



# **2021**

## **ANNUAL REPORT**

**WANHUA CHEMICAL GROUP CO., LTD.**

## Major Accounting Data and Financial Indicators in Recent Three Years

### Major Accounting Data

Unit: RMB

Major Financial Indicators	2021	2020	Year on Year (%)	2019
Sales Revenue	145,537,817,628.55	73,432,968,475.63	98.19	68,050,668,650.78
Net Profit Attributable to Shareholders of the Company	24,648,748,123.08	10,041,428,014.60	145.47	10,129,985,097.55
Net Profit Excluding Non-recurring Profit or Loss Attributable to Shareholders of the Company	24,356,144,091.02	9,543,943,787.70	155.20	9,156,342,202.26
Net Cash Flow from Operating Activities	27,922,292,184.74	16,849,705,990.71	65.71	25,932,941,200.65
	31 December 2021	31 December 2020	Year on Year (%)	31 December 2019
Net Assets Attributable to Shareholders of the Company	68,498,529,410.78	48,780,345,139.19	40.42	42,364,094,555.73
Total Assets	190,309,582,268.84	133,752,669,388.47	42.28	96,865,322,655.29

### Major Financial Indicators

Major Accounting Data	2021	2020	Year on Year (%)	2019
Basic Earnings Per Share (RMB/Share)	7.85	3.20	145.31	3.23
Diluted Earnings Per Share (RMB/Share)	N/A	N/A		N/A
Basic Earnings Per Share Excluding Non-Recurring Profit or Loss (RMB/Share)	7.76	3.04	155.26	2.92
Weighted Average Return on Net Assets (%)	42.53	22.20	Increased by 20.33%	25.44
Weighted Average Return on Net Assets Excluding Non-Recurring Profit or Loss (%)	42.02	21.10	Increased by 20.92%	22.99

### Quarterly Financial Data for the Year 2021

Unit: RMB

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Sales Revenue	31,312,426,108.62	36,344,576,218.01	39,661,459,110.82	38,219,356,191.10
Net Profit Attributable to Shareholders of the Company	6,621,369,972.77	6,909,027,828.67	6,011,362,948.98	5,106,987,372.66
Net Profit Excluding Non-recurring Profit or Loss Attributable to Shareholders of the Company	6,369,684,229.07	6,825,491,599.75	6,082,410,470.22	5,078,557,791.98
Net Cash Flow from Operating Activities	3,018,987,568.06	8,066,257,400.27	6,397,341,388.94	10,439,705,827.47

## Management Discussion and Analysis

### Discussion and Analysis for Operation

In 2021, taking "cost reduction and efficiency improvement" as its management theme, the Company actively boosted the talent innovation program, optimized the supply chain structure, and improved its operational efficiency. It accomplished its goals in safety management, talent cultivation, technical breakthroughs, management innovation, new project construction, operation of new facilities, acquisition & merger, and industrial integration, grasped the opportunity brought by the peak of global chemical industry, and brought the performance of the Company to a new height. Positively responding to the "carbon peak and neutrality" strategy of China, the Company made innovative arrangements in the new energy industry, made plans for future development of Wanhua and laid a firm foundation for the quality and sustainable development of the Company in the "14<sup>th</sup> Five-year Plan" period.

#### Market and Marketing

In 2021, the vaccination rate in major economies worldwide rose. Economy was recovering, which lifted global market demands for chemical products. However, affected by extreme weather, the pandemic and other factors, part of overseas facilities were short of supply, resulting in large fluctuations in global supply chains of the chemical industry, phased imbalance of supply and demand, and price increase of global chemical products. In 2021, the Company's MDI facilities in Yantai received technical reform and the million-ton ethylene industrial chain project and other projects with new capacity and facilities were put into operation, which improved the supply capacity in global market. With years of preparation in global supply chains and channels, the Company overcame difficulties brought by the pandemic and other adverse factors, orderly guaranteed market supply for global core customers, expanded its share in global market, and the Company's brand reputation and customer satisfaction in the market were also significantly improved.

The PU business segment made efforts in both products and solutions, which enhanced each other and maintained rapid growth. The Company mainly "expanded market resources, stretched overseas boundaries, amplified the synergistic advantage, deepened channel reform, and increased long-term interest". It enhanced cultivation and development of potential upstream and downstream industries, deepened the cooperation with global

quality customers, developed more room for market growth, reserved more market resources and invested more in overseas marketing. The Company constantly improved its global supply chain management, implemented flexible supply chain management mode, rationally allocated regional resources, reduced logistics cost, and improved customer service efficiency. It enhanced its synergistic advantage, gave play to its advantage in polyether and modification technologies and services, and deepened combined marketing of products and solutions to provide integrated, differentiated, systematic solutions, create value for customers, be the most trustworthy strategic partner of customers and a responsible supplier in the industry, and promote healthy and sustainable development of the industry.

The Petrochemical business segment insisted the "light assets and high turnover" strategy in 2021. While "controlling resources, expanding channels, and building systems" on the supply chain, the Company constantly expanded global strategic purchase resources for LPG, took part in LPG operations, reduced purchase cost, and controlled purchase risks. By investing in VLGC and other transportation resources, it rationally controlled logistics costs, improved supply guarantee on the end of raw material purchase and competitiveness in cost. On the sales, it carried out work centering on "the marketing of values, strategies, and culture", actively boosted deepened cooperation mode for strategic customers, and formed the supply chain thinking and the business mode of value chain creation. As a result, it enhanced delivery efficiency to customers, optimized customers' cooperation experience, and greatly lifted the depth, width, and satisfaction of customer cooperation.

The Performance chemicals business keeps rapid growth. In 2021, the ADI Business realized the transformation from a follower into a leader. With a shortage of global supplies, the Company made every effort to satisfy the needs of core customers and became the winner of the first "Excellent Supplier Award" issued by Allnex. In 2021, the Emerging Technology Business Group realized notable sales growth in the water-based resin business and constantly promoted battery materials. Performance Polymers Business Unit further improved the competitiveness of PC products and the operation rate of PC facilities took a domestic leading position in 2021.

In terms of brand building, centering on sustainable development, the Company tried to establish a good corporate image of achieving carbon neutrality, recycling resources, improving human life, and building a harmonious society and joined hands with the relevant parties to establish a brand ecosystem to continuously improve the brand influence of the Company.

## **Production and Operation**

### **1. Yantai Industrial Park**

In 2021, centering on the management theme of "cost reduction and efficiency improvement", the Yantai production base carried out work from reducing production costs, improving efficiency, optimizing new facilities, optimizing the start-up of equipment, and optimizing designs.

In terms of production, the Company reached a new level of annual output in 2021. In the first year of operation, the million tons/year ethylene facilities were operating with full load. In February, the technical transformation for the 1.1 million tons/year MDI facilities was completed. Facilities in the industrial park maintained stable output, high yield, and guaranteed supply for global markets. As to overhaul, throughout the year, the Company completed major overhaul for 44 projects and key technical transformation for 10 projects.

In terms of engineering construction and production preparation, following the management requirements of "lifting standards, strengthening processes, seizing the key points, emphasizing details, improving management, and enhancing efficiency", the park improved its team with the standards for "talents with the six good qualities" and tried to build a first-rate engineering construction team. In 2021, the park promoted a responsibility matrix for supervisors and contractors for PO/SM and BPA projects, boosted cost reduction and efficiency improvement with lean construction, and strengthened sample projects and the "5S" management for construction to improve civilized construction on the sites. In 2021, Wanhua had 53 projects under construction, wherein 23 projects realized interim delivery.

### **2. Ningbo Industrial Park**

In 2021, centering on the management theme of "cost reduction and efficiency improvement", Wanhua Ningbo Industrial Park insisted on the idea of "customer-oriented and integrated park operation" and achieved historical breakthrough in production and operation.

In terms of production, the facilities were safe and stable and ran efficiently. Multiple production indicators reached a record high. As to customer-oriented services, dynamic monitoring were implemented for 20 key indicators and extended from product services to services in the production process. In 2021, there were zero customer complaints about all the product series.

In terms of cost reduction and efficiency improvement, the park started from shrinking accounting units (taking product lines as the units) and enhancing the sense of business (a business entity taking facilities as the profit center), and continuously created the lean culture, and tried to establish a fine industrial park with best efficiency and optimal costs. As to transformation management, in 2021, the park comprehensively implemented the overhaul management system for the first time, continued the five requirements for projects, and formed a three-in-one (technologies+equipment+contractors) practice system taking the sub-commandpost of facilities as the responsible entity, work packages as starting points, process-based standard production as basic requirements, to comprehensively improve the quality of overhaul management.

### **3. Hungary BC Company**

In 2021, the BC Company overcame difficulties brought by repeated outbreak of the pandemic and synchronous implementation of production and key construction projects. The production facilities ran stably and efficiently. The sales volume and profits of major products set new records.

BC Company overcame difficulties caused by the pandemic and fully coordinated engineering resources to complete the technical transformation for the 350,000 tons/year MDI facilities. Facilities after overhaul and transformation have been put into operation. The production reliability of facilities was further improved.

As to procurement, BC Company strengthened synergistic procurement with the head office by formulating synergistic procurement strategy for materials of key projects and the lean synergistic projects for raw and auxiliary materials. The procurement costs were consecutively lowered.

As to logistics, BC Company overcame the difficulties brought by the pandemic and the shortage of transport capacity. The delivery was smooth and the customer satisfaction and trust were largely enhanced.

#### 4. Fujian Industrial Park

The project approval and engineering construction (MDI facilities, TDI facilities, and PVC facilities) of Fujian Industrial Park were progressing as scheduled. For safety management, the park continued to intensify safety risk analysis and the grid-based safety supervisor system, and integrated forces (employer, supervisor, and general contractor) for safety management. For production management, the park continued to take gasification units as the experimental units to establish the production management system of Wanhua Fujian.

For the personnel shortage for project construction and subsequent production, the park enhanced talent gathering by accepting talents from other bases, recruiting talents from the society and campuses, and cultivating talents internally, to make sufficient preparation for the start-up of the Phase I project.

#### 5. Sichuan Meishan Base

The PBAT project and the ternary cathode battery material project of Sichuan Meishan Base were smoothly put into operation. The bioexperiment base realized interim completion in 2021. Through constantly optimizing the modification facilities, the stability of key equipment was notably improved.

### Technological Innovation

In 2021, the Company continuously explored the potential of chemical facilities in precise design and process optimization and enhanced their efficiency. It also constantly iterated over and upgraded core manufacturing technologies (such as MDI, ADI, TDI) to improve its competitiveness. After being optimized, the petrochemical units (for acrylic acid and esters, PVC, etc.) ran stably and got to a leading position in the industry. The Company successfully industrialized its proprietary technologies for PO/SM, continuous DMC polyether, and ternary cathode materials. Several new products had passed the pilot test and were ready for industrial scale-up.

In 2021, Wanhua hired more than a hundred university chair professors to introduce cutting-edge academic ideas. It has established regular relations with domestic and overseas famous universities and carried out all-round cooperation with them in forward-looking technical research, breakthroughs in key technologies, and cultivation of high-end talent. The Company has founded multiple joint innovation centers and labs with leading enterprises in industries for home appliances, au-

tomobiles, green home supplies to boost joint innovation between upstream and downstream of industry chains. It also led the establishment of the Biodegradable Plastics Industrial Alliance to empower the low-carbon development of downstream industries through creating new material solutions and green chemical technologies.

Wanhua Ningbo High Performance Materials Research Institute and Meishan Synthetic Biology Trial Testing Base were put into operation. The roof for the Global Research Center Phase II Project was capped. Meanwhile, the newly established Carbon Neutrality Research Center launched a batch of forward-looking technical R&D projects for emission reduction and comprehensive utilization of CO<sub>2</sub>. The Company constantly improved the confidentiality mechanism of its technical platform for technical innovation. Throughout the year, the Company filed for 805 domestic and overseas invention patents and received 416 licenses. A strong IP protection system was established.

### Management Innovation

#### 1. Work in "the Year of Cost Reduction and Efficiency Improvement"

In 2021, the management theme of Wanhua Chemicalized best practice, constantly improved all the employees' awareness of cost reduction and efficiency improvement, strengthened management and guidance in cost reduction, profit increase, and efficiency improvement. At the same time, under the principles of "comprehensive planning, precise design, lean construction, and lean production", the Company improved the cost control and quality of research, design, procurement, engineering construction, and production and operation and realized quality development.

In 2021, there were 1223 company-level cost reduction and efficiency improvement projects, including 406 high-quality investment projects and 817 production and management projects. The investment cost or operation cost of new projects were effectively reduced. The cost awareness of all the employees were notably enhanced.

#### 2. Personnel Development

Focusing on arrangements for new businesses, the Company recruited more talent from the society and attracted nearly 400 talents for scientific research, technologies, and skills. It deepened industry-academy cooperation, enhanced the contact with universities, expanded channels and student resources. The Company received

more than 2000 excellent bachelors, masters, doctors, and graduates from vocational colleges, in hope of being the first choice as an employer in the chemical industry.

The Company innovated its talent cultivation method and optimized programs and enriched curricula centering on leadership, professionalization, and vocationalization. In terms of leadership, the Company iterated and upgraded curricula, enriched teaching methods, further utilized internal resources, invited excellent managers to give lectures, so as to improve the leadership of cadres. For professionalization, the Company designed richer and more targeted cultivation programs according to the needs of the Company and departments and strengthened cultivation of professional talents with the help of internal and external experts. For vocationalization, the Company continuously intensified cultural guidance and identity recognition, increased attention and support to new employees for their fast adaption and growth. It used multiple methods to discover talents, which can provide an important reference for recruitment and cultivate more talents with the six good qualities.

The new energy battery material business was new field for the Company, with fierce competition, high risk and uncertainties. To ensure consistent project risks and earnings for employees, the employee shareholding platform respectively held 20% equity in Wanhua Chemical (Sichuan) Battery Materials Technology Co., Ltd. and Sichuan Wanlu Industrial Co., Ltd.

With the resource advantage of Wanhua Industrial Park, the Company plans to build a business cluster in Penglai for high-end fine chemicals and high-performance materials. Since the business is a new incremental business with high uncertainty. To ensure consistent project risks and earnings for employees, Wanhua Chemical (Penglai) Co., Ltd. (with Wanhua Chemical holding 80% of the shares and Employee Stock Ownership Platform holding the rest 20%) was established to promote the construction of the Penglai Base.

### **3. Excellent Operation**

In terms of safety management, the Company seized sources to realize essential safety, controlled processes to consolidate the safety foundation, and pursued innovation to strengthen social responsibilities. In terms of sustainable development, Wanhua won the gold authentication medal in the global EcoVadis assessment for enterprise social responsibility and got listed among the top 5% global enterprises. It was a historical breakthro-

ugh and a new business card for sustainable development.

In 2021, the Company actively promoted the construction of the National Technical Standard Innovation Base (for new chemical materials). It led the establishment of the base's board of governors and expert committee, which gathered industrial forces and expert resources and laid a firm foundation for the long-term development of the base. It carried out work centering on product standards, method standards, application standards, and park standards. In 2021, the Company issued 17 standards, and 68 standards were under research. Based on the supply chain for new chemical materials, the Company invited leading customers to establish and join industrial alliances for biodegradable materials, green new energy automobiles, green schools & homes, and modern husbandry, build a high-end interactive platform, and formulate standards, so as to promote quality development of the industry.

In 2021, the Company made efforts to maintain a stable international rating. It was qualified for issuing DFI (debt financing instruments) and issued bonds amounting to RMB17.2 billion at a low cost to satisfy its fund needs. It deepened cooperation with strategic banks and large state-owned banks to facilitate the leaping development of the Company.

Procurement centered on supply guarantee and innovative procurement. Through in-depth cooperation with strategic suppliers, the Material and Equipment Department turned the advantageous resources of suppliers, such as "agile manufacturing, rapid response, quality services, joint development", into the core competitiveness of Wanhua, and overcame the great impact brought by the pandemic to the supply chains. Both purchase orders and delivery volumes reached a new record high. The Purchase Department and suppliers established strategic partnership to build a quality, efficient, and resilient global supply chain and Department and suppliers established strategic partnership to build a quality, efficient, and resilient global supply chain and establish a procurement ecosystem supporting the Company's strategic expansion. In terms of internal audit, in 2021, taking "earlier audit" as the core guiding thought and sticking to the principles of "seizing the sources, determining rules, implementing strict supervision, realizing full-coverage, finding the key points, and conducting retrospective reviews", the Company prepared 35 high-quality audit reports and accelerated the marketization of the procure-

ment business, lean production and management, and standardized marketing management.

#### 4. Enterprise Culture Building

The enterprise culture took root and grew with innovations. The Company integrated its cultural publicity platform and expanded its publicity coverage. Managers at all levels jointly created new interpretations for enterprise culture, formed new cultural consensus, and summarized influential Wanhua experience from excellent practices. An instant incentive mechanism for acts of employees was introduced to highlight good acts of individuals, which fit the emotional experience of "Generation Z".

In order to improve employees' cultivated manners, the Company spotted the pain points and made consecutive efforts to build a civilized Wanhua through full member investigation and initiatives. It established a caring mechanism, implemented four-season caring (spring care, summer cooling gifts, autumn education support, winter warmth). It carried out "match-making" actions, set up "match-maker rewards", established "a match-maker group", and held group wedding to provide whole-hearted care. In 2021, Wanhua upgraded its culture from mechanism, made breakthroughs in key points, and laid a spirit foundation for the long-term development of the Company.

## Analysis on Principal Business

### Analysis on Accounts Changes in Profit Statement and Cash Flow Statement

Unit: RMB

Accounts	2021	2020	Changes (%)
Sales Revenue	145,537,817,628.55	73,432,968,475.63	98.19
Cost of Goods Sold	107,316,508,644.35	55,916,402,051.23	91.92
Selling Expenses	1,051,815,988.32	788,302,611.36	33.43
Administrative Expenses	1,891,642,387.61	1,420,039,011.98	33.21
Financial Expenses	1,478,640,557.30	1,076,414,576.66	37.37
Research and Development Expenditures	3,168,070,387.24	2,043,039,569.73	55.07
Net Cash Flow from Operating Activities	27,922,292,184.74	16,849,705,990.71	65.71
Net Cash Flow from Investing Activities	-28,758,048,220.10	-23,855,021,621.28	-20.55
Net Cash Flow from Financing Activities	17,586,608,513.07	19,812,753,798.28	-11.24
Taxes and Levies	879,585,416.84	675,670,246.83	30.18
Other Income	453,119,500.92	742,389,350.24	-38.96
Investment Income	492,097,331.62	179,166,573.98	174.66
Gain/(Loss) on Changes in Fair Value	6,607,086.30	-6,337,006.85	204.26
Credit Impairment Losses	-184,701,593.92	-115,811,971.86	-59.48
Assets Impairment Losses	-1,075,116,714.94	-488,188,026.02	-120.23
Gain/(Loss) from Disposal of Assets	-18,080,008.99	609,054.83	-3,068.54
Non-Operating Income	96,673,089.76	23,478,740.16	311.75
Non-Operating Expenses	370,683,149.50	116,221,034.86	218.95
Income Tax Expenses	4,112,039,114.25	1,317,267,190.86	212.16

The reason for changes in sales revenue is that: Product prices and sales volume increased in the period.

The main reason for changes in Cost of goods sold is that: Sales value and raw material prices increased in the period.

The main reason for changes in selling expenses is that: The labor cost and travel expenses of sales personnel increased.

The main reason for changes in administrative expenses is that: The labor cost and informatization expenses increased.

The main reason for changes in financial expenses is that: The increase in working capital resulted in increase in interest on bank borrowings.

The main reason for changes in research and development expenditures is that: The research and development input increased in the period.

The main reason for changes in net cash flow from operating activities is that: The cash received from sales of goods and rendering of services increased in the period.

The reason for changes in net cash flow from investing activities is that: There were no significant changes.

The reason for changes in net cash flow from financing activities is that: There were no significant changes.

The main reason for changes in taxes and levies is that: The increase in value-added taxes resulted in the increase in surcharges and the increase in sales resulted in the increase in stamp duties.

The main reason for changes in other income is that: Government grants received in the period that can be included in other income decreased.

The main reason for changes in investment income is that: The equity of Shanghai Wanhua Keju Chemical Technology Development Co., Ltd. was disposed and the profits of associates and joint ventures increased.

The main reason for changes in gain/(loss) on changes in fair value is that: The fair value of foreign exchange forward projects changed.

The main reason for changes in credit impairment losses is that: The increase in receivables in the period resulted in the increase in provision for bad debts.

The main reason for changes in assets impairment losses is that: Impairment was accrued for fixed assets in this period.

The main reason for changes in gain/(loss) from disposal of assets is that: More assets were disposed of in this period than that of the same period of last year.

The main reason for changes in non-operating income is that: Gains from long-term equity investment were accounted for using the equity method.

The main reason for changes in non-operating expenses is that: Losses on asset retirement increased in this period.

The reason for changes in income tax expenses is that: Total profits increased in this period.

## Income and Cost Analysis

In the reporting period, since the production and sales volume increased and product prices and raw material prices both had a year-on-year increase, both sales revenue and cost of goods sold had a year-on-year increase.

### Details of principle businesses by industry, product, region, and sales mode

Unit: RMB

By Industry						
By Industry	Sales Revenue	Cost of Goods Sold	Gross Margin Ratio (%)	Change of Sales Revenue (%)	Change of COGS (%)	Change of Gross Margin Ratio (%)
Chemical Engineering	143,733,419,144.06	105,695,783,510.98	26.46	99.50	93.23	Increased by 2.38%
Others	1,167,173,317.80	1,040,616,813.87	10.84	21.70	25.88	Decreased by 2.96%

By Product						
By Product	Sales Revenue	Cost of Goods Sold	Gross Margin Ratio (%)	Change of Sales Revenue (%)	Change of COGS (%)	Change of Gross Margin Ratio (%)
PU Series	60,492,224,777.40	39,277,435,155.40	35.07	72.75	71.16	Increased by 0.61%
Petrochemical Series	61,409,365,143.56	50,916,478,258.43	17.09	132.46	108.69	Increased by 9.45%
Performance Chemicals & Emerging Materials Series	15,463,788,375.32	12,177,199,079.28	21.25	94.18	88.65	Increased by 2.31%
Others	18,437,089,772.59	15,185,842,681.54	17.63	68.96	71.49	Decreased by 1.22%
Offset Between Products	-10,901,875,607.01	-10,820,554,849.80	N/A	N/A	N/A	N/A
By Geographical Region						
By Geographical Region	Sales Revenue	Cost of Goods Sold	Gross Margin Ratio (%)	Change of Sales Revenue (%)	Change of COGS (%)	Change of Gross Margin Ratio (%)
Domestic	74,068,944,678.11	52,643,147,908.84	28.93	99.53	95.70	Increased by 1.39%
Overseas	70,831,647,783.75	54,093,252,416.01	23.63	97.39	88.97	Increased by 3.40%
By Sales Mode						
By Sales Mode	Sales Revenue	Cost of Goods Sold	Gross Margin Ratio (%)	Change of Sales Revenue (%)	Change of COGS (%)	Change of Gross Margin Ratio (%)
Direct Sales	128,661,545,179.35	95,585,432,834.24	25.71	102.71	97.40	Increased by 2.00%
Distribution by Agents	16,239,047,282.51	11,150,967,490.61	31.33	70.27	56.98	Increased by 5.81%

Note: Revenue classified by product above includes revenue generated by internal use between product series, and costs classified by product include costs generated by internal use between product series.

Explanations on details of principal businesses by industry, product, region, and sales mode:

The revenue and costs of the Company's PU series products both increased compared with the prior year, mainly because the 1.1 million ton production capacity brought by the technical transformation of the MDI facilities in Yantai was put into production, the sales of polyether polyol increased, and the prices of products and raw materials also increased. Gross margin increased mainly due to the year-on-year increase of product prices and the scale effect brought by the improvement of production capacity and sales volume.

The revenue and costs of the Company's petrochemical series products both increased compared with the prior year, mainly because the million tons/year ethylene facilities were put into production, the sales volume of pet-

rochemical products increased, and the overlapping of crude oil price increase and periodic imbalance between global supply and demand resulted in the price increase of petrochemicals and LPG. Gross margin increased mainly due to the large year-on-year increase in prices of petrochemicals and the product structure change and scale effect brought by the operation of the million tons/year ethylene facilities.

The revenue and costs of the Company's performance chemicals & emerging materials series both increased compared with the prior year, mainly because the sales volume of ADI, water-based resin, and TPU increased and the prices of performance chemicals and the relevant raw materials rose. Gross margin increased mainly due to the general increase in product prices and changes in product structure.

Domestic and overseas operating income and costs both increased, mainly because the sales volume of major products rose in the reporting period and the prices of products and raw materials increased. Gross margin increased, mainly because the periodic imbalance of supply and demand resulted in more increase in product

prices than increase in raw material prices, especially that product prices in overseas markets rose a lot due to the periodic supply shortage caused by extreme weather and the COVID-19 pandemic, which brought notable increase in gross margin.

## Analysis on Production and Sales

Products	Unit	Production (Volume)	Sales (Volume)	Inventories (Volume)	Change of Production (Volume) (%)	Change of Sales (Volume) (%)	Change in Inventories (%)
PU Series	10,000 tons	401	389	32	37.40	32.73	58.97
Petrochemical Series	10,000 tons	400	390	18	79.49	74.81	109.61
Performance Chemicals & Emerging Materials Series	10,000 tons	79	76	10	37.97	37.01	40.68

Note: The sales volume above includes internal use between product series.

## Cost Analysis

Unit: RMB

By Industry						
By Industry	Items	2021	Proportion to Total Costs (%)	2020	Proportion to Total Costs (%)	Changes (%)
Chemical Industry	Raw Material	84,685,074,819.24	80.12	40,221,357,736.91	73.53	110.55
Chemical Industry	Labor Cost	2,563,333,227.44	2.43	2,040,371,999.07	3.73	25.63
Chemical Industry	Depreciation	5,553,320,749.95	5.25	4,182,863,396.27	7.65	32.76
Chemical Industry	Energy	7,322,110,643.74	6.93	4,634,820,583.24	8.47	57.98
Chemical Industry	Others	5,571,944,070.61	5.27	3,619,725,252.80	6.62	53.93
	Total	105,695,783,510.98	100.00	54,699,138,968.29	100.00	93.23
Other Industry	Raw Material	567,169,424.34	54.50	508,697,249.94	61.54	11.49
Other Industry	Labor Cost	70,886,387.67	6.81	61,235,307.77	7.41	15.76
Other Industry	Depreciation	70,106,176.88	6.74	50,560,817.19	6.12	38.66
Other Industry	Energy	240,834,020.59	23.14	137,049,643.04	16.58	75.73
Other Industry	Others	91,620,804.39	8.81	69,115,955.73	8.35	32.56
	Total	1,040,616,813.87	100.00	826,658,973.67	100.00	25.88

Unit: RMB

By Product						
By Product	Items	2021	Proportion to Total Costs (%)	2020	Proportion to Total Costs (%)	Changes (%)
PU Series	Raw Material	29,261,366,122.01	74.50	15,454,078,222.80	67.34	89.34
PU Series	Labor Cost	1,560,440,052.95	3.97	1,246,277,085.66	5.43	25.21
PU Series	Depreciation	2,370,752,954.40	6.04	2,184,830,601.16	9.52	8.51
PU Series	Energy	2,909,077,028.19	7.41	1,928,121,056.78	8.40	50.88
PU Series	Others	3,175,798,997.85	8.08	2,135,137,870.53	9.31	48.74
	Total	39,277,435,155.40	100.00	22,948,444,836.93	100.00	71.16
Petrochemical Series	Raw Material	44,432,439,408.01	87.27	20,168,865,144.23	82.66	120.30
Petrochemical Series	Labor Cost	489,939,345.55	0.96	413,232,378.85	1.69	18.56
Petrochemical Series	Depreciation	2,359,741,026.57	4.63	1,506,360,677.76	6.17	56.65
Petrochemical Series	Energy	2,428,853,858.10	4.77	1,615,105,685.88	6.62	50.38
Petrochemical Series	Others	1,205,504,620.20	2.37	694,828,507.56	2.86	73.50
	Total	50,916,478,258.43	100.00	24,398,392,394.28	100.00	108.69
Performance Chemicals & Emerging Materials Series	Raw Material	9,540,982,615.32	78.35	4,561,153,638.49	70.66	109.18
Performance Chemicals & Emerging Materials Series	Labor Cost	525,986,136.92	4.32	422,231,352.69	6.54	24.57
Performance Chemicals & Emerging Materials Series	Depreciation	650,738,786.00	5.34	443,683,505.06	6.87	46.67
Performance Chemicals & Emerging Materials Series	Energy	695,973,900.77	5.72	509,148,237.01	7.89	36.69
Performance Chemicals & Emerging Materials Series	Others	763,517,640.27	6.27	518,813,481.96	8.04	47.17
	Total	12,177,199,079.28	100.00	6,455,030,215.21	100.00	88.65
Others	Raw Material	10,184,380,627.03	67.06	5,508,678,808.87	62.21	84.88
Others	Labor Cost	297,790,634.14	1.96	226,588,882.28	2.56	31.42
Others	Depreciation	838,264,540.46	5.52	633,070,951.80	7.15	32.41
Others	Energy	2,903,869,045.96	19.12	1,930,622,070.83	21.80	50.41

Unit: RMB

By Product						
By Product	Items	2021	Proportion to Total Costs (%)	2020	Proportion to Total Costs (%)	Changes (%)
Others	Others	961,537,833.95	6.34	556,301,190.28	6.28	72.84
	Total	15,185,842,681.54	100.00	8,855,261,904.06	100.00	71.49
Offset Between Products	Total	-10,820,554,849.80		-7,131,331,408.52		

Explanations for other information of cost analysis:

During the reporting period, sales of each segment increased, resulting in an increase in costs in 2021 compared to the same period of the previous year.

## Research and Development Expenditures

Unit: RMB

R&D investments expensed in the current period	3,168,070,387.24
R&D investments capitalized in the current period	
Total R&D investments	3,168,070,387.24
Proportion of R&D investments to sales revenue (%)	2.18
Proportion of capitalization of R&D expenses (%)	

## Assets and Liabilities

Unit: RMB

Items	31 December 2021	Proportion to Total Assets (%)	31 December 2020	Proportion to Total Assets (%)	Changes (%)	Explanations
Cash and Bank Balances	34,216,298,291.79	17.98	17,573,657,862.33	13.14	94.70	Mainly because the Company increased reserves in order to repay the loans due promptly.
Derivative Assets	694,312,477.02	0.36	61,868,454.70	0.05	1,022.24	Because the fair value of derivative financial assets changed.
Accounts Receivable	8,646,177,732.29	4.54	6,309,034,173.56	4.72	37.04	Mainly because the sales income increased.
Receivable Financing	6,630,020,551.27	3.48	4,940,189,679.45	3.69	34.21	Mainly because more bank acceptance bills were received due to the increase of sales income.
Prepayments	1,366,807,869.86	0.72	780,826,688.65	0.58	75.05	Mainly because the prepayments for raw materials increased.
Other Receivables	1,394,076,365.68	0.73	704,288,303.66	0.53	97.94	Mainly because receivables from disposal of subsidiaries' equity and tax refunds receivable increased.
Inventories	18,282,043,845.12	9.61	8,703,505,331.99	6.51	110.05	Mainly because the inventory of raw materials and finished goods increased in the period.
Long-term Equity Investments	3,929,712,612.48	2.06	1,313,982,396.88	0.98	199.07	Mainly because the Company had new investments in associates in the period.

Unit: RMB

Items	31 December 2021	Proportion to Total Assets (%)	31 December 2020	Proportion to Total Assets (%)	Changes (%)	Explanations
Investments in Other Equity Instruments	528,164,661.33	0.28	227,838,044.09	0.17	131.82	Mainly because the Company had new investments in other equity instruments.
Right-of-Use Assets	3,629,798,084.37	1.91				Because leased assets were recognized as right-of-use assets after the application of the new lease standards.
Long-Term Prepaid Expenses	27,772,822.71	0.01	58,746,635.87	0.04	-52.72	Because the prepayments for land lease were reclassified into right-of-use assets after the application of the new lease standards.
Deferred Tax Assets	1,809,033,059.68	0.95	813,092,597.50	0.61	122.49	Mainly because deductible temporary differences increased.
Other Current Assets	3,450,372,660.83	1.81	2,171,595,815.71	1.62	58.89	Mainly because prepayments for projects increased.
Short-Term Borrowings	53,873,031,816.12	28.31	38,244,937,889.93	28.59	40.86	Mainly because the Company had to satisfy its needs for working capital.
Derivative Liabilities	7,255,798.50	0.00	23,946,600.00	0.02	-69.70	Because the fair value of derivative financial liabilities changed.
Contract Liabilities	4,433,834,213.84	2.33	2,878,652,144.26	2.15	54.02	Mainly because sales increased in the year.
Payroll and Employee Benefits Payable	1,868,671,622.42	0.98	780,808,657.56	0.58	139.33	Mainly because unpaid labor costs increased at the end of the year.
Taxes Payable	3,118,072,328.68	1.64	1,182,489,742.95	0.88	163.69	Mainly because the enterprise income tax payable and value-added tax payable increased.
Non-Current Liabilities Due within One Year	4,221,564,091.92	2.22	655,378,473.84	0.49	544.14	Mainly because part of long-term borrowings and lease liabilities were transferred into non-current liabilities due within one year.
Other Current Liabilities	8,823,361,986.82	4.64	5,364,416,501.98	4.01	64.48	Mainly because the Company issued super & short-term commercial paper in the period.
Long-Term Borrowings	15,643,752,279.18	8.22	11,821,926,162.27	8.84	32.33	Mainly because there were more project loans in the period.
Lease Liabilities	2,706,591,681.85	1.42				Because lease liabilities were recognized after the application of the new lease standards and financial lease payables were presented under lease liabilities.
Long-Term Payables	168,129,000.00	0.09	400,017,800.00	0.30	-57.97	Mainly because financial lease payables were presented under lease liabilities after the application of the new lease standards.
Deferred Income	1,423,994,949.79	0.75	967,891,084.87	0.72	47.12	Because more government grants were received in the year.
Other Comprehensive Income	-472,859,258.98	-0.25	375,214,767.93	0.28	-226.02	Mainly because the differences arising from translation of foreign currency statements changed.

## Overseas Assets

Asset scale

Including: overseas assets RMB19.428 billion, making up 10.21% of total assets.

## Restriction of Significant Assets as of 31 December 2021

Unit: RMB

Item	Closing Carrying Value	Reasons for Restriction
Cash and Bank Balances	202,369,212.53	Guarantee deposits for L/C, cash deposits for LPG swap contracts, purchase deposits, deposits for product registration, deposits paid to tax authorities and railway authorities, and others
Financing with Receivables	727,395,871.76	Pledged for opening acceptance bills and letter of credit.



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