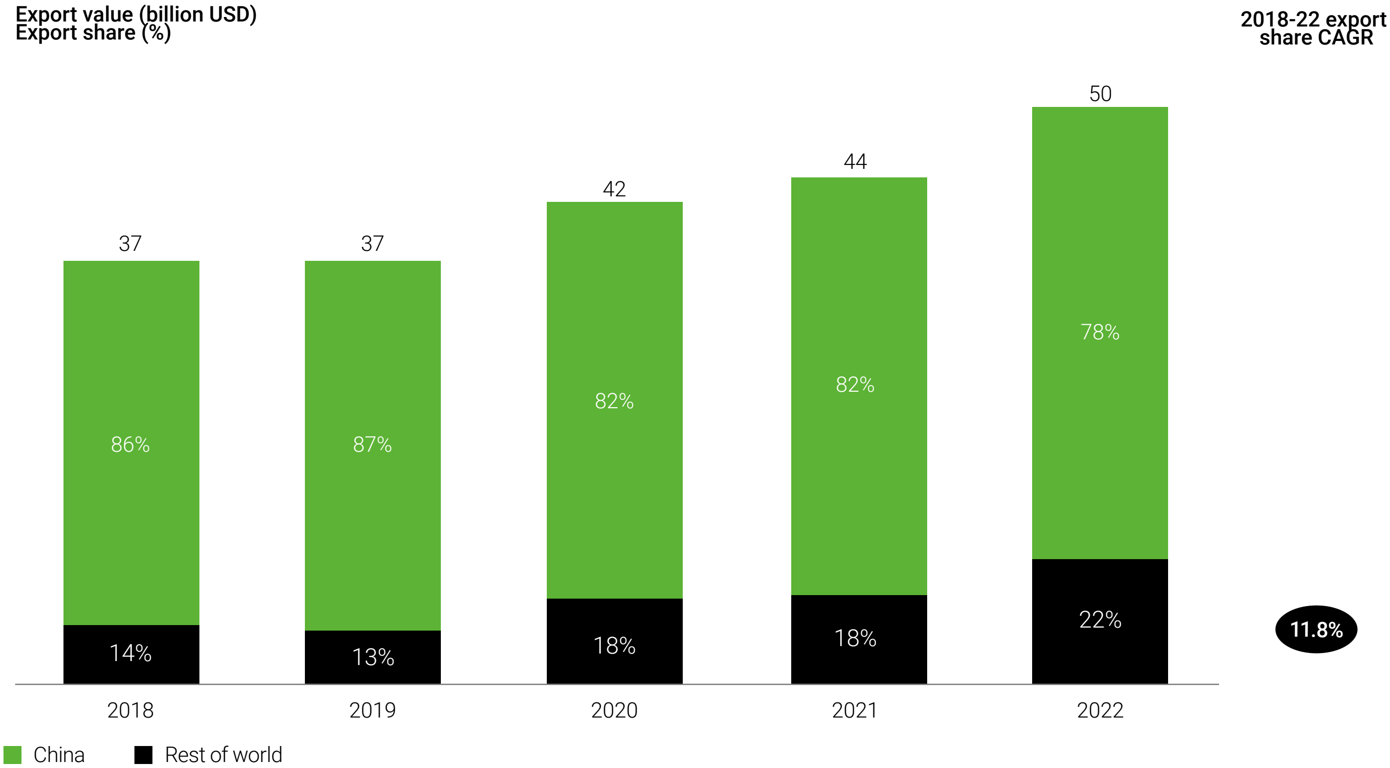
Note: Market share estimates based on total revenue

1. Patented or proprietary active ingredients and formulations for herbicide, fungicide or insecticide applications; treated seeds & traits;
2. Off-patent active ingredients and formulations for herbicide, fungicide, or insecticide applications, and chemical intermediates for active ingredient manufacturing
3. Syngenta, although currently owned by China-based ChemChina, is historically headquartered in Switzerland and considered an EMEA-based company in the current analysis

Source: AlixPartners research, Agro Pages, Capital IQ

FIGURE 4: AGROCHEMICAL EXPORT TRENDS – CHINA VERSUS REST OF WORLD (RoW)

Agrochemical Exports[1] – China export value share as percent of global exports (from all countries)



1. Based on HS Codes 3808 (insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth regulators, disinfectants, and similar products)

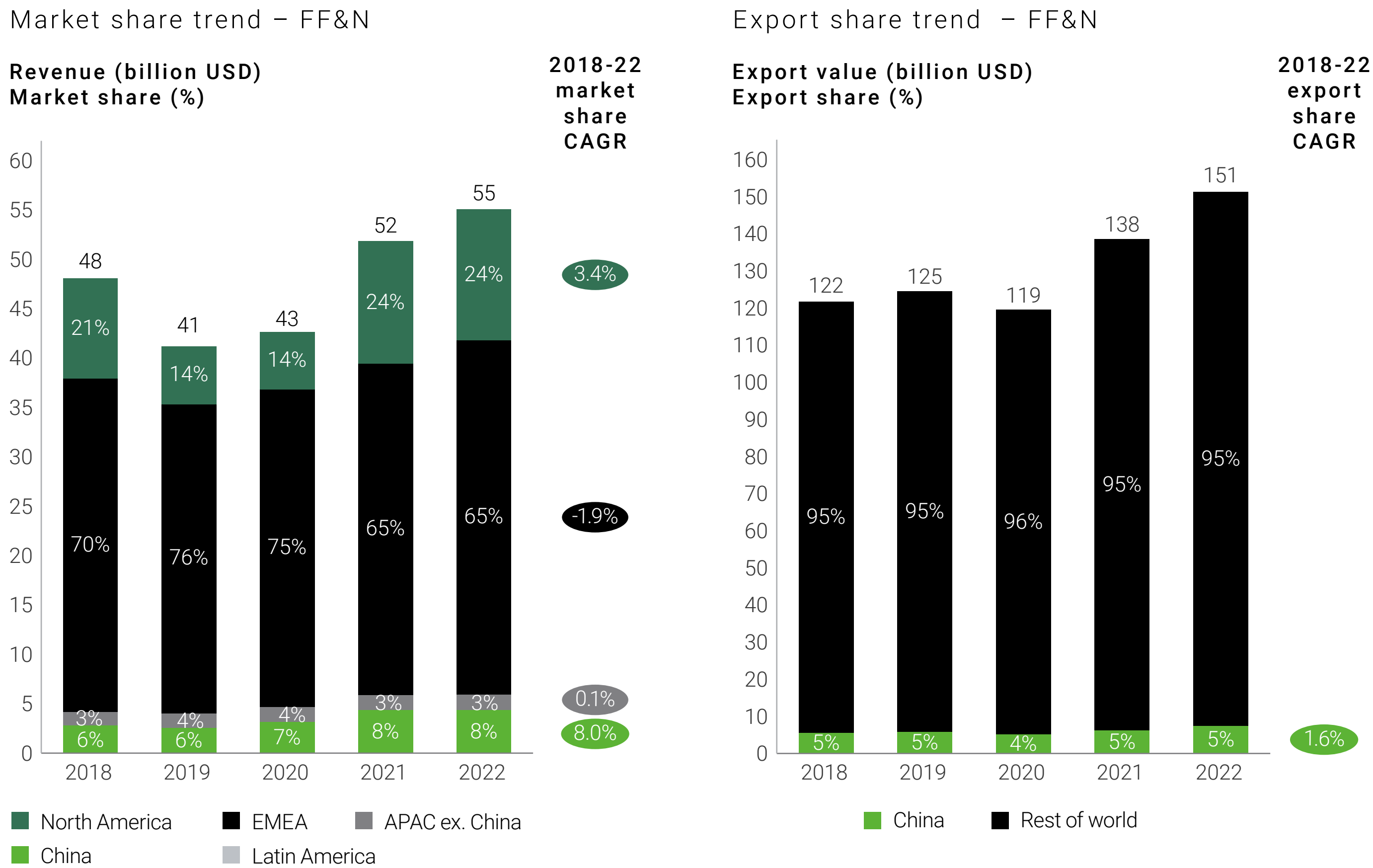
Source: AlixPartners research, UN Comtrade

The story is much different in **Flavors, Fragrance, and Nutrition (FF&N)**, where China has struggled to grow market and export share (Figure 5). Major cosmetic and personal care brand owners in China still source more than 90% of raw material from international companies instead of domestic suppliers.

Why is this the case? For one, upstream raw materials, especially naturally derived raw materials such as palm oil and plant extracts, need to be sourced from Southeast Asia. Major production capacities for these critical commodities are controlled by established players outside of China. Second, there are technological requirements that existing Chinese FF&N players, which tend to be smaller in scale and less resourced, cannot meet. These include lengthy and expensive clinical trials to optimize the performance of the raw materials in end-product formulations (e.g., cosmetics, dietary supplements, etc.).

Finally, Chinese FF&N chemical companies tend to be less sophisticated in terms of branding and marketing. These capabilities typically involve collecting consumer insights, analyzing market and fashion trends, and using real-time market intelligence to inform and rapidly execute new product development.

FIGURE 5: FLAVORS, FRAGRANCES AND NUTRITION (FF&N) MARKET SHARE AND EXPORT GROWTH TRENDS – CHINA VERSUS REST OF WORLD (RoW)



1. Market share estimated based on total revenue; 2. Flavors, Fragrance & Nutrition, based on HS Code 33

Source: AlixPartners research, Capital IQ

ANALYZING RISK, SEIZING OPPORTUNITIES

Given lower domestic chemicals demand in China, other regions must brace for significant industry transformation. Overcapacity, enhanced integration, and low demand leads to a situation where cost pressure is higher than the price of many products. This adds urgency to decisions about rationalization, integration, spin-offs, mergers, and continuity.

Private equity companies are assessing investment opportunities, evaluating exit strategies, and identifying distressed assets and growth opportunities. Our analysis can help identify what corners of the chemical segment to participate in, and which companies to work with to minimize risk and maximize value creation.

CEOs, CFOs, and other top executives of global chemical companies, meanwhile, especially those with global operations, should better understand how China's actions could affect their companies' market share and profit margins. Strategic action plans need to be developed to mitigate potential risks or seize new opportunities.

If the business has low risk of seeing industry dynamics shift and is non-core to the parent company, then it becomes a good high-valuation candidate for a carve-out to be pursued by other companies or private equity firms. These companies can focus more on pricing strategies to enable topline growth; and they can further strengthen their differentiated position via R&D investments and acquisition of new competitors, technology, or an upstream or downstream partner.

Companies in market segments with high risk of seeing industry dynamics shift need to optimize their cost structure to be more cost competitive against Chinese competitors. Some of the major levers include:

- **COST TAKE-OUT:** Some ways to address cost include resetting manufacturing budgets, optimizing OEE efficiency and SG&A cost structure, and identifying direct and indirect procurement savings.
- **INTEGRATION (UPSTREAM AND DOWNSTREAM):** Integration into upstream raw material suppliers or downstream product markets can minimize commodity exposure, and increase end market diversification.
- **M&A SYNERGY CAPTURE:** A lot of chemical companies that made significant acquisitions over the past few years may not have fully integrated the acquired companies and realized the full value of synergies.
- **ASSET FOOTPRINT OPTIMIZATION**: Exit high-cost assets and optimize manufacturing footprint and distribution networks.
- **PORTFOLIO DIFFERENTIATION:** Differentiate product and service offerings and enter longer-term customer supply contracts to keep the imports at bay.
- **SKU/CUSTOMER RATIONALIZATION:** Rationalize unprofitable product SKUs and/or customers based on end-to-end visibility on cost to serve.

UNDERSTANDING CHINA'S INFLUENCE ON INDUSTRY DYNAMICS

The ups and downs of China's economy have reshaped the global chemicals industry, and the impact of China's economic headwinds are only now beginning to be felt globally. By understanding risk exposure across the chemical industry, leaders and investors can be better positioned to take strategic actions to navigate their companies and portfolios across this new wave of ever-evolving market realities.

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ABOUT US

For more than 40 years, AlixPartners has helped businesses around the world respond quickly and decisively to their most critical challenges – circumstances as diverse as urgent performance improvement, accelerated transformation, complex restructuring and risk mitigation.

These are the moments when everything is on the line – a sudden shift in the market, an unexpected performance decline, a time-sensitive deal, a fork-in-the-road decision. But it's not what we do that makes a difference, it's how we do it.

Tackling situations when time is of the essence is part of our DNA – so we adopt an action-oriented approach at all times. We work in small, highly qualified teams with specific industry and functional expertise, and we operate at pace, moving quickly from analysis to implementation. We stand shoulder to shoulder with our clients until the job is done, and only measure our success in terms of the results we deliver.

Our approach enables us to help our clients confront and overcome truly future-defining challenges. We partner with you to make the right decisions and take the right actions. And we are right by your side. When it really matters.