



Optimization of Purchasing Cost for Casting Alloys

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OBJECTIVES

- The objective of the project is to assist clients in understanding the value chain and pricing mechanism of China aluminum casting alloys, and to provide professional expertise on feedstock structure and cost of alloy producer and to analyze the detailed value chain of target end users.

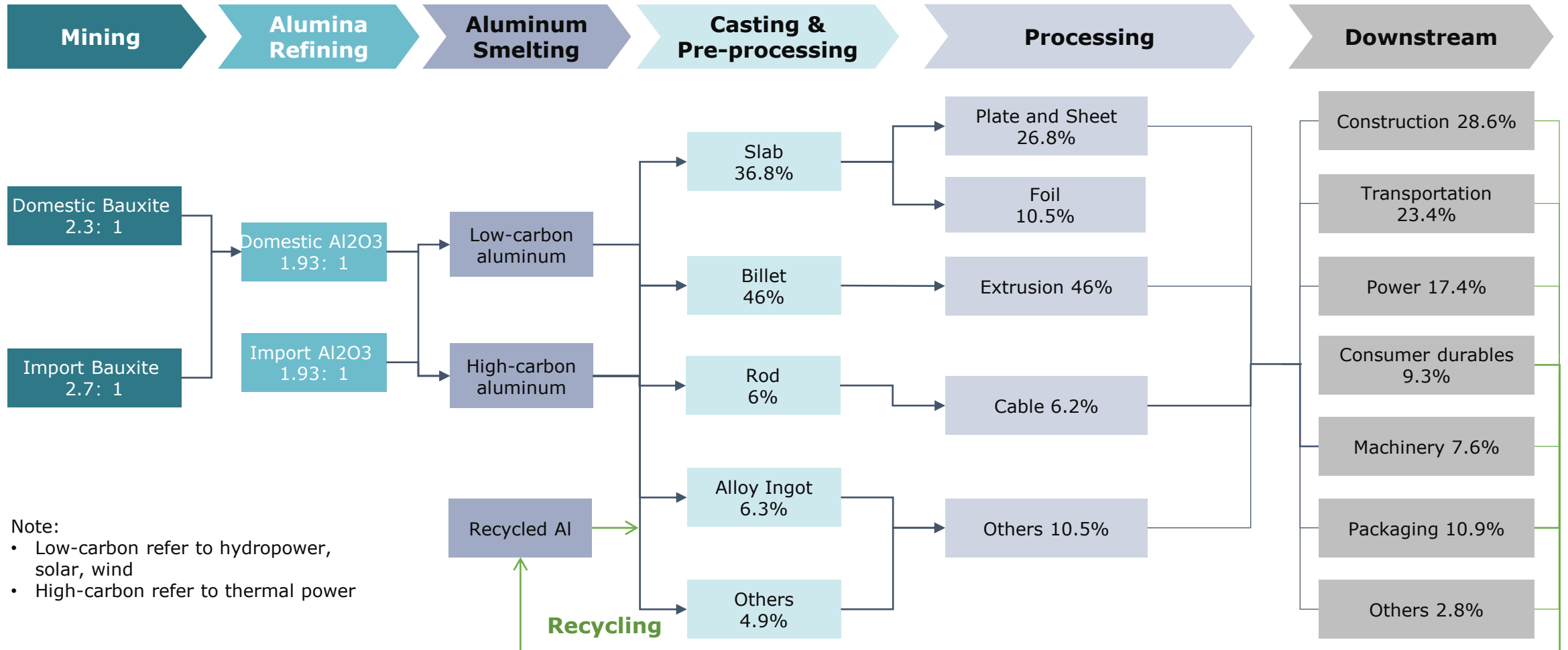
PROCESS

- Methodology
 - ▶ Analyze the value chain and pricing mechanism within dismantler, traders, casting alloy producers and end users
 - ▶ Conduct cost analysis for ADC12 of target alloy producers
 - ▶ Determine the close loop strategy and feasibility study regarding target aluminum accessories
- Sample Size
 - ▶ Dismantler (20), traders (21), alloy producer (5)
- Project Time
 - ▶ 6 weeks

DELIVERABLES

- China aluminum value chain mapping
 - ▶ Industry concentration
 - ▶ Profit margin
- Pricing mechanism analysis
 - ▶ Benchmark: A00, ADC12
 - ▶ Platform: LME, SMM, SHFE
 - ▶ Period: weekly, monthly etc.,
- Target company benchmark
 - ▶ Basic info: company name, shareholder
 - ▶ Feedstock info: scrap volume, origin, type, pricing
 - ▶ Product info: process technology, cost breakdown, key customer and application

China Aluminum Value Chain (2022)



China Aluminum Production Layout (2021)

Bauxite



- China's bauxite supply is highly concentrated, mainly in Shandong, Guangxi, Henan, and Guizhou provinces, with a total resource reserve and output exceeding xx%.
- Most of the mineral resources are in the hands of state-owned enterprises. Among private enterprises, Guangzhou Aluminum takes the lead in bauxite resources

Aluminum



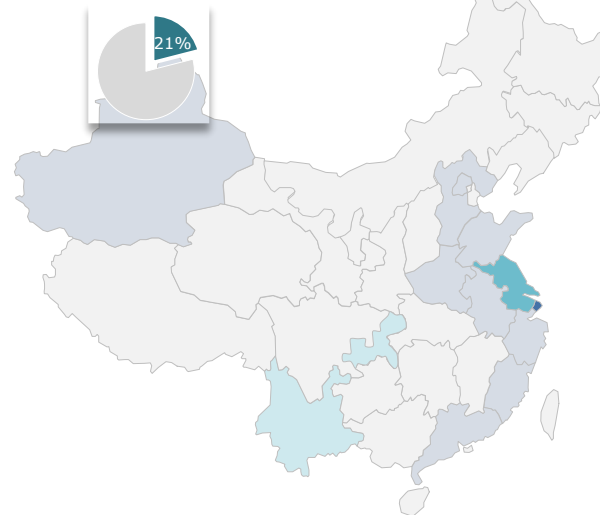
- Constrained by the large power consumption of electrolytic aluminum, Yunnan, which is rich in hydropower resources in the future, is expected to become a new point of production growth

Alumina



- In 2021, the total domestic alumina production capacity will be about xx million tons, the output will be xx million tons, and the operating rate will be about xx%
- Judging from the alumina supply and demand of leading enterprises and groups, large aluminum group companies can basically be self-sufficient in alumina

Casting alloys

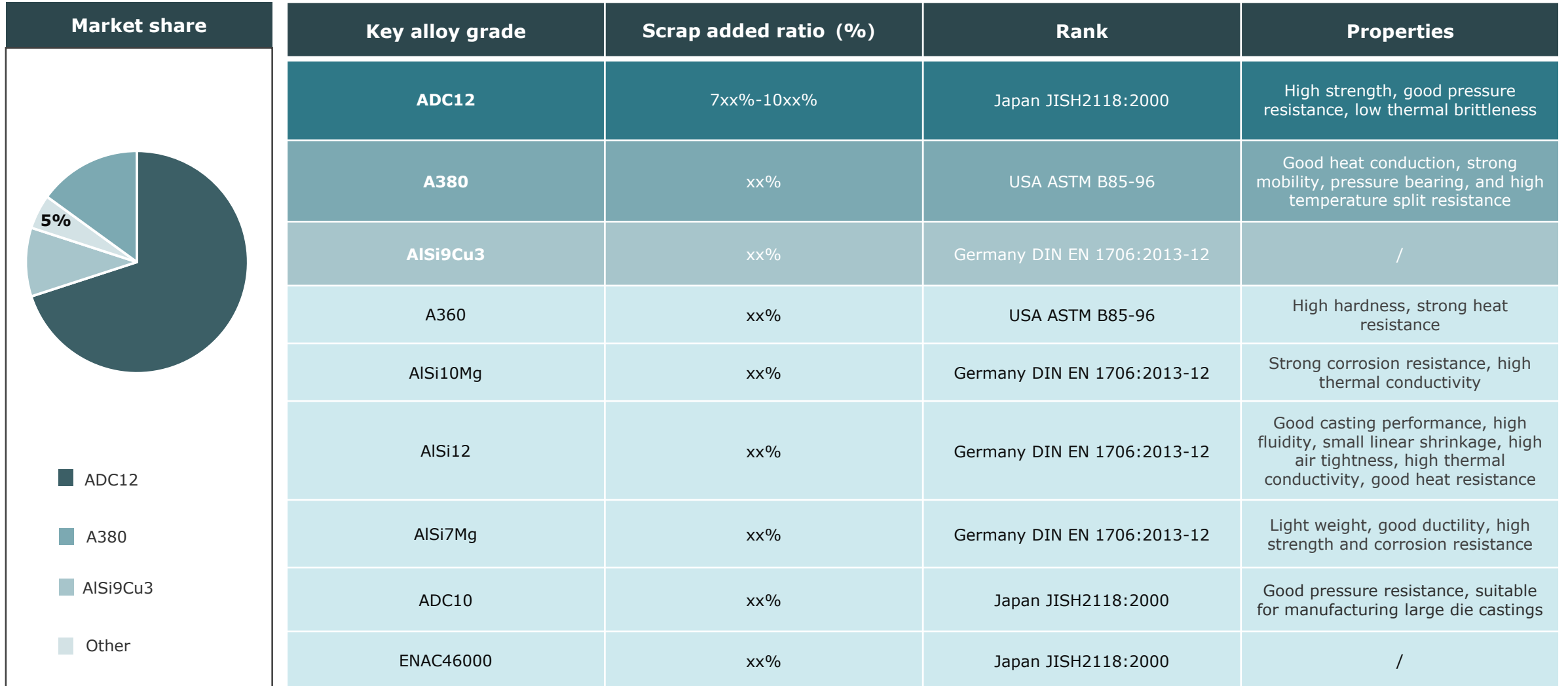


- Secondary alloy enterprises are mainly distributed in East China, accounting for about x% of the output in 2021, followed by South China, accounting for about x%, Southwest China accounting for about x%, and North China accounting for about x%

Unit: 0,000 mt				
Bauxite	>2000	>500	1-500	0
Alumina	>2000	>1000	50-1000	<50
Aluminum	>800	500-800	100-500	<100
Casting alloy	/	>100	50-100	<50

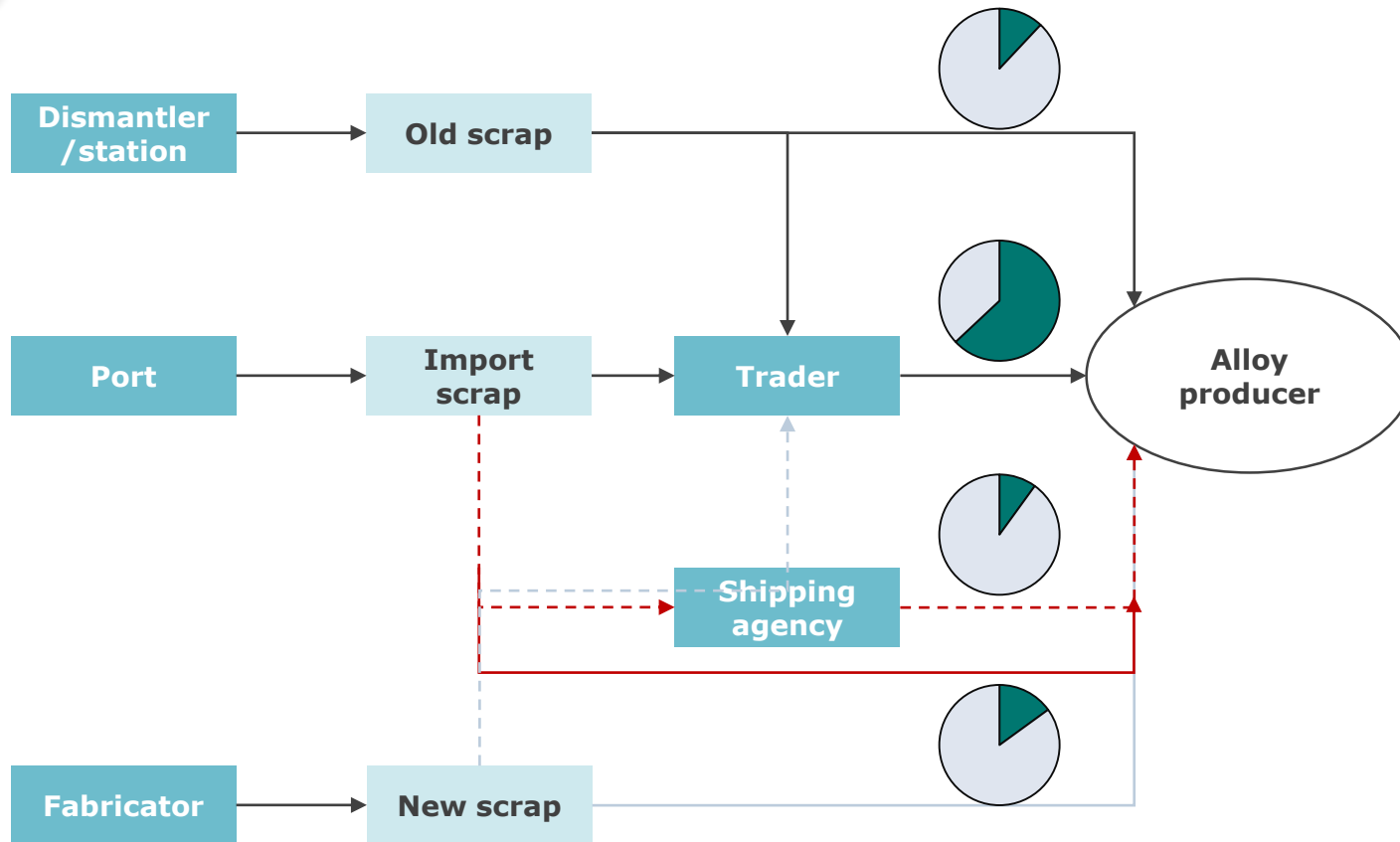
	CR5, %
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China Key Casting Alloys Grade



Source: SMM

China Aluminum Scrap Value Chain



Dismantling

- Due to the difficulty in receiving goods in the dismantling process, the production of aluminum scrap is generally low
- Baoding in Hebei Province, Linyi in Shandong Province, Dazhou Town in Change City in Henan Province and Ziya District in Tianjin are the main producing areas of aluminum scrap

Trading

- The sources of goods for traders mainly include import, domestic dismantling and new materials. Since there is a risk of returning the goods directly from the port, alloy manufacturers are more inclined to cooperate with traders.

Port

- Northern ports generally have strict import standards, and there is a risk of returning the box. Buyers generally cooperate with shipping agencies to clear customs

Fabricating

- The new waste from downstream factories basically flows to upstream aluminum factories, and a small part will flow to traders

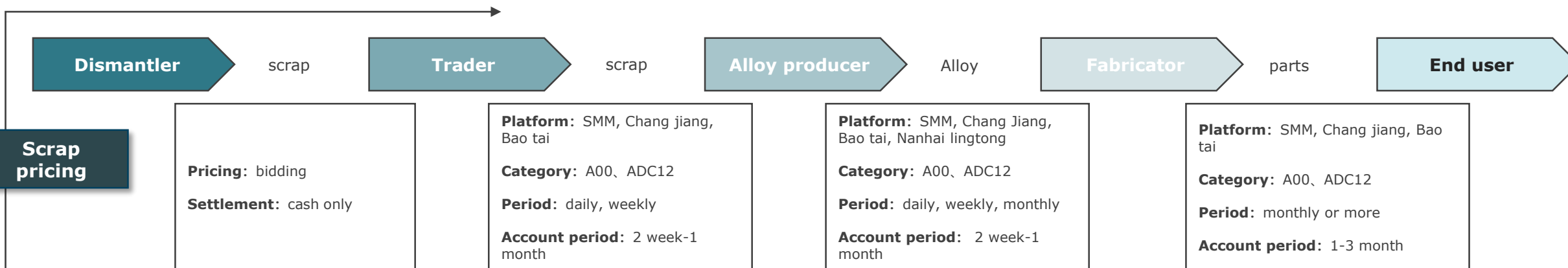
Dealer

Scrap type

Aluminum Value Chain Pricing Mechanism

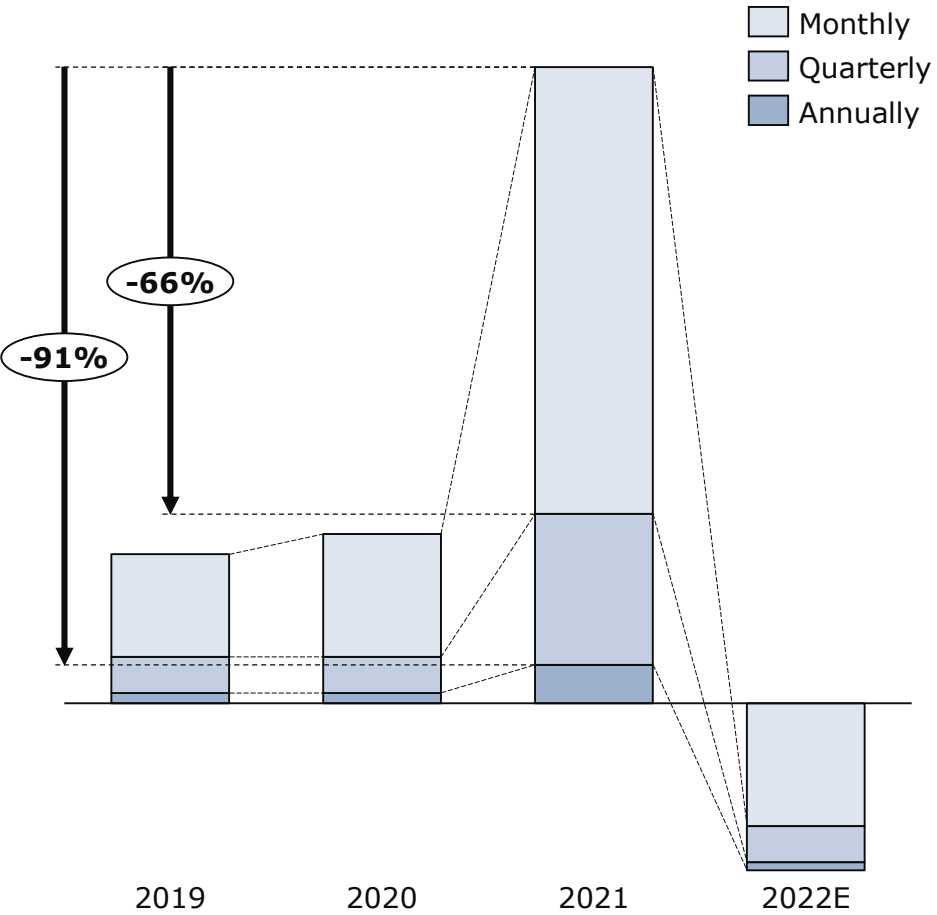
	Aluminum	Semis-processing	End users	Share	Pros and cons
Long-term	SMM monthly price + annual premium and discount	SMM monthly price + Monthly premium + processing fee	SMM monthly price + Annual/Monthly Processing Fee	5xx%	To reduce transaction costs, it is mostly used in the settlement between production enterprises
	SHFE futures price+ SMMA00 premium	SHFE futures price+ SMMA00 premium + processing fee	SHFE futures price+processing fee	5%	Use futures to earn extra income, mostly used for long-term contract signing between traders and entity enterprises
Short-term	SMM daily price+spot premium	SMM weekly price + processing fee	SMM daily price+ processing fee	3xx%	Large price fluctuations, suitable for supplements in the production process
	SHFE futures price+SMMA00 premium	SHFE futures price+ SMMA00 premium + processing fee	SHFE futures price + premium	5%	High risk, not suitable for terminal production enterprises

Note: The blue part is the price of SMM A00 aluminum, the processing fee mainly refers to labor, energy consumption, depreciation, management and other expenses.



Pricing Period and Category Choosing

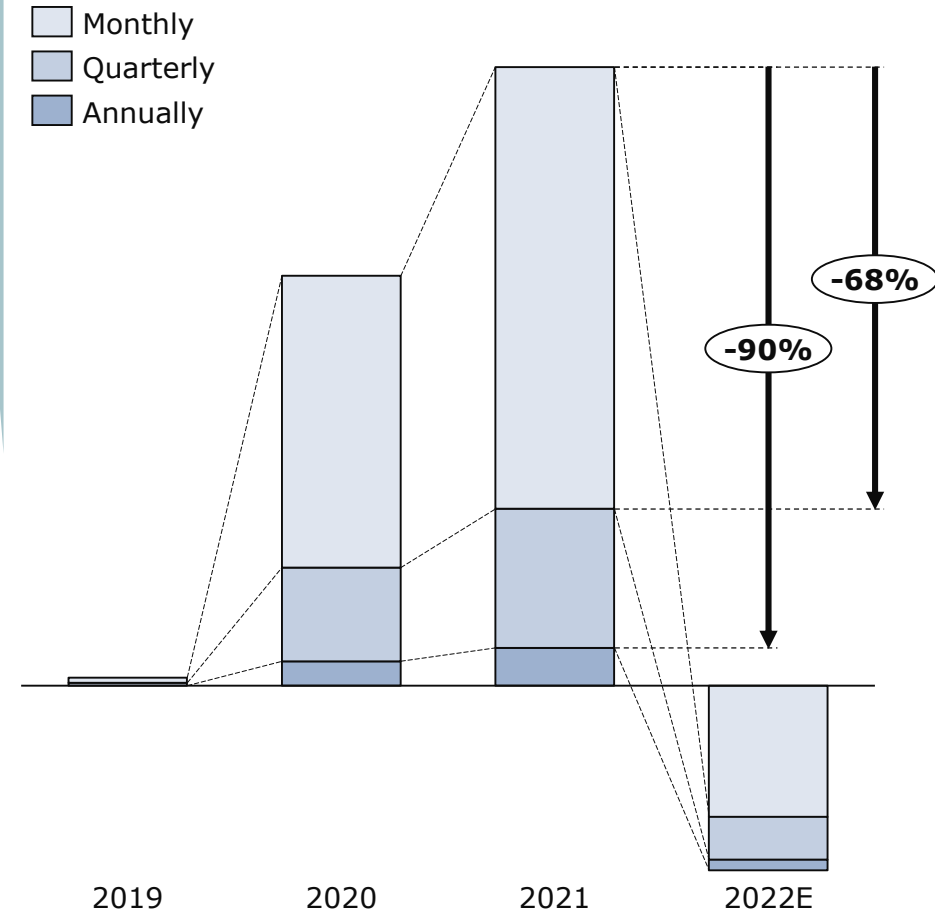
SMM **A00** Price Amplitude (2019-2022E)



Amplitude Comparison

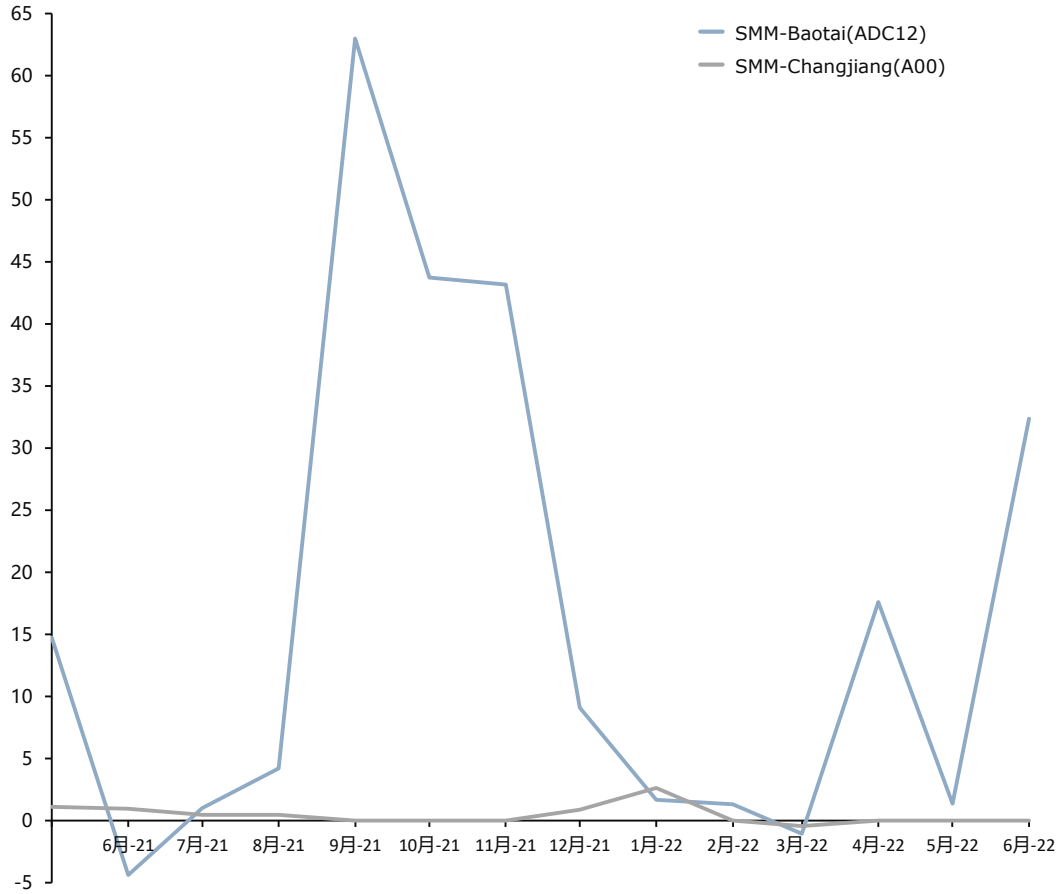
Period	A00	ADC 12	Price
Monthly	68	57	+12
Quarterly	xx	xx	+xx
Annually	xx	xx	+xx

SMM **ADC12** Price Amplitude (2019-2022E)



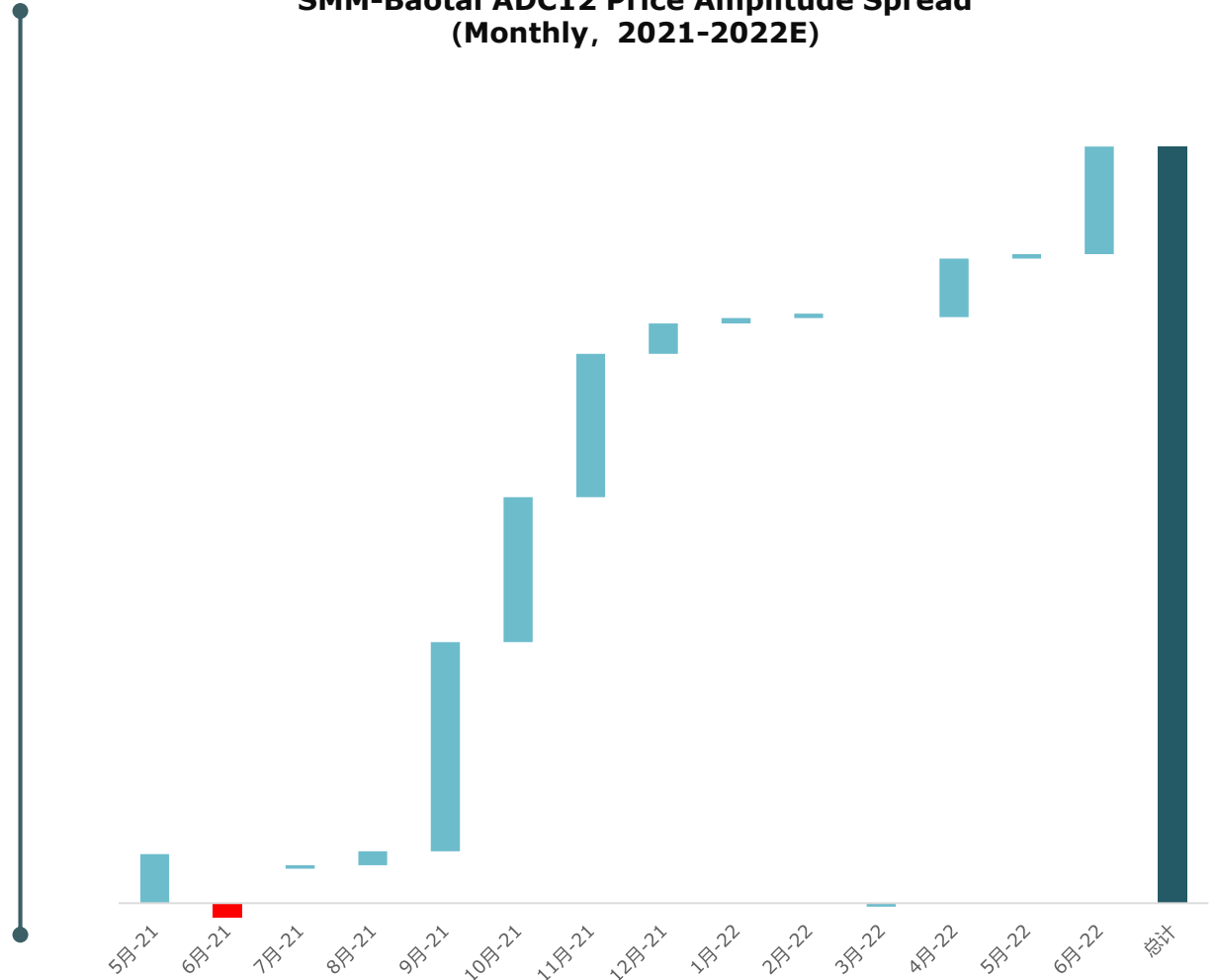
Pricing Platform Choosing

**Platform Price Amplitude Spread
(Monthly, 2021-2022E)**



Source: SMM

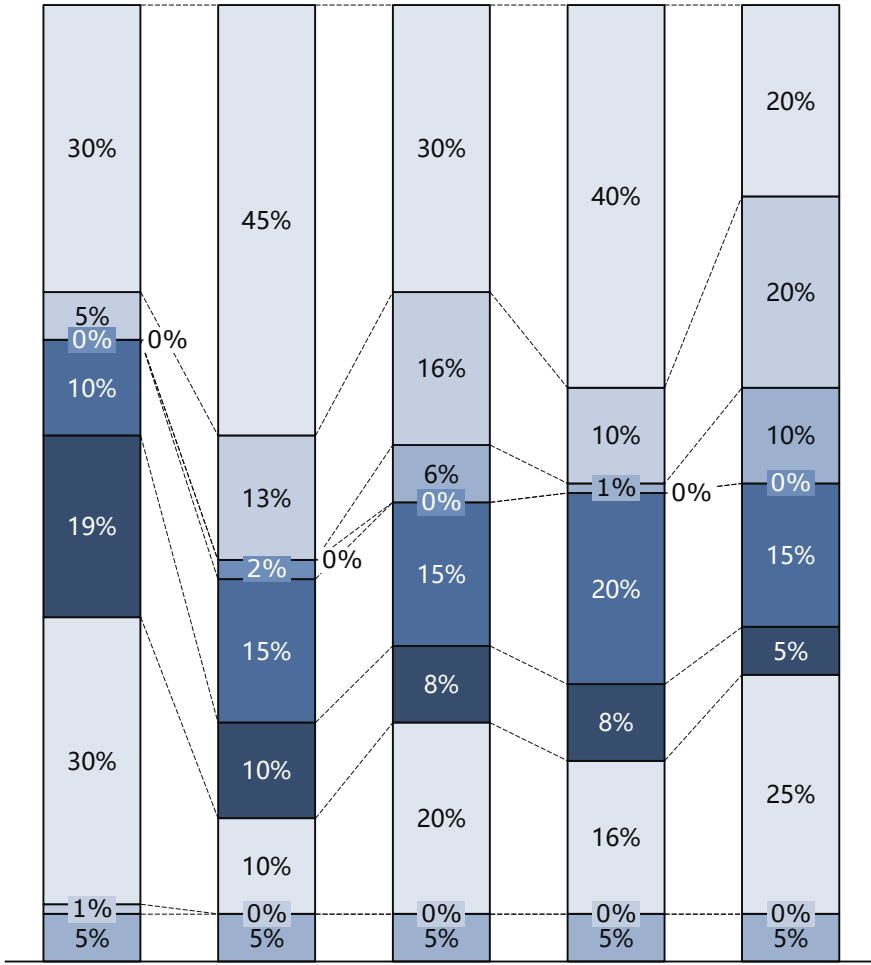
**SMM-Baotai ADC12 Price Amplitude Spread
(Monthly, 2021-2022E)**



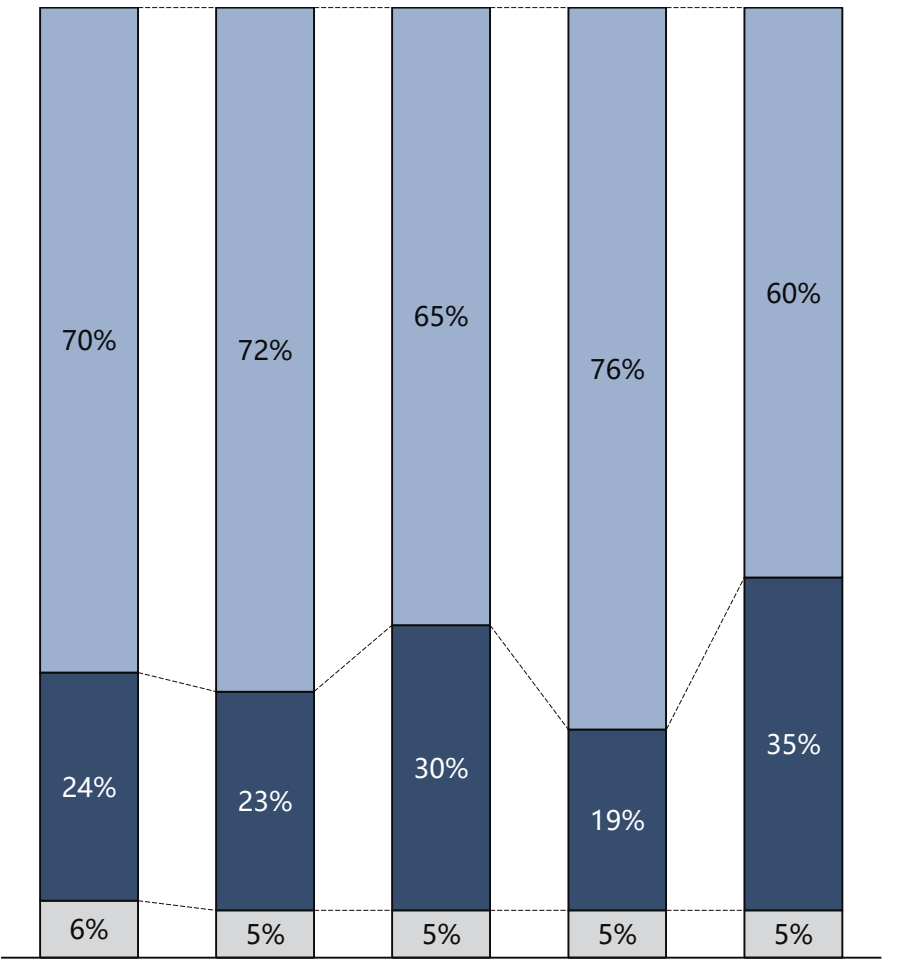
ADC12 Feedstock Cost Comparison by Key Company

Unit: RMB/mt

**Feedstock cost
By Industry**



**Feedstock cost
By Scrap Type**



Car
 Wire
 Motor
 Other
 Si

Doors and Windows
 Appliances
 Cans
 Cu

Raw
 Cooked
 Other

Source: SMM

Alloy Producer-Strategy Comparison

Unit: 0,000 mt

Company A

Company B

Company C

Production (2021)



Capacity (2021)



Key customers



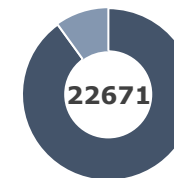
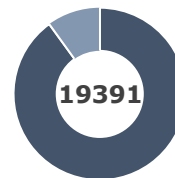
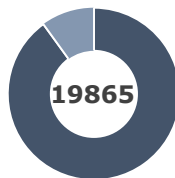
Strategy

• xx

• xx

• xx

Cost structure (2021)



Feedstock

Processing fee

local

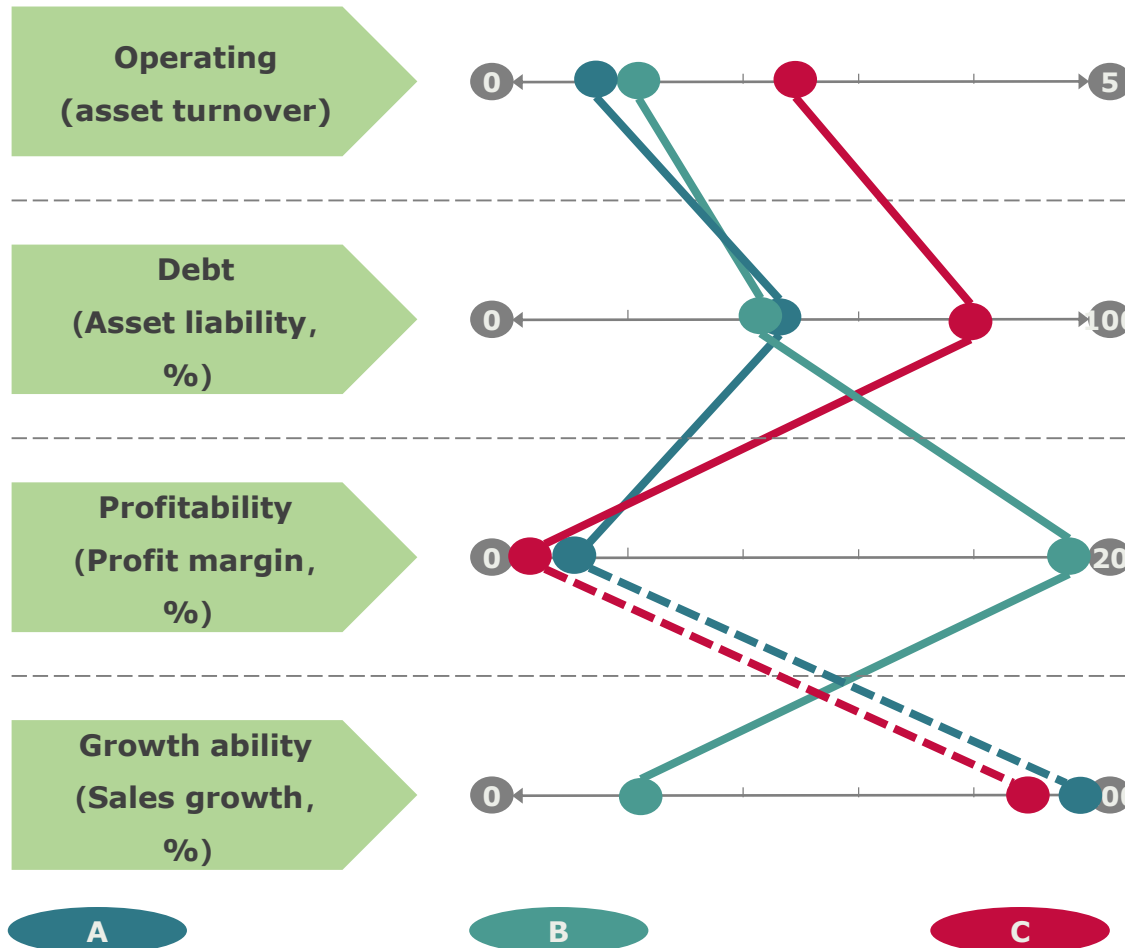
Group

Source: SMM

Alloy Producer-Financial Status

Rating

Description



- Xx and xx's total asset turnover is at a relatively low level, reflecting the company's weak asset operation capabilities. xx's total asset turnover is at a high level, indicating that the company's sales capability is strong

- xx and xx's asset-liability ratios are at a relatively low level, and their business operations are stable. xx's asset-liability ratio is at a high level and showing an upward trend

- xx: Return on net assets and return on total assets will be at a low level in 2020, with weak profitability
- xx: The company achieved profitability in both 19th and 20th, and has a large space. The profit indicators such as net profit margin, return on net assets, and return on total assets are relatively high, and its profitability is strong

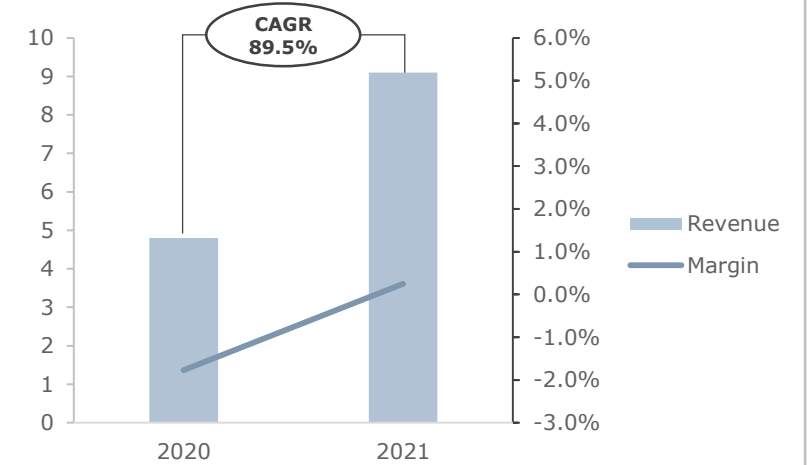
- xx: The company was established in 19 years, compared with 21 years, the revenue has increased by 105%, and the growth ability is strong
- xx: In 2020, the main business income, total profit, and asset scale will all increase compared with 2019. Overall, the company has strong growth potential

Alloy Producer-Basic Info.

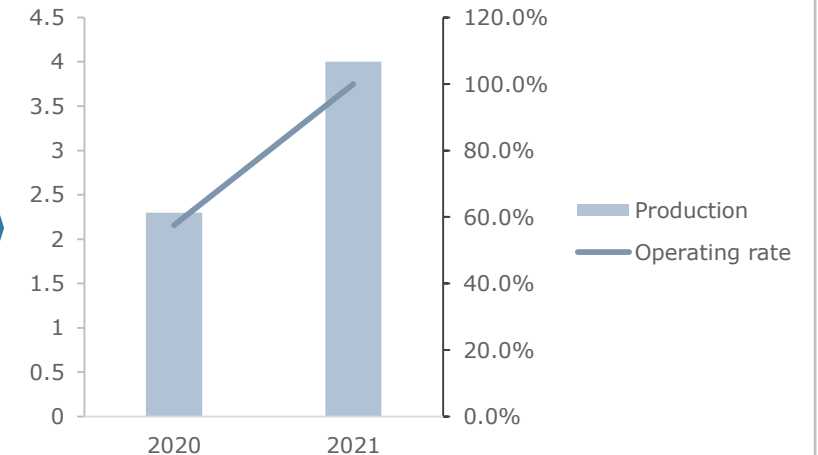
Target Company A

Establishment	2017.12	Capacity (2021)	xx mt
Address	xx	Scrap/Primary (2021)	xx/xx mt
Shareholder	xx	Scrap origin	Traders - xx%, Downstream Factory-xx%, Ningbo Port- xx%
worker No.	xx	Scrap form	Broken - xx%, Block - xx%, Mechanical - xx%
Registered capital	xx	Scrap type	Cooked xx%, Raw xx%
Scrap Purchasing Mode	The type of scrap purchased is relatively fixed (xx-xx% for aluminum wire, xx-xx% for wheel hub, xx-xx% for pop can, xx-xx% for aluminum water tank, etc.). settlement, no contract		
Pricing Platform	The prices of Changjiang and SMM will be referenced, long-term suppliers refer to the weekly average price, and suppliers with small trading volumes set prices according to the price of the day		
Primary source	The proportion of scrap aluminum alloy scrap is relatively small, and the primary aluminum liquid is mainly purchased from XX		
Port	The imported aluminum ingots are all compound ingots, with high grade and low risk of return. The import of Ningbo port is also less difficult than that of northern ports.		
Dismantling	The dismantling plant will not sell a large amount scrap, basically about xx tons will be sold		

Revenue & Margin (Unit: 100 million)



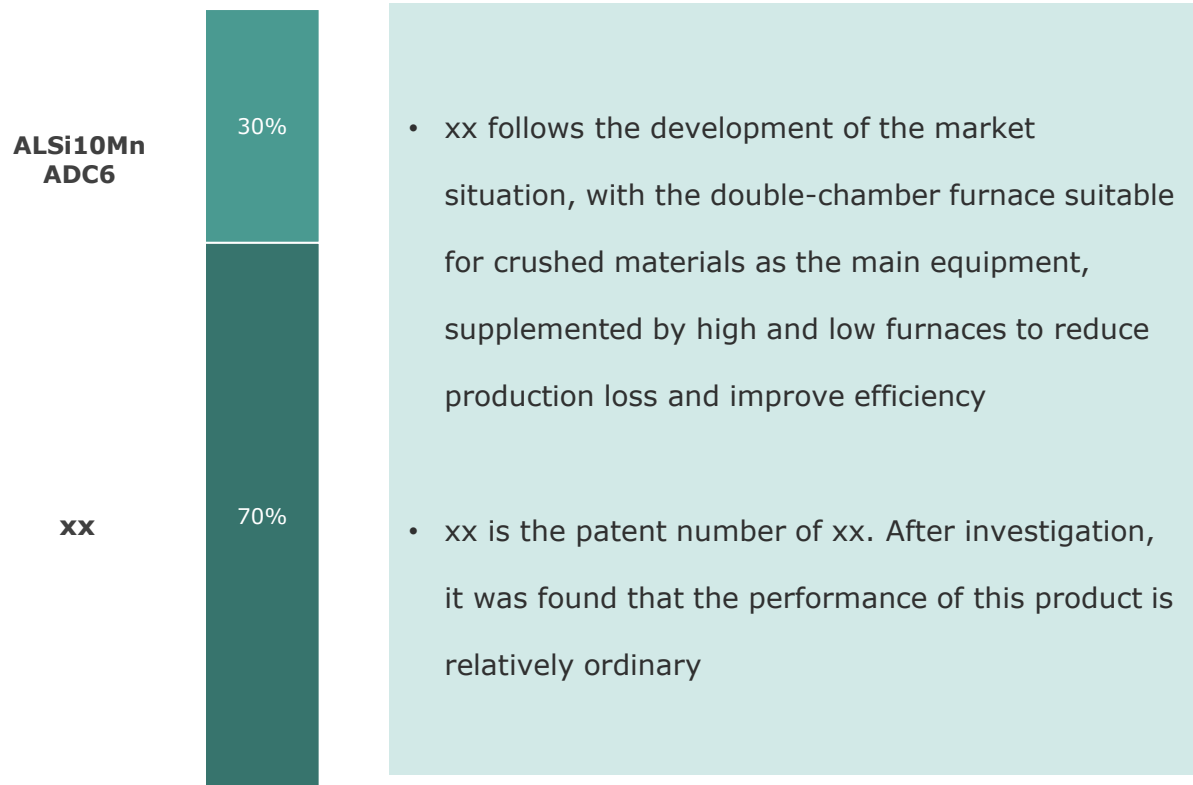
Production & Operating rate (Unit: 0,000 mt)



Alloy Producer-Product Layout & Key Customers

2021xx cast aluminum alloy grades divided by automotive parts and applications

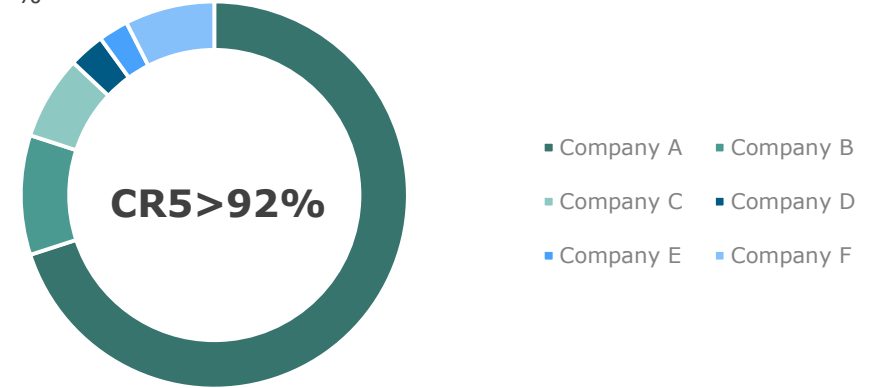
(Unit: 0,000mt, %)



Source: SMM

Key customer and market share

Unit: %



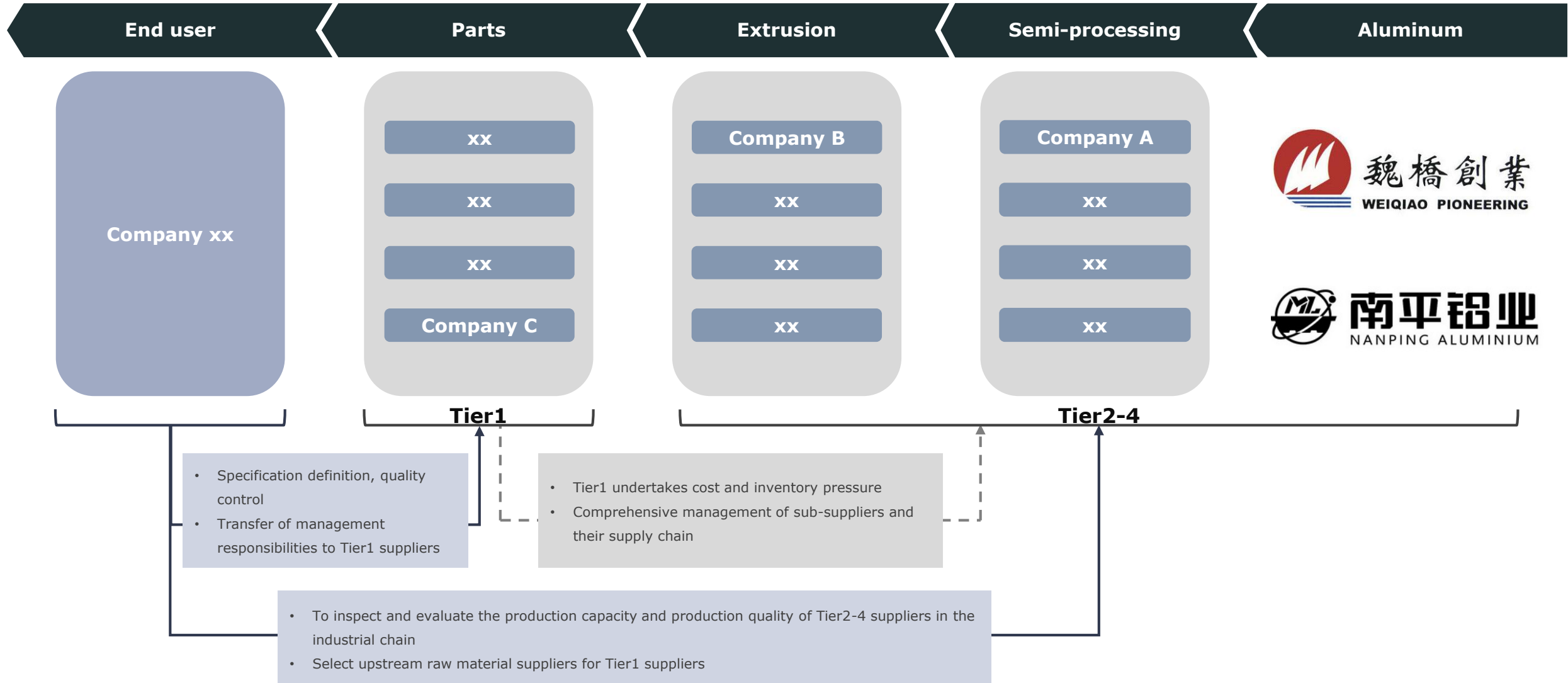
Judgment

- The company's largest customer is xx, and it is in the stage of business expansion. On the whole, the company is currently in a non-profit state, and the specific situation remains to be seen

Feedstock

- Aluminum is purchased from xx, and then made into a specific grade by self-proportioning

End Users-Cross Level Management



End Users-Pricing Mechanism

