



2022

ANNUAL REPORT

WANHUA CHEMICAL GROUP CO., LTD.

Company Code: 600309



Major Accounting Data and Financial Indicators in Recent Three Years

Major Accounting Data

Unit: RMB

Major accounting data	2022	2021	Year on year (%)	2020
Operating income	165,565,484,373.69	145,537,817,628.55	13.76	73,432,968,475.63
Net profit attributable to shareholders of the Company	16,233,626,024.32	24,648,748,123.08	-34.14	10,041,428,014.60
Net profit excluding non-recurring profit or loss attributable to shareholders of the Company	15,797,326,614.07	24,356,144,091.02	-35.14	9,543,943,787.70
Net cash flow from operating activities	36,336,824,920.33	27,922,292,184.74	30.14	16,849,705,990.71
	31 December 2022	31 December 2021	Year on year (%)	31 December 2020
Net assets attributable to shareholders of the Company	76,844,533,840.41	68,498,529,410.78	12.18	48,780,345,139.19
Total assets	200,843,198,875.15	190,309,582,268.84	5.53	133,752,669,388.47

Major Financial Indicators

Major financial indicators	2022	2021	Year on year (%)	2020
Basic earnings per share (RMB/Share)	5.17	7.85	-34.14	3.20
Diluted earnings per share (RMB/Share)	N/A	N/A		N/A
Basic earnings per share excluding non-recurring profit or loss (RMB/Share)	5.03	7.76	-35.18	3.04
Weighted average return on net assets (%)	22.75	42.53	Decreased by 19.78%	22.20
Weighted average return on net assets excluding non-recurring profit or loss (%)	22.14	42.02	Decreased by 19.88%	21.10

Explanations for accounting data and financial indicators for recent three years

Applicable Not Applicable

Quarterly Financial Data for the Year 2022

Unit: RMB

	First Quarter (Jan. to Mar.)	Second Quarter (Apr. to Jun.)	Third Quarter (Jul. to Sept.)	Fourth Quarter (Oct. to Dec.)
Operating income	41,784,424,325.09	47,334,340,972.83	41,301,674,049.48	35,145,045,026.29
Net profit attributable to shareholders of the company	5,373,995,039.93	5,009,026,417.46	3,225,228,467.01	2,625,376,099.92
Net profit excluding non-recurring profit or loss attributable to shareholders of the company	5,346,847,199.23	4,875,331,067.97	3,167,857,892.64	2,407,290,454.23
Net cash flow from operating activities	4,050,753,249.98	10,232,599,766.05	5,660,574,717.08	16,392,897,187.22

Explanations for differences between quarterly data and disclosed data in periodic report

Applicable Not Applicable

Management Discussion and Analysis

Discussion and Analysis for Operation

In 2022, taking "the year of talents" as its management theme, the Company further boosted the talent innovation program, optimized the supply chain structure, and improved its operational efficiency. In the context of decline in global industry demand for polyurethane, petrochemicals, fine chemicals, etc., the Company unswervingly took the road of internationalization and independent innovation to achieve the steady growth of the group revenue through deepening the global strategic layout, optimizing the global supply chain management system, unifying global resource allocation, and continuously improving the global operation capability and core competitiveness.

Market and Marketing

In the polyurethane business segment, the Company promoted the global resource synergy model, deepened the collaborative marketing of products and solutions, created new models of industry marketing, brand marketing and value marketing, and realized the sales growth against the trend. The Company joined hands with leading enterprises in the industry to achieve long-term strategic cooperation for MDI and TDI businesses, achieving a stable increase in number of core customers and becoming one of the world's mainstream suppliers overseas. In polyether business, the Company realized an annual sales exceeding 1 million tons for the first time. And the modified products based on the customer demand achieved No.1 in market share of multiple subsectors.

In petrochemical business segment, around the marketing strategies of "global layout and internal and external linkage to create a petrochemical industrial chain ecosystem" and overall working concepts of "Ramming foundation, expanding boundary, cultivating talents, seeking development in future", the Company continuously expanded its influence in domestic market and participation in overseas market to secure resource control, and established a global raw materials supply system for LPG resources. The Company consolidated its leading supplier position in the industry in terms of products from petrochemical phase I projects by optimizing structure, and strengthened internal synergy between research, production and marketing of products from petrochemical phase II projects to constantly improve its ability in product development, manufacturing and application.

The Company made breakthroughs in both fields of fine chemicals and advanced materials. ADI business unit of Functional Chemicals Business Division seized the opportunity to expand market share and continue to expand the share of global strategic customers. Surface material business division hit a new high in sales of water-base resin, and achieved industry leadership at areas such as auto interior glue, shoe adhesive, plastic blister adhesive, wood lacquer, high-end industrial paint, high-end building materials. Performance Materials Business Division achieved a continuous growth in gross sales of TPU and breakthroughs in critical technology and continuous mass production of TPU paint protection film. Performance Polymers Business Division had an increase in sales revenue, making the Company's market share in domestic pure PC rank among the top three and became the first domestic enterprise with high silicon-content PC, with the overseas export business of PC products increasing significantly for four consecutive years.

In 2022, by optimizing the layout of overseas supply chain and globalized allocation of resources, the Company overcame the logistics cost pressure caused by obstructed supply chain and significant increase in energy price to comprehensively improve its capacity to ensure supply, raise efficiency and prevent risks. For industry promotion, the Company actively promoted the development of applications and standards of polyurethane in the field of building energy efficiency, as new policies will bring new opportunities to the polyurethane industry. As for brand building, the Company contributed to the continuous increase in domestic and overseas sales and expansion of new business, through media publicity in platforms, diversified levels and multidimensional content, and establishment of a global brand synergy mechanism.

Production and Operation

1. Yantai Industrial Park

In 2022, closely adhering to the theme of "the year of talents" and implementing the "talent cultivation" plan of production system, Yantai production base comprehensively improved the ability of personnel in production sector, built a production management system with safety as the core, and formed a facilities management culture which puts "safety production" at priority through activities like DNV facilities rating and "list of daily safety activity".

In terms of production, each facility in Yantai Industrial Park operated safely and stably in 2022, ensuring the stable supply in market. The purity of TDI products was improved and reached the industry-leading level, and the competitive advantage of the Park's integrated industrial chain was further improved by implementing lean cost control in the whole park.

The Park strictly implemented safety, planning, quality and cost control during overhaul to achieve a timely, safe and efficient recondition.

2. Ningbo Industrial Park

In 2022, deeply exploring the enhancement of safety management and system management, Ningbo Industrial Park became the first domestic enterprise obtaining ISRS 9 Level 7 certificate in the sector of chemical materials.

The Park realized a growth in productivity of MDI and ADI while implementing flexible adjustment and agile manufacturing. There were no complaints against MDI series for three consecutive years.

In terms of talent cultivation, the Park set a team of "talents with six good qualities" which practiced the core values of Wanhua based on the theme of "the year of talents", carried out engineer trainee training camps to export key talents to the group continuously.

3. Hungary BC Company

In 2022, in the context of high energy price, high inflation, weak demand, BC Company arranged its production plan reasonably and operated facilities stably and safely, to maintain the stable operation of MDI and TDI facilities and stable supply of customer demand, and the sales team fully seized the market opportunity to optimize the group's overall supply coordination ability. BC Company utilized risk hedging instruments to reduce procurement costs of natural gas, so as to provide strong guarantee for its normal operation during the persistent high volatility in price of natural gas.

4. Wanhua Fujian

Overcoming the impact of adverse factors such as high temperature and typhoon and after two-year hard work, the MDI facilities with a productivity of 400,000t/year in Wanhua Fujian had a successful start-up at the first attempt and operated stably.

Implementing the management theme of "the year of talents" and devoting greater efforts to conducting production preparation training, improving the capability of incumbent engineers, cultivating engineer trainees, holding training camps for shift leaders, etc., Wanhua Fujian cultivated "talents with six good qualities" for the Company.

5. Wanhua Penglai

In 2022, Wanhua Penglai Phase I project commenced concentratedly with an aim to undertake the transformation of independent research and innovation achievements and build a first-class green and low-carbon integrated manufacturing base of high-end fine chemicals and new materials. At present, Wanhua Penglai has completed the compliance procedures and design of the Phase I project, such as safety assessment, environmental assessment and energy assessment; purchase of main rotating equipment and static equipment has been completed partly; and foundation works in the park such as ground dynamic compaction, ground pipe, pile foundation, public auxiliary facilities have begun.

6. Wanhua Sichuan

In 2022, Wanhua Sichuan overcame multiple difficulties to achieve a stable progress in construction of project. In September, the first set of integrated, large-scale BDO facilities in Sichuan Industrial Park produced qualified products successfully, providing guarantee of raw materials for four sectors in the Park: degradable materials, battery materials, fine chemicals, and specialty chemicals for new energy.

Technological Innovation

In 2022, all industrial parks of Wanhua achieved technology upgrade and new technology development for multiple sets of facilities, realizing different degrees of process optimization in MDI, TDI, HDI and other facilities, which were reflected at the aspects of enhancement of reaction efficiency, reduction in cost, improvement of product purity and quality, etc.

In terms of high-end new chemical materials and solutions, independent research and development facilities, such as nylon 12 and silicon copolymer PC, had a successful start-up at the first attempt. Wanhua's material solutions were based on high-end technologies, ADI-type TPU materials took a leading position in the domestic technology and market, and the new production of PMMA for lens and medical treatment were developed successfully and passed certification of customers. The Company continued to develop new applications of polyurethane, and the world's first set of formaldehyde-free plywood continuous production line was put into production stably, accelerating the downstream industry transformation and upgrading, and completing the laying of 5 polyurethane pavements. With the successful development of pilot production for rigid polyurethane foam recovery, the Company is promoting cooperation with leading refrigerator enterprises.

In the field of emerging technology research, the Company devoted more resources to new energy-related fields, built new technology platforms of battery recycling and extracting lithium from salt lakes, etc., achieving the simultaneous advance of whole industrial chain of battery materials and battery chemicals, and improving the closed loop capability of the ecosystem. The separation and purification membrane has completed the product iteration and upgrade, realizing the stable supply of key customers.

Management Innovation

1. Work in "the year of talents"

Under the management concept of taking talent as the first strategic resource, the Company made continuous deepening and innovation in talent introduction, cultivation, incentive, retention and other aspects, around the management theme of "the year of talents" in 2022.

For talent recruitment, the Company conducted intensive and deep interactive cooperation with key universities to constantly improve its power and influence as an employer. In terms of undergraduate, master, doctor recruitment, the Company has found a "4+1 school-enterprise flexible organization" with Tianjin University, East China University of Science and Technology, Dalian University of Technology, Sichuan University to carry out regular interaction and cooperation, and made contributions to the establishment of high quality talent cultivation system in the chemical industry through "Connecting supply and demand with employment and talent cultivation" program of the Ministry of Education, the School-enterprise Co-Innovation Forum, Wanhua interns and other programs. In terms of college student recruitment, the Company actively explored the colleges around each production base and established the Wanhua Industry College and the Wanhua Order Class in multiple colleges. The above measures ensure the quantity and quality of talent introduction, and lay a good foundation for the Company to build a talent highland in the chemical industry.

In terms of talent cultivation, led by culture, the Company constantly build a more systematic and targeted personnel training system, cultivate more "talents with six good qualities", and accelerate the speed of talent cultivation and growth. In 2022, training classes for 5 levels of leadership totally cultivated 640 cadres. As for cultivation of professional talents, the Company carried out 8 shifts and cultivated 279 staff for production, marketing, functional system. Over 5000 new employees from four bases completed induction training.

In terms of use and retention of talents, the Company continued to create an employment environment of fairness and justice, competence and appropriate position, strengthened the orientation of performance, focused on core positions and talents, and conducted job rotation in a larger scope to constantly cultivate and promote inter-disciplinary talents through exercise on business positions. In order to continuously reform and improve the incentive system, in 2022, the Company published the Administrative Measures for Investments Following Major Investors by Key Staff to attract high quality talents and maintain the stability of core technology and key personnel, laying a good foundation for the Company's stable and sustainable development.

2. Cost reduction and efficiency improvement

In 2022, the Company further improved its work in cost reduction and efficiency improvement, with 841 related projects in production and management and 116 projects in high quality investment under annual tracking and implementation. After two years of accumulation, thematic promotion of common cases has improved the competitive advantage of low cost and high quality, and constantly optimized incentive measures to further deepen the awareness of cost reduction and efficiency improvement of all staff.

3. Excellent operation

For safety management, the Company newly added 23 rules and regulations and 30 amendments to strengthen the institutional foundation of safety production management as per needs of risk management and control and requirements of laws and regulations. Devoting more efforts to the risk analysis and design of engineering measures at the early stage of projects, the Company firmly identified and controlled risks at the front end of the full life cycle of the project to reduce the probability of risks caused by engineering design errors in the operation stage.

For purchase management, the Company made the following achievements in 2022: separation of front end and back end of purchase business through establishing a purchasing business center, with significant improvement in purchase efficiency; effective improvement of purchase compliance through purchase system sorting and process reform; effective reduction in logistics delivery time and one code inspection and tracing of chemical circulation through purchase logistics information construction, with a material management efficiency increase of 20%.

For digital and intelligent construction, in 2022, the Company launched its S/4 HANA system, covering primary branches and subsidiaries in domestic and overseas of the Company, to further strengthen the management and control ability of the Group. Undertaking the excellent manufacturing system, the Company constructed a groupwide unified production and operation management platform on the basis of helping successful start-up of multiple sets of facilities. And the Company obtained UKAS (international) and CNAS (domestic) certifications on information security for the first time, strengthening the Company's information security.

For audit compliance, in 2022, 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 conducted 34 high-quality audits. The Company created a clean and upright development environment through fully implementing "Positive Wanhua 345 Actions", full declaring conflict of interest by employees, employee integrity education talk, notice on uncorrupted cooperation for business partners and other works.

4. Enterprise culture building

In 2022, the Company devoted more efforts to the six aspects (i.e., concept leading, publicity, training, activities, seniority, standardized output) of work in enterprise culture; timely released the management philosophy and conveyed the management voice to employees; created a comprehensive, multi-function, and full-coverage all-media matrix including new media + paper media, online + offline linkage; carried out multi-level and multi-group cultural training so that culture can be heard, understood; conducted activities such as group wedding, thanksgiving month, League Committee Association and Spring Festival series activities to let Wanhua people enhance their senses of happiness and belonging; issued Seniority Honor Memorial Trophy for the first time to show respect to every Wanhua people and inspire more strivers. Wanhua culture continued to strengthen radiation in the breadth and implement actions in the depth, providing spiritual motivation for the Company's excellent development.

Analysis on Principal Business

Analysis on accounts changes in profit statement and cash flow statement

Unit: RMB

Accounts	2022	2021	Changes (%)
Operating income	165,565,484,373.69	145,537,817,628.55	13.76
Operating costs	138,132,222,629.60	107,316,508,644.35	28.71
Selling expenses	1,152,911,294.08	1,051,815,988.32	9.61
Administrative expenses	1,966,123,396.49	1,891,642,387.61	3.94
Financial expenses	1,234,944,690.97	1,478,640,557.30	-16.48
Research and development expenditures	3,420,092,050.62	3,168,070,387.24	7.96
Net cash flow from operating activities	36,336,824,920.33	27,922,292,184.74	30.14
Net cash flow from investing activities	-34,324,606,636.65	-28,758,048,220.10	-19.36
Net cash flow from financing activities	-17,187,540,503.08	17,586,608,513.07	-197.73
Other income	740,325,893.56	453,119,500.92	63.38
Profit or loss on changes in fair value	172,955,397.70	6,607,086.30	2,517.73
Impairment loss of credit	-64,525,028.72	-184,701,593.92	65.07
Impairment loss of assets	-191,686,738.96	-1,075,116,714.94	82.17
Income from disposal of assets	27,389,372.43	-18,080,008.99	251.49
Non-operating income	44,790,521.70	96,673,089.76	-53.67

The reason for changes in operating income is mainly that: There were no significant changes.

The reason for changes in operating costs is mainly that: There were no significant changes.

The reason for changes in selling expenses is mainly that: There were no significant changes.

The reason for changes in administrative expenses is mainly that: There were no significant changes.

The reason for changes in financial expenses is mainly that: There were no significant changes.

The reason for changes in research and development expenditures is mainly that: There were no significant changes.

The reason for changes in net cash flow from operating activities is mainly that: There was a growth in the sales scale 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: The borrowings to be repaid at maturity in the period increased.

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

The reason for changes in profit or loss on changes in fair value is mainly that: The fair value of derivative financial assets changed.

The reason for changes in impairment loss of credit is mainly that: Changes in accounts receivable in the period were small.

The reason for changes in impairment loss of assets is mainly that: Impairment was accrued for fixed assets in the same period of last year.

The reason for changes in income from disposal of assets is mainly that: More assets were disposed of in this period than that of same period last year.

The reason for changes in non-operating income is mainly that: Gains from long-term equity investment were accounted for using the equity method in the same period of last year.

Explanations on significant changes in the Company's business types, profit composition or profit sources in this period

Applicable Not Applicable

Income and cost analysis

Applicable Not Applicable

In the reporting period, since the production and sales volume increased and raw material prices had a year-on-year increase, both operating income and operating costs had a year-on-year increase.

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

Unit: RMB

By industry						
	Operating income	Operating costs	Gross margin ratio (%)	Change of operating income (%)	Change of operating costs (%)	Change of gross margin ratio (%)
Chemical engineering	163,161,891,759.37	136,133,648,997.51	16.57	13.52	28.80	Decreased by 9.89%
Others	1,346,117,752.72	1,256,711,166.63	6.64	15.33	20.77	Decreased by 4.20%

By product						
	Operating income	Operating costs	Gross margin ratio (%)	Change of operating income (%)	Change of operating costs (%)	Change of gross margin ratio (%)
PU series	62,895,627,987.13	47,518,325,599.15	24.45	3.97	20.98	Decreased by 10.62%
Petrochemical series	69,635,163,722.00	67,032,075,903.58	3.74	13.40	31.65	Decreased by 13.35%
Fine chemicals & new material series	20,124,158,355.68	14,563,003,183.76	27.63	30.14	19.59	Increased by 6.38%
Others	25,478,328,836.27	21,688,845,665.78	14.87	38.19	42.82	Decreased by 2.76%
Offset between products	-13,625,269,388.99	-13,411,890,188.13	N/A	N/A	N/A	N/A

By geographical region						
	Operating income	Operating costs	Gross margin ratio (%)	Change of operating income (%)	Change of operating costs (%)	Change of gross margin ratio (%)
Domestic	83,276,058,787.12	67,951,235,029.95	18.40	12.43	29.08	Decreased by 10.53%
Overseas	81,231,950,724.97	69,439,125,134.19	14.52	14.68	28.37	Decreased by 9.11%

By sales mode						
	Operating income	Operating costs	Gross margin ratio (%)	Change of operating income (%)	Change of operating costs (%)	Change of gross margin ratio (%)
Direct sales	142,511,905,922.09	121,427,177,799.87	14.80	10.76	27.04	Decreased by 10.91%
Distribution by agents	21,996,103,590.00	15,963,182,364.27	27.43	35.45	43.16	Decreased by 3.9%

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:

During the reporting period, the sales volume of main products in polyurethane series, petrochemical series, fine chemicals and new materials series increased due to the increase in sales volume of polyether polyol and putting-in-service of PO/SM facilities and multiple sets of fine chemical facilities, with an corresponding increase in product revenue and cost. At the same time, affected by the rise in global prices of bulk raw materials and energy, the increase in product cost was greater than the increase in revenue, and the gross margin ratio declined year-on-year.

The increase in revenue and cost at domestic and overseas was mainly due to the increase in sales volume of main products and the rise in prices of raw material and energy during the reporting period, which fully leveraged the advantages of global channels; the decrease in gross margin ratio was mainly due to the impact of significant increase in global prices of bulk raw materials and energy, and the fact that the Company's product costs increased more than revenue growth.

Analysis on production and sales

Applicable Not Applicable

Products	Unit	Production (Volume)	Sales (Volume)	Inventories (Volume)	Change of Production (Volume) (%)	Change of Sales (Volume) (%)	Change in Inventories (%)
PU series	10k tons	416	418	31	3.88	7.44	-4.47
Petrochemical series	10k tons	450	454	14	12.57	16.40	-24.12
Fine chemicals & new material series	10k tons	98	95	14	24.11	24.52	32.93

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

Fulfillment of significant procurement contracts and significant sales contracts

Applicable Not Applicable

Cost analysis

Unit: RMB

By industry							
	Items	2022	Proportion to total costs (%)	2021	Proportion to total costs (%)	Changes (%)	Remark
Chemical Industry	Raw material	110,982,047,548.44	81.52	84,685,074,819.24	80.12	31.05	
Chemical Industry	Labor salaries	3,027,916,852.09	2.22	2,563,333,227.44	2.43	18.12	
Chemical Industry	Depreciation	6,606,711,597.23	4.85	5,553,320,749.95	5.25	18.97	
Chemical Industry	Energy	9,106,758,781.88	6.69	7,322,110,643.74	6.93	24.37	
Chemical Industry	Others	6,410,214,217.87	4.72	5,571,944,070.61	5.27	15.04	
	Total	136,133,648,997.51	100.00	105,695,783,510.98	100.00	28.80	
Other industry	Raw material	652,274,216.64	51.90	567,169,424.34	54.50	15.01	
Other industry	Labor salaries	80,490,733.79	6.40	70,886,387.67	6.81	13.55	
Other industry	Depreciation	81,836,974.72	6.51	70,106,176.88	6.74	16.73	
Other industry	Energy	339,155,799.88	26.99	240,834,020.59	23.14	40.83	
Other industry	Others	102,953,441.60	8.20	91,620,804.39	8.81	12.37	
	Total	1,256,711,166.63	100.00	1,040,616,813.87	100.00	20.77	

By product							
	Items	2022	Proportion to total costs (%)	2021	Proportion to total costs (%)	Changes (%)	Remark
PU series	Raw material	35,750,184,545.34	75.23	29,261,366,122.01	74.50	22.18	
PU series	Labor salaries	1,820,449,316.41	3.83	1,560,440,052.95	3.97	16.66	
PU series	Depreciation	2,739,058,213.22	5.76	2,370,752,954.40	6.04	15.54	
PU series	Energy	3,428,791,611.89	7.22	2,909,077,028.19	7.41	17.87	
PU series	Others	3,779,841,912.29	7.96	3,175,798,997.85	8.08	19.02	
	Total	47,518,325,599.15	100.00	39,277,435,155.40	100.00	20.98	
Petrochemical series	Raw material	58,952,249,321.23	87.95	44,432,439,408.01	87.27	32.68	
Petrochemical series	Labor salaries	599,067,382.48	0.89	489,939,345.55	0.96	22.27	
Petrochemical series	Depreciation	2,845,390,058.69	4.24	2,359,741,026.57	4.63	20.58	
Petrochemical series	Energy	3,225,498,955.09	4.81	2,428,853,858.10	4.77	32.80	
Petrochemical series	Others	1,409,870,186.09	2.11	1,205,504,620.20	2.37	16.95	
	Total	67,032,075,903.58	100.00	50,916,478,258.43	100.00	31.65	
Fine chemicals & new material series	Raw material	11,036,057,204.63	75.78	9,540,982,615.32	78.35	15.67	
Fine chemicals & new material series	Labor salaries	642,733,571.65	4.41	525,986,136.92	4.32	22.20	
Fine chemicals & new material series	Depreciation	942,193,342.70	6.47	650,738,786.00	5.34	44.79	
Fine chemicals & new material series	Energy	956,151,987.63	6.57	695,973,900.77	5.72	37.38	
Fine chemicals & new material series	Others	985,867,077.15	6.77	763,517,640.27	6.27	29.12	
	Total	14,563,003,183.76	100.00	12,177,199,079.28	100.00	19.59	
Others	Raw material	15,211,606,381.51	70.14	10,184,380,627.03	67.06	49.36	
Others	Labor salaries	351,897,799.05	1.62	297,790,634.14	1.96	18.17	
Others	Depreciation	985,771,139.88	4.55	838,264,540.46	5.52	17.60	
Others	Energy	4,128,189,471.92	19.03	2,903,869,045.96	19.12	42.16	
Others	Others	1,011,380,873.42	4.66	961,537,833.95	6.34	5.18	
	Total	21,688,845,665.78	100.00	15,185,842,681.54	100.00	42.82	
Offset between products	Total	-13,411,890,188.13		-10,820,554,849.80			

Explanations for other information of cost analysis:

During the reporting period, sales of each segment increased and the price of raw materials and energy raised, resulting in an increase in costs in 2022 compared to the same period of the previous year.

Research and development expenditures

Research and development ("R&D") expenditures

Applicable Not Applicable

Unit: RMB

R&D investments expensed in the current period	3,420,092,050.62
R&D investments capitalized in the current period	
Total R&D investments	3,420,092,050.62
Proportion of R&D investments to operating income (%)	2.07
Proportion of capitalization of R&D expenses (%)	

Assets and liabilities

Unit: RMB

Items	31 December 2022	Proportion to total assets (%)	31 December 2021	Proportion to total assets (%)	Changes (%)	Explanations
Cash and bank balances	18,988,842,959.88	9.45	34,216,298,291.79	17.98	-44.50	Mainly because the Company repaid interest-bearing debts
Derivative financial assets	330,103,785.90	0.16	694,312,477.02	0.36	-52.46	Because the fair value of derivative financial assets changed
Receivable financing	1,254,427,273.12	0.62	6,630,020,551.27	3.48	-81.08	Mainly because the discount of acceptance receivable in the period
Other current assets	1,437,178,381.93	0.72	1,061,572,287.97	0.56	35.38	Mainly because the increase in VAT credit in the period
Long-term equity investments	6,228,734,982.59	3.10	3,929,712,612.48	2.06	58.50	Mainly because the company had new investments in associates in the period
Right-of-use assets	6,748,077,119.71	3.36	3,629,798,084.37	1.91	85.91	Mainly because the company had new leases in the period
Deferred tax assets	2,634,513,877.45	1.31	1,809,033,059.68	0.95	45.63	Mainly because deductible temporary differences increased
Other non-current assets	5,287,396,875.20	2.63	3,450,372,660.83	1.81	53.24	Mainly because prepayments for projects increased
Derivative financial liabilities	12,075,405.30	0.01	7,255,798.50	0.00	66.42	Because the fair value of derivative financial liabilities changed
Taxes payable	1,684,562,683.20	0.84	3,118,072,328.68	1.64	-45.97	Mainly because the enterprise income tax payable and value-added tax payable decreased
Other current liabilities	13,373,523,009.93	6.66	8,823,361,986.82	4.64	51.57	Mainly because the Company issued short-term commercial paper in the period
Bonds payable	200,000,000.00	0.10				Mainly because the Company issued mid-term notes in the period
Lease liabilities	5,842,744,150.06	2.91	2,706,591,681.85	1.42	115.87	Mainly because the Company had new leases in the period

Overseas assets

 Applicable Not Applicable

Asset scale

Including: overseas assets RMB 21.328 billion, making up 10.62% of total assets.

Explanation on the high proportion of overseas assets

 Applicable Not Applicable

Restriction of significant assets as of 31 December 2022

 Applicable Not Applicable

Restriction of significant assets as of 31 December 2022:

Unit: RMB

Item	Closing carrying amount	Reasons for restriction
Cash and bank balances	176,578,510.93	Purchase deposits, deposits for bank acceptances, deposits for product registration, deposits paid to tax authorities and railway authorities, and others
Financing receivables	138,721,824.51	Pledged for opening acceptance bills and letter of credit.
Total	315,300,335.44	/



Advancing Chemistry,
Transforming Lives.

WANHUA CHEMICAL GROUP CO., LTD.

en.whchem.com