

December 8, 2016

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Survey Structure

13 copper fabricators and suppliers to copper fabricators:

- ▶ 4 cable and wire manufacturers
- ▶ 3 transformer manufacturers
- ▶ 2 copper pipe makers
- ▶ 1 copper sheet and strip company
- ▶ 2 traders in copper anode
- ▶ 1 scrap trader

Regional:

- ▶ 7 East China
- ▶ 2 South China
- ▶ 3 Central China
- ▶ 1 North China

Ownership type:

- ▶ 4 SOE
- ▶ 6 private
- ▶ 3 foreign

The total amount of copper consumed/traded by the survey group is 1,050,000 tons (approx. 11% of total copper consumed in China). Three companies trade/consume an aggregate of 690,000 tons, and the other 10 companies typically consume between 10-30,000 tons.

- ▶ **Repeat sources: 11 (2 new).**
- ▶ **Interviews held Nov 23 - 24, 2016.**

Objectives

To understand the current demand and outlook for copper from different sectors, we survey sales, price, inventory, financing, and the industry environment and use responses to build a picture of demand and outlook.

Copper Survey Q4 2016

Demand Rises; Price Support at RMB 42,000/Ton

- ▶ Copper demand up 3% in Q4, the strongest all year.
- ▶ Strong consumer demand for white goods, electronics, and autos has led the growth.
- ▶ Construction demand for copper is down 6% as building completions fall.
- ▶ Grid demand growth has fallen sharply, from 18% in Q3 to 3% in Q4.
- ▶ Restocking and positive sentiment have driven the sharp 25% increase in copper prices.
- ▶ We expect copper demand to remain strong in Q1 and copper prices to remain above RMB 42,000/ton.

Consumer Goods Take the Driver's Seat

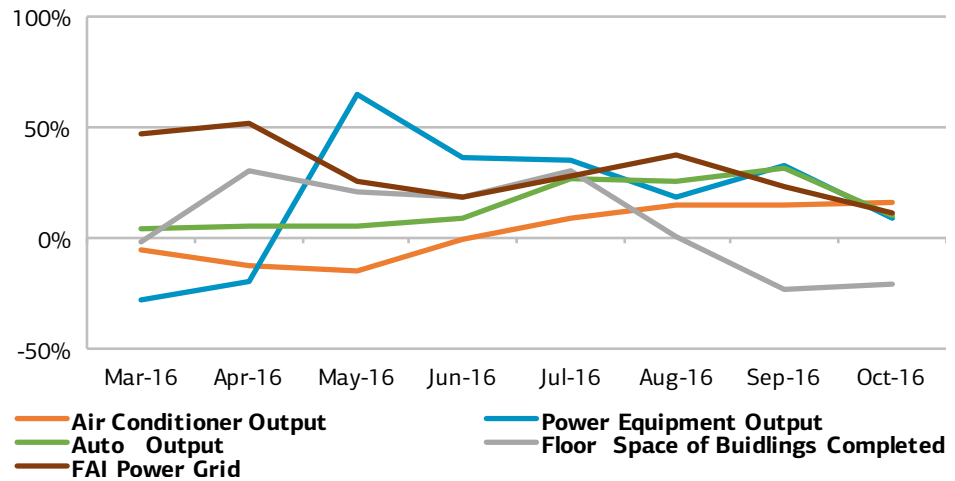
Our survey indicated that higher output of white goods, cars, and consumer electronics drove copper demand to 3% growth in Q4, with white goods responding to strong housing sales growth. Output of air-conditioners rose by 20%, with completed inventory back to normal. Automobile output has been growing at 20% or more in H2 2016. Consumer electronics, one of the smallest segments, has been growing at 12.5% in Q4. Consumers are driving demand for copper for the first time this year.

Industrial demand for copper is disappointing in Q4, the respondents said. The largest copper segment, construction, declined 6%. Property completions have been down 20% or more in the past three months. With continued emphasis on capacity elimination, it is no surprise that industrial demand for copper continues to fall, down 15% Q4.

Grid demand, the second-largest demand segment for copper, saw growth fall from 18% in Q3 to 3% in Q4. Completed fixed asset investment in the power grid fell from highs of 40% growth in Q1 to 11% in

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Chart 1. Copper Demand Indicators YoY



Source: Wind, J Cap

early Q4. Investment is more focused on Ultra High Voltage transmission and less on urban distribution. This is reflected in higher transformer sales than cable to the grid. The “surge” in copper demand from directed fiscal expenditure in the grid is over for this year. We expect renewed investment growth in the grid in 2017 as the government will be keen to use fiscal stimulus to support the economy.

We expect renewed investment growth in the grid in 2017.

Table 1. Copper Demand Estimates Q4 2016 (Growth YoY)

	Q4 2016 Demand	Q3 2016 Demand	Q2 2016 Demand	Share of Market
Power Grid	3.0%	18.0%	9.5%	26%
Construction	-5.0%	-6.0%	0%	35%
White Goods	20.0%	15.0%	-11%	14%
Auto	20.0%	0.0%	10%	8%
Industrial	-15.0%	-30.0%	-10%	10%
Electronics	12.5%	-12.0%	-5%	7%
Total	3.0%	0.9%	0.4%	

Source: J Capital Survey Data

November Price Jump: Low Inventory and High Futures Volume

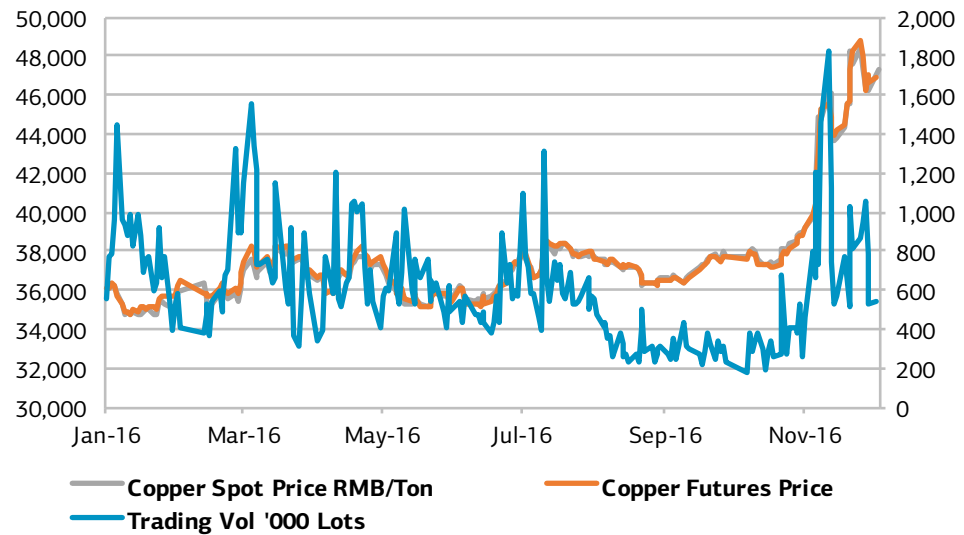
Copper prices surged by 26% in November. Total market inventory had fallen from a high of 25 days (circa 800,000 tons) in Q1 to 10 days (300,000 tons) by the beginning of Q4. Copper demand continued to improve, utilization rates remained high. Survey respondents said Q4 normally tends to slow but this year demand has been more like high season. Most impor-

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tantly sentiment is up and speculation on copper prices is back. Futures trading volume spiked in November driving up prices.

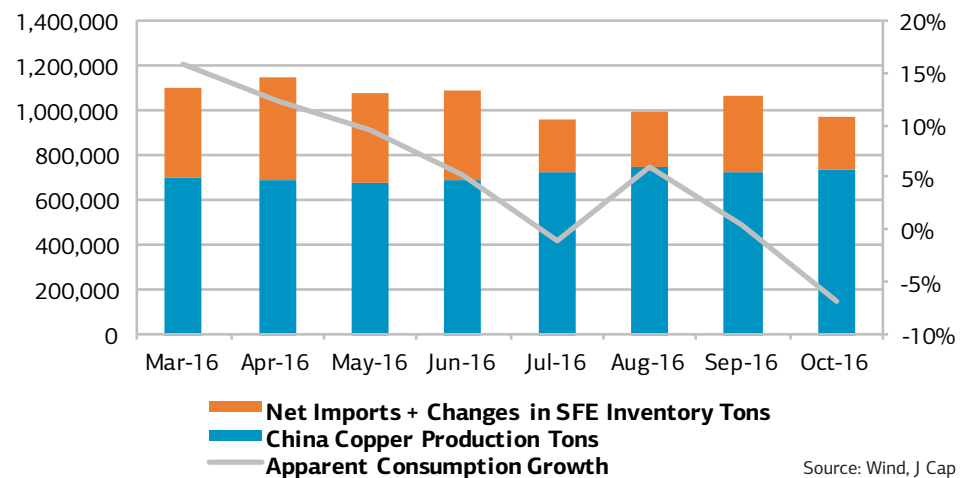
Restocking has been a key factor in the November price rise. The Shanghai Futures Exchange (SFE) inventory was at a high of 400,000 tons in Q1, we estimate processors and end users were holding another 400,000 tons in Q1. SFE inventories fell to 100,000 tons and processors and end users fell to around 200,000 tons by early Q4. Rising prices have also encouraged restocking as a hedge against further rises.

Chart 2. Copper Spot Price, Future Price and Volume



Source: Wind

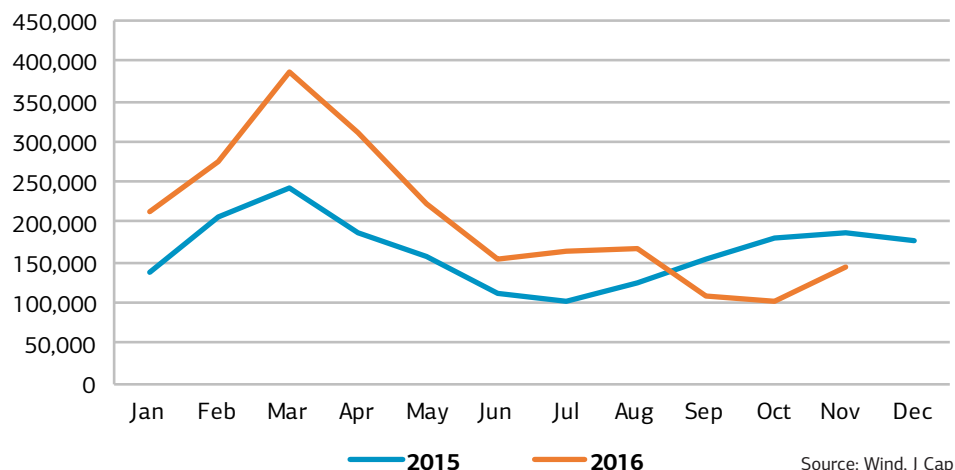
Chart 3. Copper Production, Imports, and Apparent Demand



Source: Wind, J Cap

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Chart 4. Shanghai Futures Exchange Copper Inventory Tons



Survey Results

Table 2. Capacity Utilization Q4 2016

Company	Type/Region	Capacity Utilization Q4	Capacity Utilization Q3	Capacity Utilization Q2	Capacity Utilization Q1	Notes
Cable and wire	Private /South China	95%	95%	85%	75%	A lot of new customers so orders are up. We are doing better than the industry.
Cable and wire	Foreign/East China	50%	85%	90%	40%	
Cable and wire	Private/East China	85%	70%	95%	70%	A big step up in production this quarter
Cable and wire	Private/ South China	70%				
Transformer manufacturer	SOE/North China	70%	70%	60%	40%	
Transformer manufacturer	Private/ Central China	40%	50%	95%	95%	Shifting contracts from subsidiaries to this factory to keep utilization high
Transformer manufacturer	Foreign/East China	70%				
Copper pipe	SOE/Central China	38%	36%	40%	39%	
Copper pipe	Private/ Central China	100%	100%	87%	82%	
Copper sheets and strip	SOE/East China	80%	85%	85%	85%	

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Company	Type/Region	Capacity Utilization Q4	Capacity Utilization Q3	Capacity Utilization Q2	Capacity Utilization Q1	Notes
Trader – Copper anode	SOE/East China	90%	90%	90%		Traders copper smelter
Trader – Copper anode	Private/South China	90%				Trader only
Scrap trader - imported	Foreign/East China	Q4: Scrap processing up 20%		Q3: Scrap processing output fell 25% in Q3		

Source: J Capital

Table 3. Copper Demand Q4 2016 and Outlook for Q1 2017

Company	Supplies to	Type/Region	Sales Vol 2016 3Q PoP	Sales Vol 2016 3Q YoY	Demand drivers	2016 Q4 YoY Est.	Demand outlook
Cable and wire	10,000 tons to autos and consumer electronics	Private/South China	30%	30%	Improvement in sales is due to getting new customers not from market growth. New customers from auto (up 50%) and electronics (up 15%). We have increased auto clients from 2 to 4 and electronics from 2 to 6. These are two expanding markets. Growth is from electronics like mobile phones.	Up	Orders from new clients should driver growth.
Cable and wire	20,000 tons to construction industry and grid	Foreign/East China	-50%	2%	Low period for construction. Grid demand is down. Compared with last year demand is down. We increased clients to get growth.	down	Both construction and grid demand remain poor.
Cable and wire	7,000 tons to power and communications industry, warehouse automation, control systems, cable harness factories	Private/East China	30-40%	-5-10%	Poor economy, problems with collecting money from clients, orders are lower. Construction is not going well and industrial demand particularly machine building is doing poorly.	-12.5%	
Cable and wire	30,000 tons to Grid, construction, auto, chemical, electronics and steel	Private/East	20%	-5%	The overall economy is not doing well. Construction is up but grid is down.		

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Company	Supplies to	Type/ Region	Sales Vol 2016 3Q PoP	Sales Vol 2016 3Q YoY	Demand drivers	2016 Q4 YoY Est.	Demand outlook
Transformer manufacturer	140,000 tons of high voltage transformers to grid (30%), also supplies to autos, chemicals, coal, rail, metallurgy	SOE/ North China	40%	15%	Exports and grid orders are up. New energy demand is strong – particularly for metropolitan electric car charging stations. Construction related demand down.	12.5%	Grid and new energy demand is strong.
Transformer manufacturer	3,000 tons to grid, power plants, industrial and rail	Private/ Central China	0%	-40%	Market is down a lot on last year. There are a lot of industrial and rail projects waiting for approval. Stronger competition this year.	-40%	
Transformer manufacturer	75,000 ton to grid, power producers, hydro, aluminium manf	Foreign/ East China	-15%	-20%	The government is restraining the macro environment and there is less investment in the economy. Grid distribution and power production both down 20%. Thermal power capacity is subject to government controls.	down	
Copper pipe	10,000 tons to power plants, auto, bathroom plumbing, electronics	SOE/ Central China	21.3%	-21.3%	The market is good but our sales are down as we reduced our capacity this year. Electrical equipment and construction good. Construction demand for pipes is good as is grid and electrical machinery.	10-15%	Demand is improving slowly
Copper pipe	400,000 tons total, 80% to white goods, 20% to construction	Private/ Central China	3%	20%	Whitegoods companies have successfully reduced inventory and production is increasing. This season should be low but it is like high season. Customer are operating at 100% capacity.	3%	Continued good demand from whitegoods manufacturers
Copper sheets and strip	15,000 tons to electronics sector	SOE/ East China	5%	10%	Beijing-tianjin project to convert rural households from coal to electricity for heating in winter. New clients growth. Heat pump demand strong.	Flat	Good heating equipment demand.

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Company	Supplies to	Type/ Region	Sales Vol 2016 3Q PoP	Sales Vol 2016 3Q YoY	Demand drivers	2016 Q4 YoY Est.	Demand outlook
Trader – Copper anode	150,000 tons total going to white goods, processors, traders	Private/ East China	8	18%	End demand and trading demand for copper strong. Consumer electronics demand up 10%. Falling RMB has been a strong influence on copper demand. Trading volume is up 15% from arbitrage.		
Trader – Copper anode	150,000 tons to grid, white goods	SOE/ South China	10%	5-10%	Downstream copper rod operating rate is lower around 70%. Air conditioner production demand is up 20%, construction demand down 15%. Copper rod demand from grid is down 10-20%.		Improving demand. There is a premium in spot markets indicating demand is strong
Scrap trader – imported	40,000 tons to scrap processors, refineries, brass processors	Foreign/ East China	20%	10%	Improving prices has improved demand for scrap and there is restocking.	Up	Most customers are positive about Q1

Source: J Capital

Table 4. Copper Inventory in Industry Q4

Company	Inventory QoQ	Inventory YoY	Reason	Outlook Q1	Customer Inventory Levels YoY	Reason	Outlook Q1
Cable and wire	No Inventory	No Inventory	Zero inventory strategy	Will stock up before CNY	No increase		Down 20-30% due to CNY
Cable and wire	No inventory	No Inventory	Zero inventory strategy	No Inventory	No Increase	Customers are more risk averse now and do not want to hold stock	No Change
Cable and wire	30%	-5%	Inventory is up on the previous quarter as this is the high season, but down YoY as the economy is not doing well. Even though the price of copper is rising, actual demand has not caught up yet	Slight decrease as demand will be low in Q1	Up 5%..	This is high season for customers and they need higher inventory to meet demand. Demand has not been as strong and inventory has built up	Expecting demand to improve in Q2 not Q1.

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Company	Inventory QoQ	Inventory YoY	Reason	Outlook Q1	Customer Inventory Levels YoY	Reason	Outlook Q1
Cable and wire	Flat	Slight increase	Orders slower than expected so building inventory	Flat	Flat	Stocks are down on the quarter and flat YoY as customers rush to complete jobs before CNY	Flat
Transformer manufacturer	20%	-20%	Orders are improving but futures prices are increasing so we are holding less stock.	-20%, expect orders to continue to improve but copper prices are high	-20%	Demand up but with increasing prices cannot afford to hold to much stock.	-10 to 15%
Transformer manufacturer	15%	Increase	Last year no inventory this year RMB 30 mil, clients have ordered but not taking delivery as projects are slow.	- 10%, as some projects may start	zero	zero	Only ordering as projects require.
Transformer manufacturer	-5%	-20%	Decrease working capital and orders less.	-10 to -15% (tenders are unpredictable)	-10%	Selling well but not reordering	-15% some customers will not order again until Q2
Copper pipe	5%	-32%	Inventory is 20% of annual production, Continuing to reduce inventory as production is down.	Increasing by 10% but this is mainly due to rising prices.	Down 10-15%	Reducing drag on working capital. Some clients are considering hedging	Up as orders are increasing and market is improving
Copper pipe	No Inventory	No Inventory	Zero inventory strategy	No Inventory	10%	Very high levels of inventory last year	-5-6% Still reducing inventory
Copper sheets and strip	Flat	-5%	Tighter inventory management and price volatility	5-10% restocking and adding new categories	Flat	Tight cash flows so controlling inventory	Up 3% as sales improving, but constrained by cash
Trader – Copper anode	-5%	-10%	Prices are increasing so turning over inventory faster	Down as low sales in Q1	Flat to down slightly	With prices increasing, faster inventory turnover	Flat, inventory levels are at their lowest
Trader – Copper anode	-30%	20%	Orders have slowed and end users are consuming inventory	Increasing as expecting good orders and price increases	Increased	Customers expected price increases (restocking over)	Down as stock is up and demand will be low in Q1.

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Company	Inventory QoQ	Inventory YoY	Reason	Outlook Q1	Customer Inventory Levels YoY	Reason	Outlook Q1
Scrap trader - imported	Flat	-5%	Our inventory remains fairly constant	30% (expecting good demand)	-20%	Everyone restocking with rising prices, but still lower compared to high levels last year.	10%

Source: J Capital

Table 5. Finance

Company	Type/Region	Financing	Rates	AR
Cable and wire	Foreign/South China	SME continue to have difficulty in getting loans	BAN 5%, grey market 12-15%	Receivable days increasing particularly consumer electronics
Cable and wire	Foreign/East China	Financing is still tight	BAN 6%	Payments are good
Cable and wire	Private/East China	Poor economic conditions, so companies have tight finances now, bad debts are increasing and financing getting harder	BAN 3.6%, grey market 8-20%	Payments for some customers are 30 days late and we have had some defaults
Cable and wire	Private/East	We have increased borrowings	8% or less, rates depend on period a lot.	Payments are good.
Transformer manufacturer	SOE/North China	No financing problems	Grey market 24%	Some clients are delaying payments, no defaults
Transformer manufacturer	Private/Central China	Increasingly difficult	BAN 1 -3%	Many clients are delaying delivery of orders and then demanding instant delivery
Transformer manufacturer	Foreign/East China	As it is hard to collect payment our borrowing requirements have increased.	BAN 3%, Grey market 8-10%	30-40% of clients paying late by two months.
Copper pipe	SOE/Central China	Easy for an SOE to get a loan.	Bank loans 6.56%	Less than 5% paying late.
Copper pipe	Private/Central China	Bank financing is tight, very difficult to get access to capital		No problems as company is controlling tightly
Copper sheets and strip	SOE/East China	Very hard to get loans	BAN 4.3%, Grey markets 24%	Less than 2% have payment problems.
Trader - Copper anode	Private/East China	Cost of borrowing is going up	BAN 3%,	No problems

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Company	Type/Region	Financing	Rates	AR
Trader – Copper anode	SOE/South China	Processors are paying interest rates of 20%, upstream mines and smelters are paying 7-8%	BAN 3%, bank loans 8-9%	Cable and wire companies taking 6 months to pay.
Scrap trader - imported	Foreign/East China	Cost of borrowing is high	USD LOC rate is 2%	Stable

Source: J Capital

Notable Quotes

"Domestic supply of anode from copper smelters is down this quarter and imports are up. As the currency has been depreciating importers have been making exchange rate losses of around RMB800/ton." East China

"Cable and wire market has excess capacity and many smaller companies are in distress, merging, being acquired or going into bankruptcy." East China

"Chalco's copper company, operating at 50% utilization, has set up a new non-copper subsidiary to absorb half the workers from its under utilized facility." East China

Source: J Capital

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