China and the Global Copper Market

Paul Dewison of Bloomsbury Minerals Economics

ICSG Meeting – September 26nd to 28th 2011

Outline

- China has become a dominant force in global copper use:
  - China's share of global refined Cu use 9% in 1995, 37% in 2010
  - Further gain likely, though the pace of growth may be slowing
- China is just as important in copper materials trade:
  - A dominant importer of concentrates, scrap and refined metal
- China's market specifics central to global Cu market dynamics:
  - This is partly a function of pure size
  - … but also a function of factors specific to China
    - counter cyclic market development
    - investment behaviour
    - internal copper pricing
    - stocking / destocking cycles

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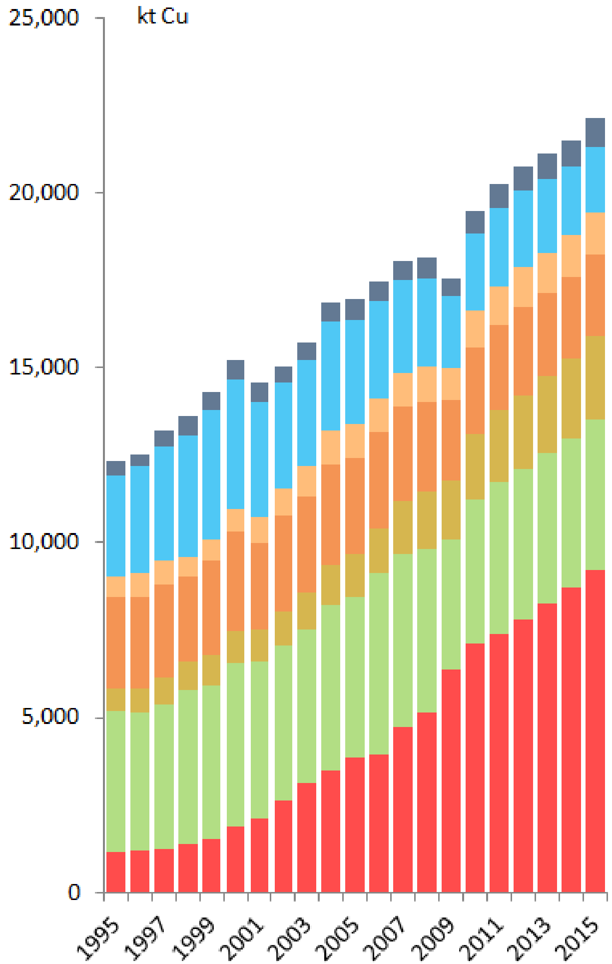
China and Global Copper Use

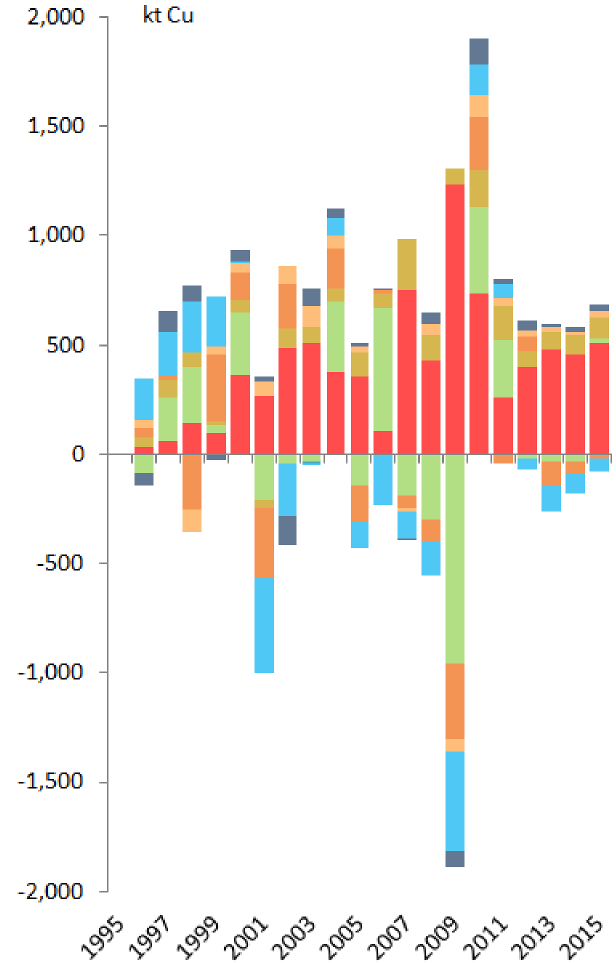
China's Cu Use Grows, Rest of World Static

China's share 9% in 1995, 37% in 2010, 41% in 2015?

Consumption Tonnes



Consumption Change



Key

- Latin America
- NAFTA
- Other Asia / Australasia
- North East Asia
- Africa / M.East / S.Asia
- Europe / FSU
- China

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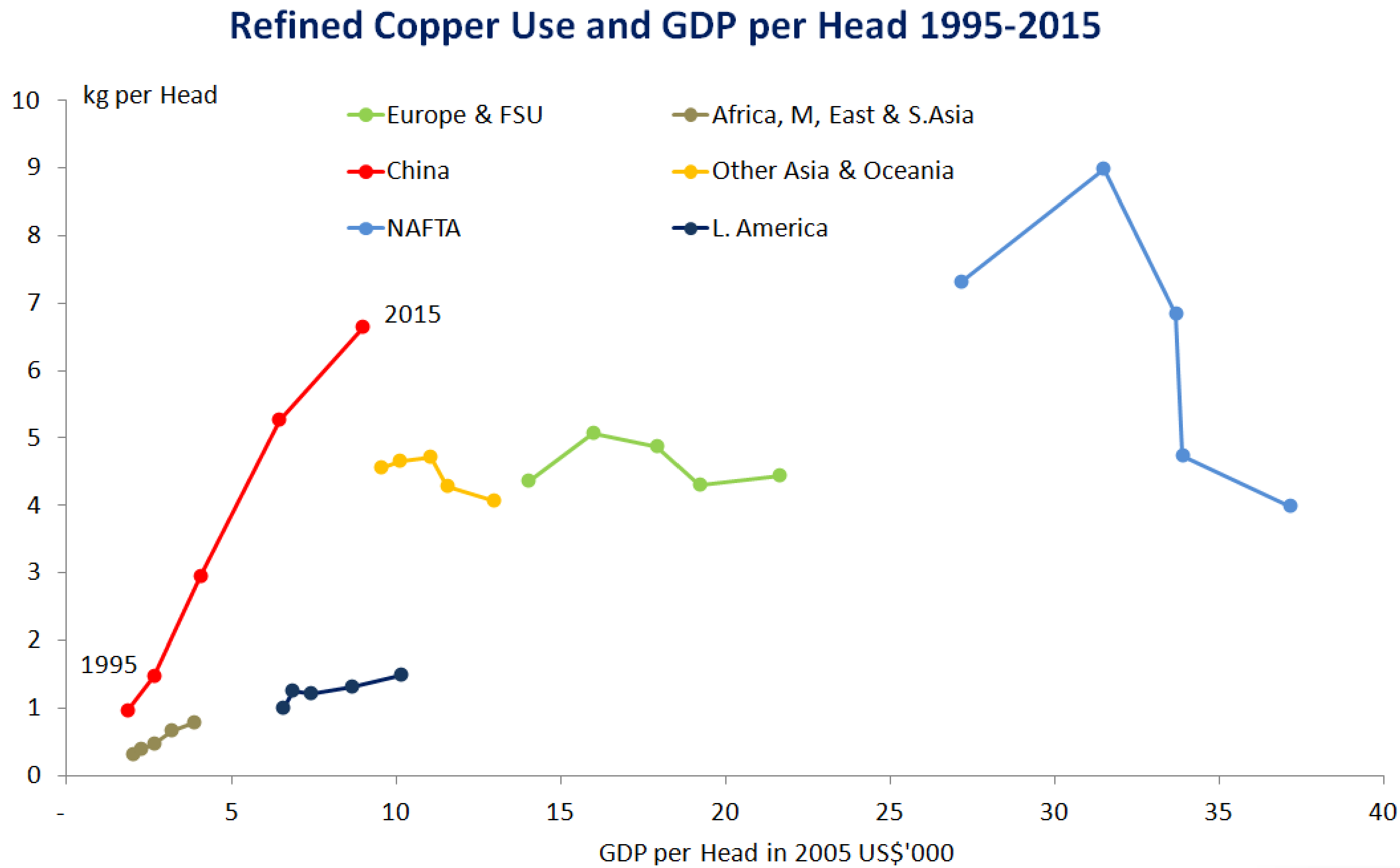
China's Cu Use Per Head Now Above Average

RAPID GROWTH CONTINUES, OTHER BIG MARKETS STATIC OR DECLINING



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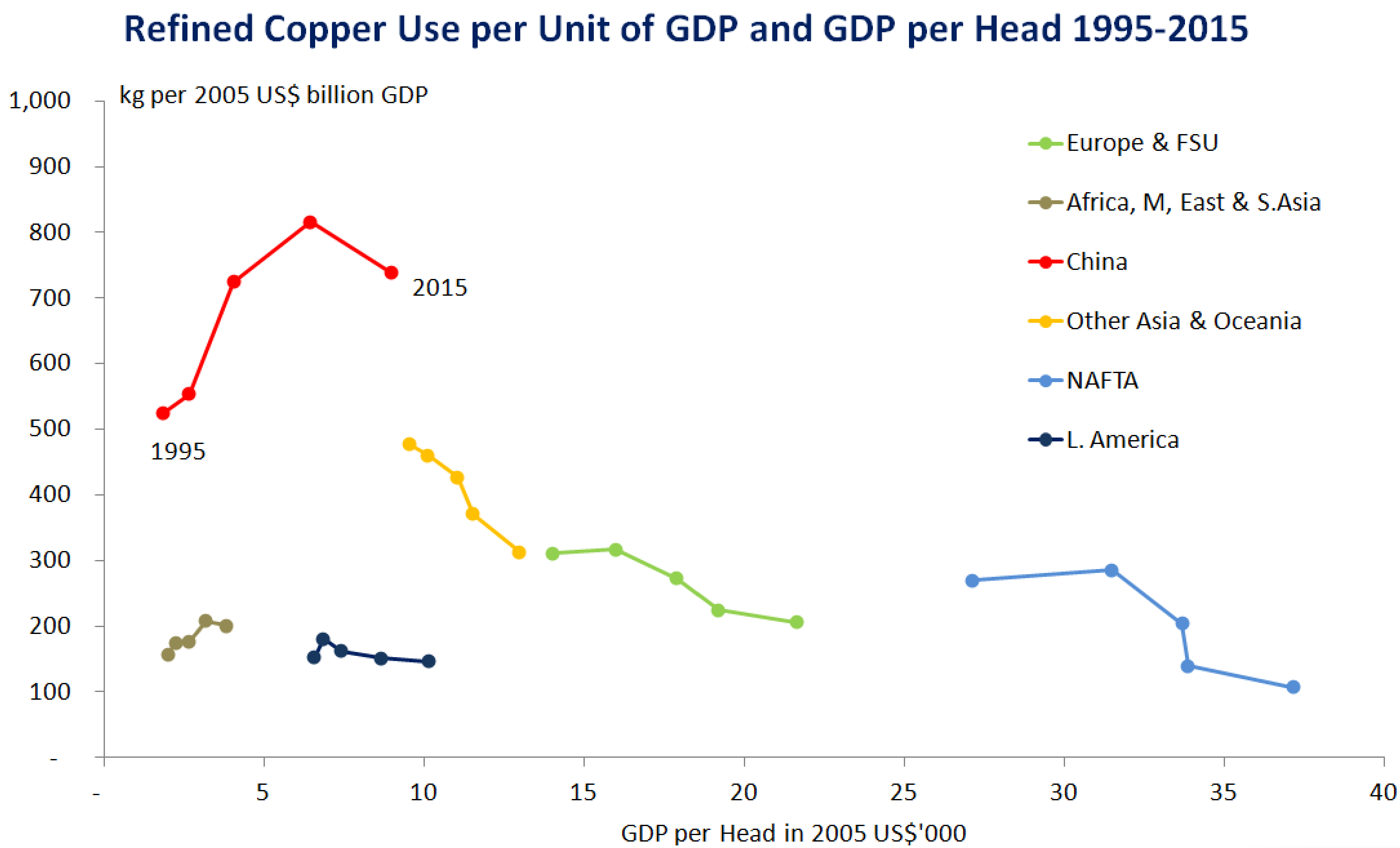
CHINA'S USE RELATIVE TO GDP ALSO GROWN

BUT HAS IT REACHED ITS PEAK?



China's Cu Use by Product Different from ROW

Apportionment of Copper Use by Application in 2010 (million tonnes)

China

	WIRE & CABLE			MILL AND OTHER PRODUCTS						TOTAL	
	Energy Cable	Comms Cable	Winding Wire	Cu Tube	Cu RBS	Cu PSSF	Alloy RBS	Alloy PSS	Other	All Cu	% Share
CONSTRUCTION	**1.6**	**0.0**	**0.0**	**0.2**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**2.3**	***27%***
INFRASTRUCTURE	**1.0**	**0.1**	**0.3**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.2**	**1.8**	***22%***
Power	0.9	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.1	1.5	*18%*
Other	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	*4%*
MANUFACTURING	**0.7**	**0.0**	**1.1**	**0.6**	**0.0**	**0.7**	**0.4**	**0.4**	**0.6**	**4.4**	***52%***
Electrical/Electronic	0.4	0.0	0.5	0.6	0.0	0.3	0.1	0.2	0.1	2.2	*26%*
Other	0.3	0.0	0.6	0.0	0.0	0.4	0.3	0.2	0.5	2.2	*26%*
TOTAL	**3.2**	**0.1**	**1.4**	**0.8**	**0.2**	**0.9**	**0.6**	**0.5**	**0.9**	**8.5**	***100%***
% of Total	*37%*	*1%*	*17%*	*9%*	*2%*	*10%*	*7%*	*6%*	*11%*	***100%***	

Rest of the World

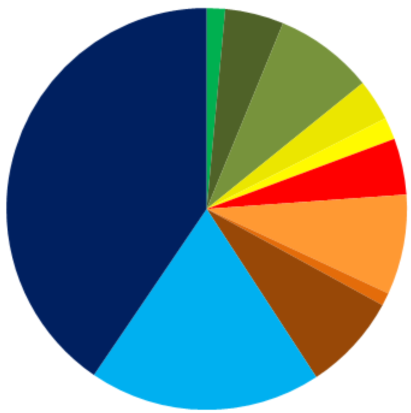
	WIRE & CABLE			MILL AND OTHER PRODUCTS						TOTAL	
	Energy Cable	Comms Cable	Winding Wire	Cu Tube	Cu RBS	Cu PSSF	Alloy RBS	Alloy PSS	Other	All Cu	% Share
CONSTRUCTION	**4.5**	**0.2**	**0.0**	**0.7**	**0.2**	**0.3**	**0.5**	**0.1**	**0.3**	**6.9**	***42%***
INFRASTRUCTURE	**0.5**	**0.6**	**0.3**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.3**	**2.0**	***12%***
Power	0.5	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.2	1.1	*7%*
Other	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	*6%*
MANUFACTURING	**1.7**	**0.1**	**1.3**	**0.9**	**0.1**	**0.8**	**0.7**	**0.7**	**1.3**	**7.6**	***46%***
Electrical/Electronic	0.6	0.1	0.4	0.8	0.0	0.4	0.1	0.3	0.1	2.7	*16%*
Other	1.1	0.1	0.9	0.1	0.1	0.5	0.6	0.4	1.2	4.9	*30%*
TOTAL	**6.7**	**1.0**	**1.6**	**1.6**	**0.4**	**1.1**	**1.2**	**0.9**	**2.0**	**16.5**	***100%***
% of Total	*40%*	*6%*	*10%*	*10%*	*2%*	*7%*	*7%*	*5%*	*12%*	***100%***	

China and Global Copper Materials Trade

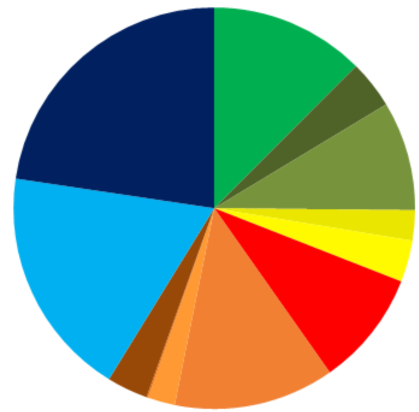
China and the Global Supply Chain in 2000

SIGNIFICANT AT ALL LEVELS, ESPECIALLY IN REFINED CU USE

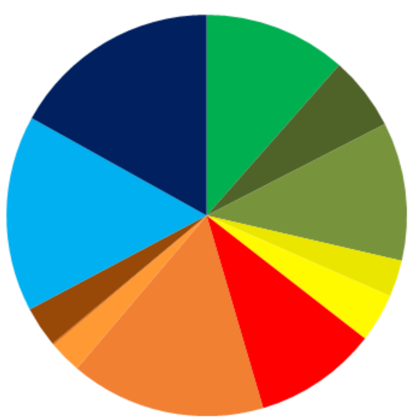
Mine Output



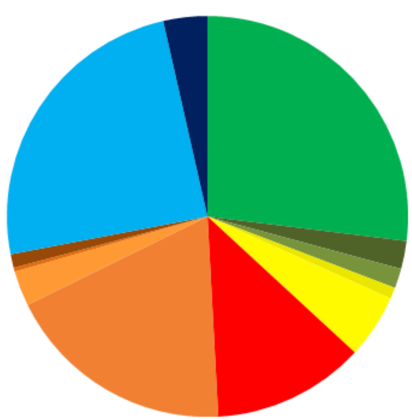
Refined Output



Blister Output



Refined Use



Key

- Western Europe
- Central Europe
- FSU
- Africa
- M. East & S. Asia
- China
- North East Asia
- South East Asia
- Other Asia
- Australasia
- NAFTA
- Latin America

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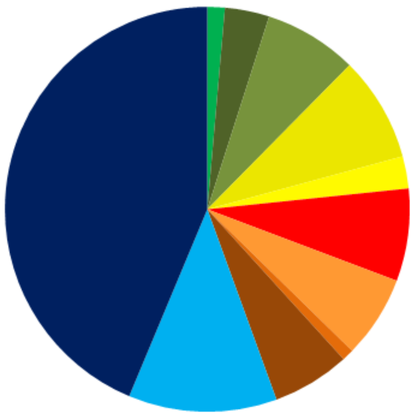
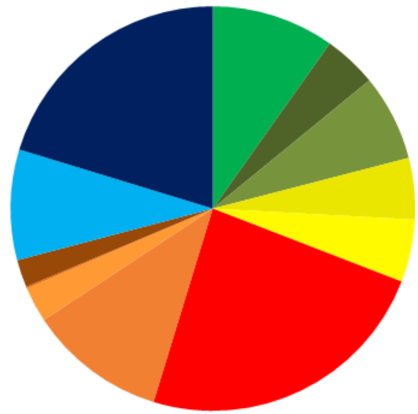
China and the Global Supply Chain in 2010

MINE OUTPUT GROWN RELATIVELY LITTLE. HUGE GAINS IN REFINED

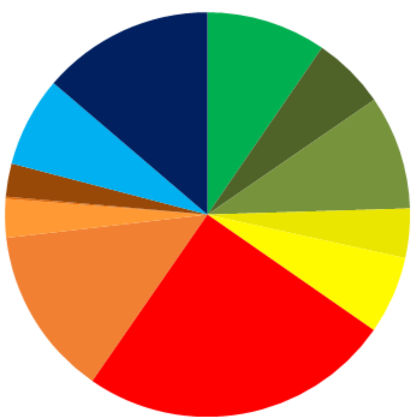
Mine Output



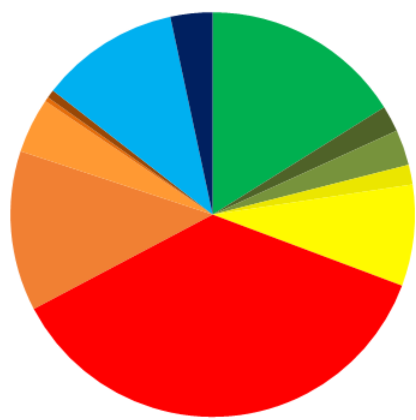
Refined Output



Blister Output



Refined Use



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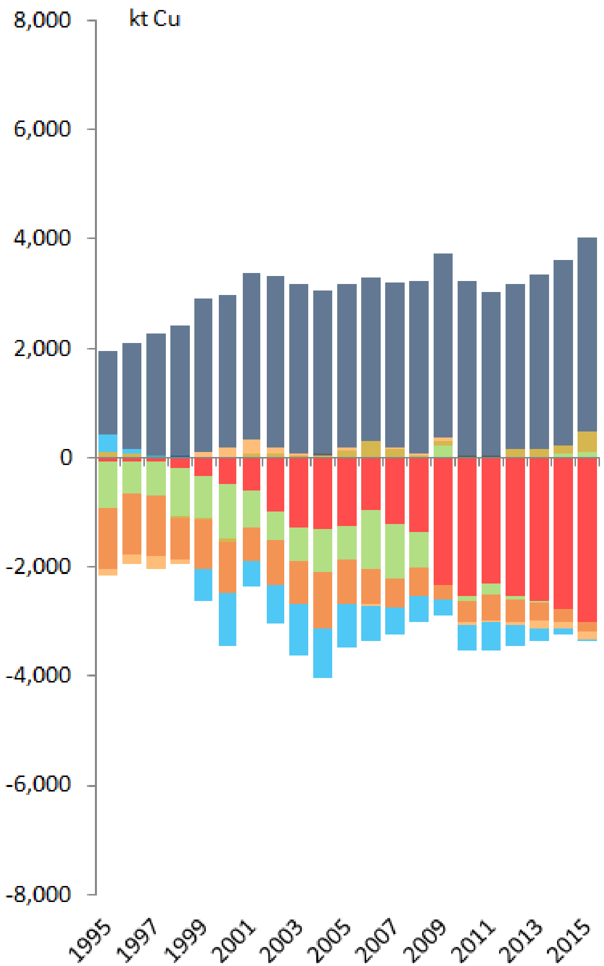
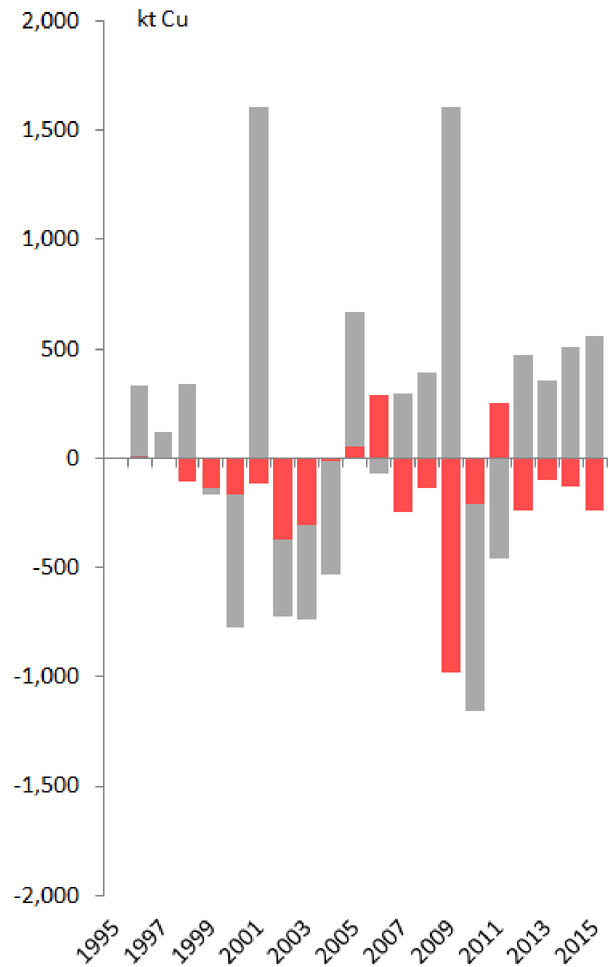
China Has a Huge Deficit in refined Copper

GROWING YEAR BY YEAR, MATCHED MAINLY BY SURPLUS IN L.AMERICA

Balance Tonnes



Balance Change



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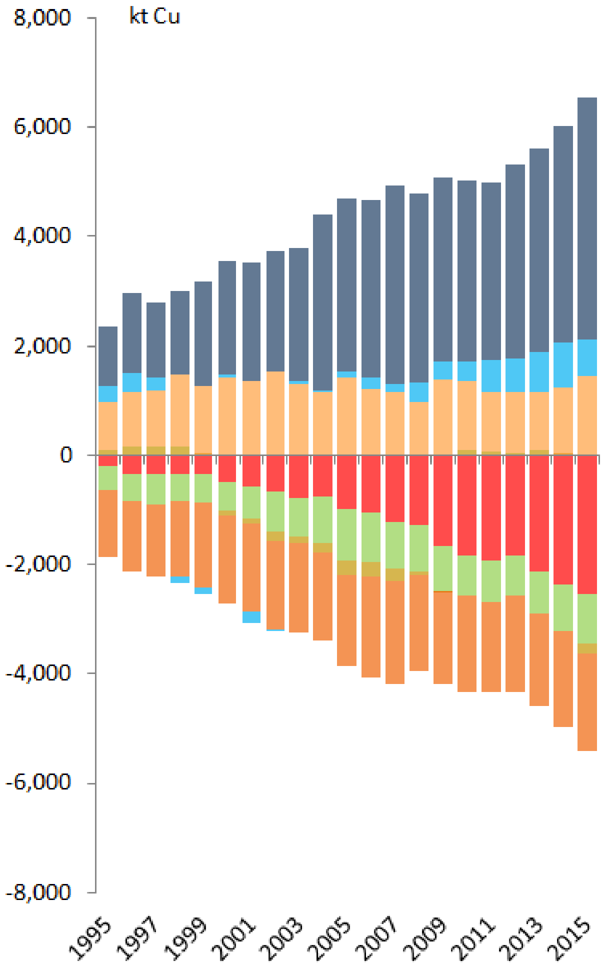
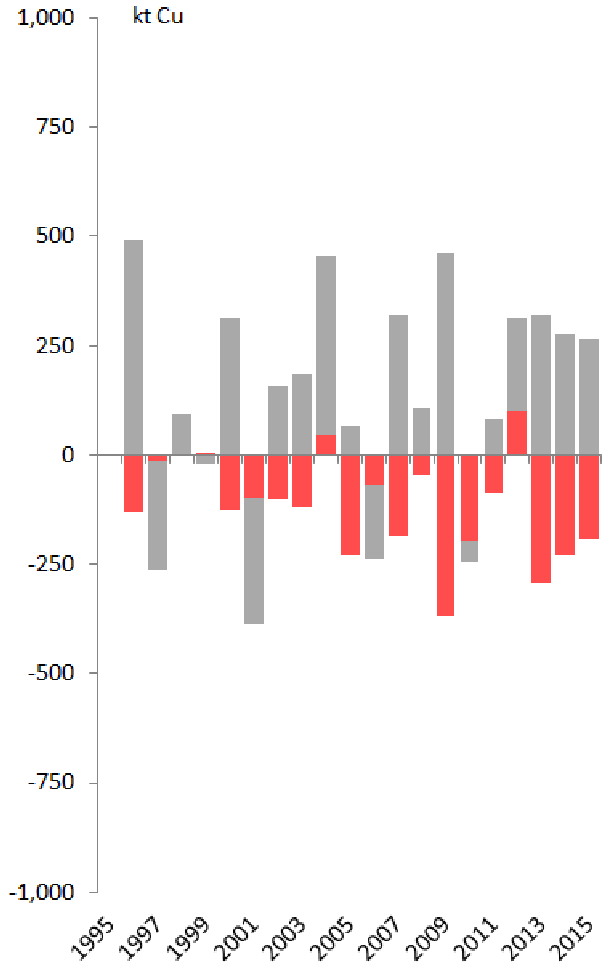
Deficit in Concentrates/Blister Nearly as Big

…AND GROWING MORE RAPIDLY

Balance Tonnes



Balance Change



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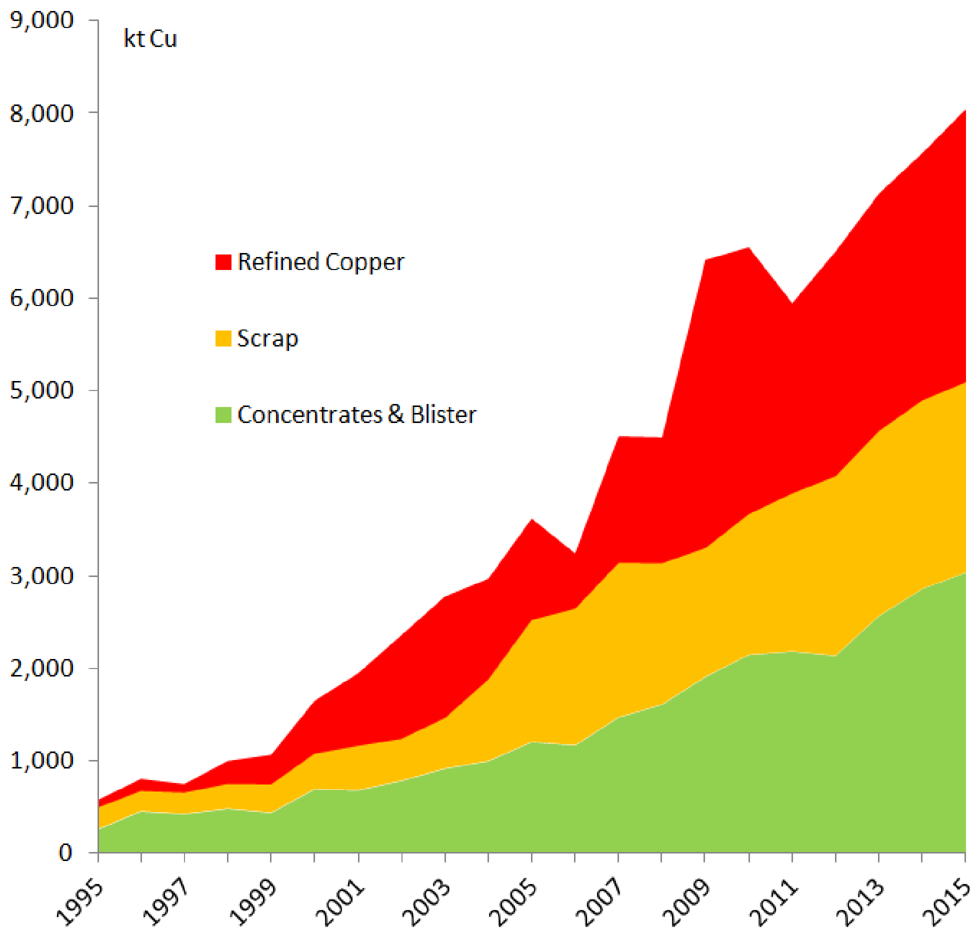
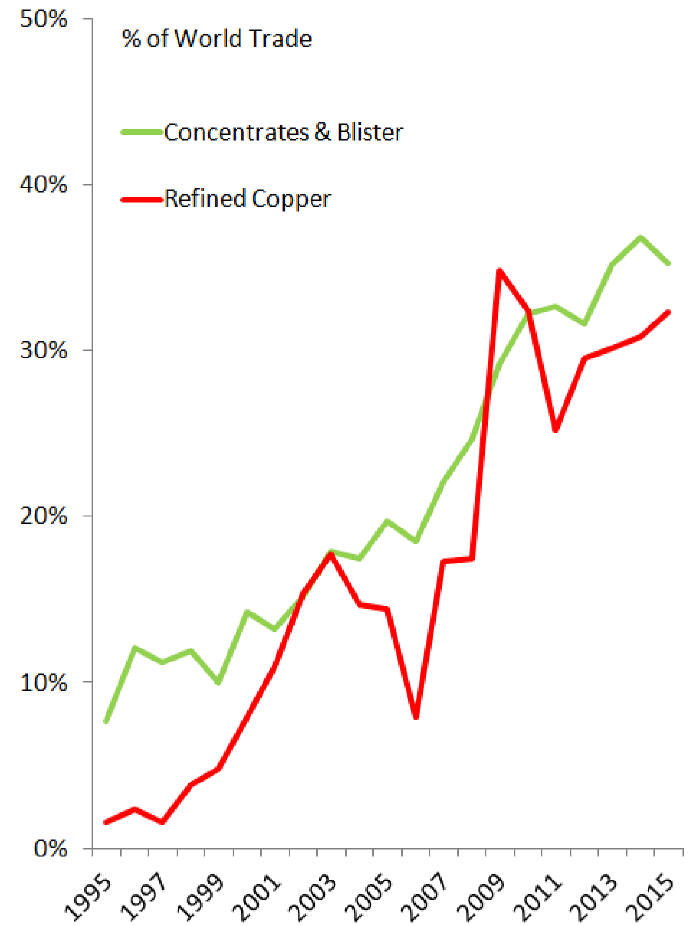
CHINA AND WORLD TRADE IN COPPER MATERIALS

CHINA'S SHARE OF IMPORTS IN ALL MATERIALS HAS RISEN QUICKLY

China's Net Imports of Cu Materials



% World Share



China Central to Copper's Market Mechanisms

CHINA LEADS IN OUTPUT, USE AND IMPORTS

....AND ITS INFLUENCE IS STILL GROWING

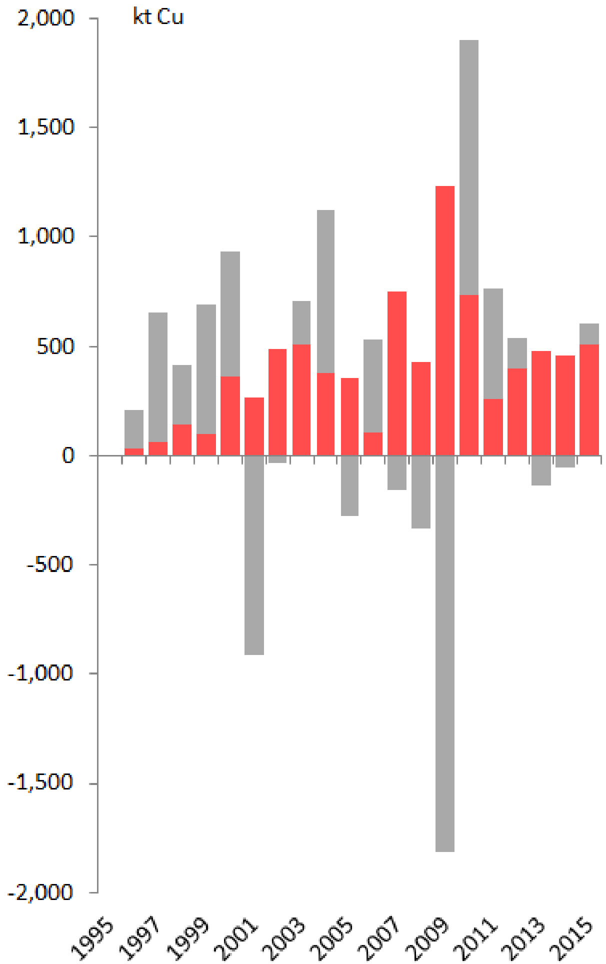
China and the Global Supply Chain

	1995	2000	2005	2010	2015	1995	2000	2005	2010	2015
kt Cu										
Output and Use						*% World Share*				
Concentrates Output	435	593	762	1,156	1,507	*4.9%*	*5.5%*	*6.2%*	*9.0%*	*9.7%*
Blister Output	798	1,188	2,252	3,715	4,831	*7.7%*	*9.9%*	*16.8%*	*24.9%*	*27.2%*
Refined Output	1,089	1,371	2,605	4,573	6,352	*9.0%*	*9.3%*	*15.7%*	*23.9%*	*27.9%*
Refined Use	1,169	1,869	3,862	7,120	9,127	*9.5%*	*12.3%*	*22.8%*	*36.6%*	*41.3%*
Imports						*% World Share*				
Concentrates	144	600	1,077	1,745	2,433	*5.5%*	*14.7%*	*21.1%*	*30.6%*	*33.1%*
Blister	115	105	129	399	597	*15.8%*	*13.3%*	*12.8%*	*41.9%*	*48.6%*
Scrap	245	392	1,326	1,528	2,066	*20.5%*	*23.4%*	*40.5%*	*31.9%*	*32.6%*
Refined Copper	115	687	1,271	2,920	3,048	*2.2%*	*9.5%*	*16.7%*	*32.8%*	*33.4%*

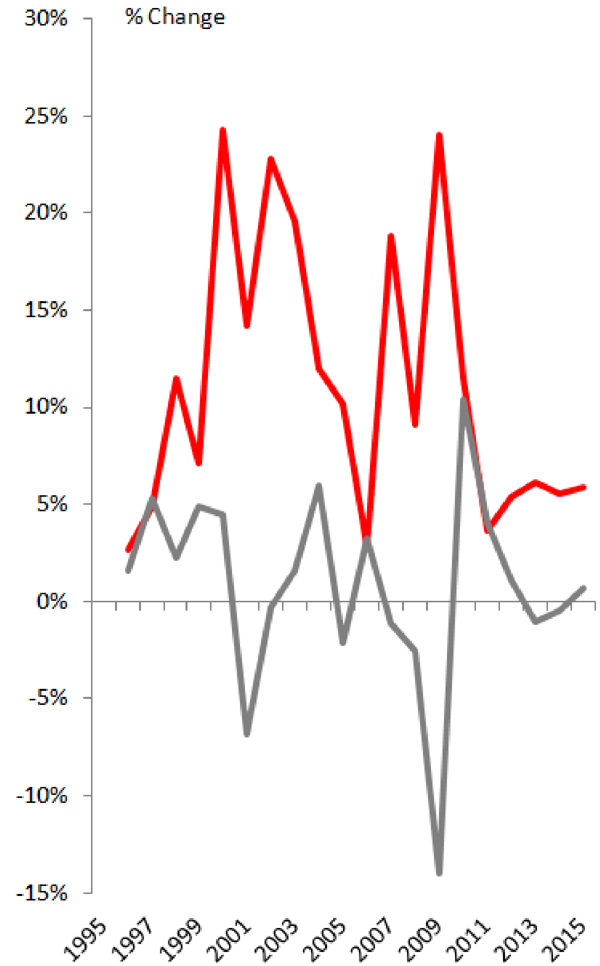
China Market Often Counter Cyclic to ROW

VERY EVIDENT IN 2009, BUT ALSO BEFORE THEN

Change in Tonnes



% Change



Key

REST OF THE WORLD

China

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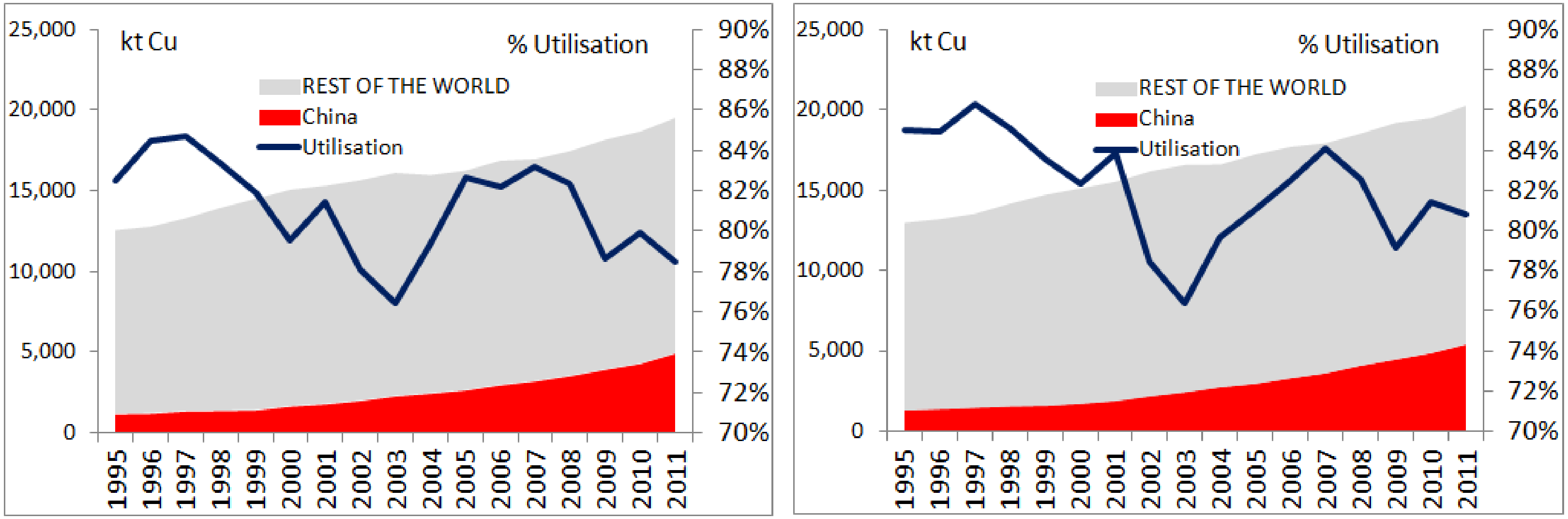
China Investment – Processing & Offshore Mines

China Process Capacity & World Oversupply, Now Focus Offshore

China Investment in Copper Processing and Global Capacity Utilisation

Smelting **Refining**



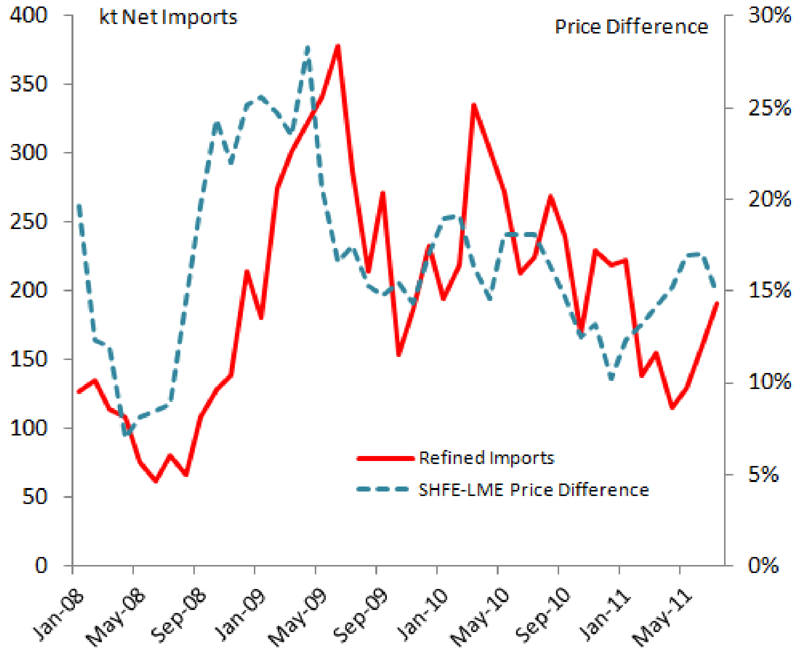
Investments in Offshore Mining

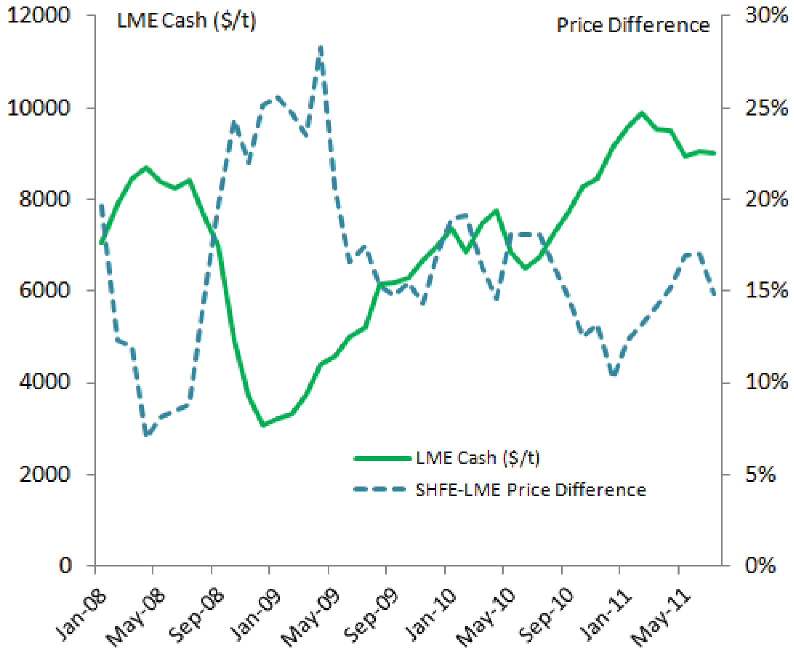
Mine	Country	Company	Start Date	Type	Capacity (ktpy)
Anyak	Afghanistan	MCC / Jiangxi	2015	Concs	220
Mirador	Ecuador	Togling et al	2015	Concs	250
Galeno	Peru	Minmetals/Jiangxi	2014	Concs	145
Toromocho	Peru	Chinalco	2014	Concs	220
Chambishi / Luanshya etc	Zambia	CNMC	Ongoing Expansion	Concs & Smelter	250

Additional Notes: Recent acquisition of Meterox by Jinchuan with interests in Zambia & D.R.Congo, exploration & infrastructure agreements in D.R. Congo, exploration agreements with Codelco, Rio Tinto etc., major investments in Kazakmys mines Atogay & Boschchekul in Kazakhstan

China Market Pricing and Imports

REFINED IMPORTS RELATE CLOSELY TO LME-SHFE PRICE DIFFERENTIAL, ITSELF PARTLY A FUNCTION OF ABSOLUTE LME PRICES





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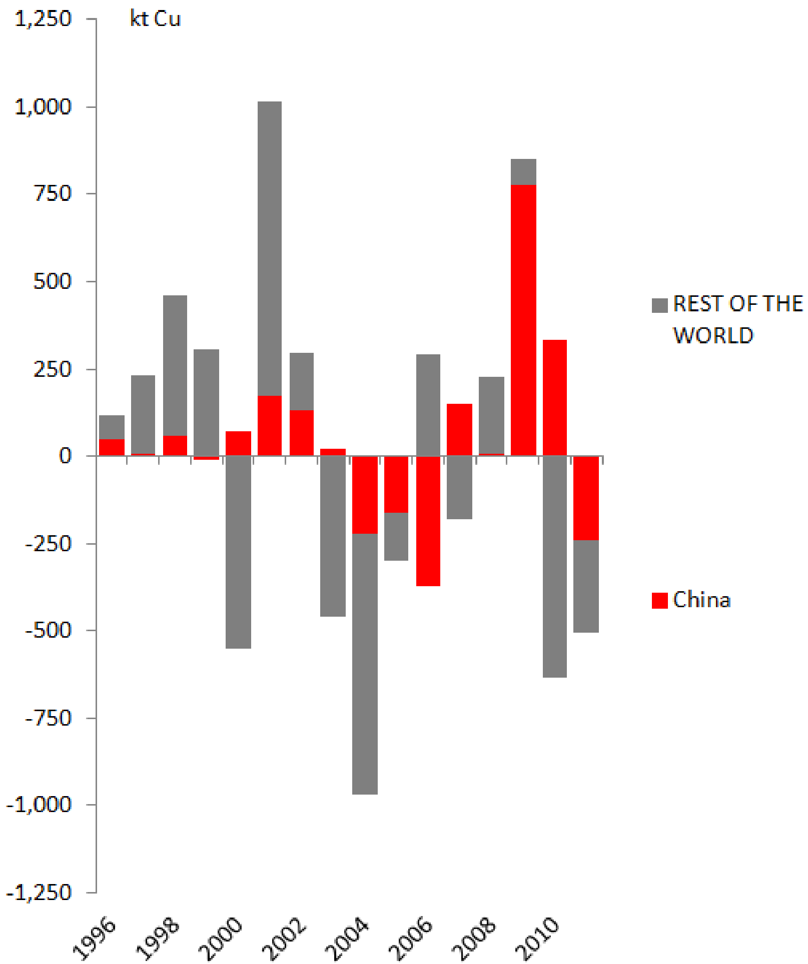
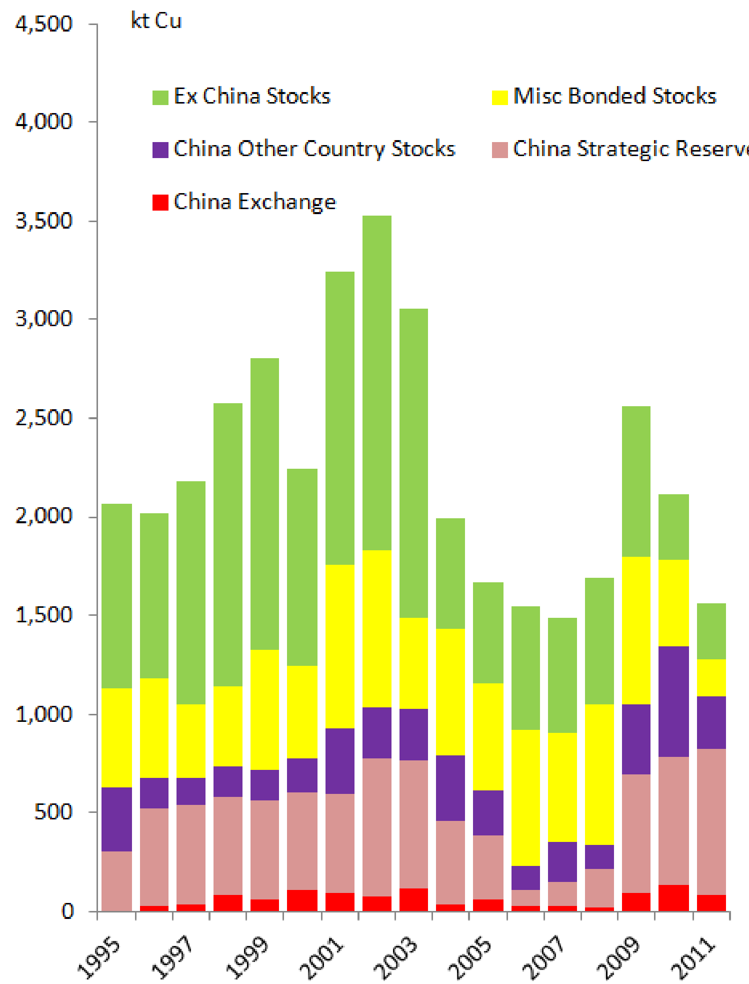
CHINA THE FOCUS OF REFINED STOCK MOVEMENTS

CHANGES HARD TO MEASURE AND DIFFICULT TO PREDICT

China & World Stock Change



Location of All Non-Working Stocks



Note: Excludes all working and transit stcocks

Some Conclusions

Some Conclusions

China is Central to Our Understanding of the Copper Market Because Of:

- Its Size
  - A dominant consumer of copper
  - A dominant processor of copper
  - A dominant importer of copper in all forms
- Its Growth
  - Since the late 1990s, China has grown rapidly in its copper use while much of the rest of the world is virtually static or declining
- Its Specific Nature
  - China developments can have a disproportionate effect on Cu market as
    - market trend can run counter to the rest of the world
    - China has become a major investor in copper
    - Specific price arbitrage and copper import dynamics
    - China stocks large, volatile and unpredictable

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About BME

Bloomsbury Minerals Economics is a specialised consultancy engaged in base metals market and price analysis, focussing in particular on copper. Our analysis and advice relates to all sectors of the industry from mine to thorough and detailed coverage of end markets for products containing base metals.

A foremost provider of base metals single client consultancy

Our consulting work relates to fundamental supply-demand market analysis, price forecasting, mine project appraisals, intermediate product market dynamics and end market analysis, forecasting and project appraisals. Clients include mining companies, metals processors, fabricators, traders, financial institutions and industry bodies.

A complete service provider for copper

Other product and service offering encompasses the following:

- Monthly and quarterly copper market service publications
- Groundbreaking copper price modelling

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Or visit: www.bloomsburyminerals.com

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