MACROECONOMIC IMPACTS ON THE COPPER INDUSTRY AND COPPER MARKETS IN 2011-2012

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SOCIETE GENERALE
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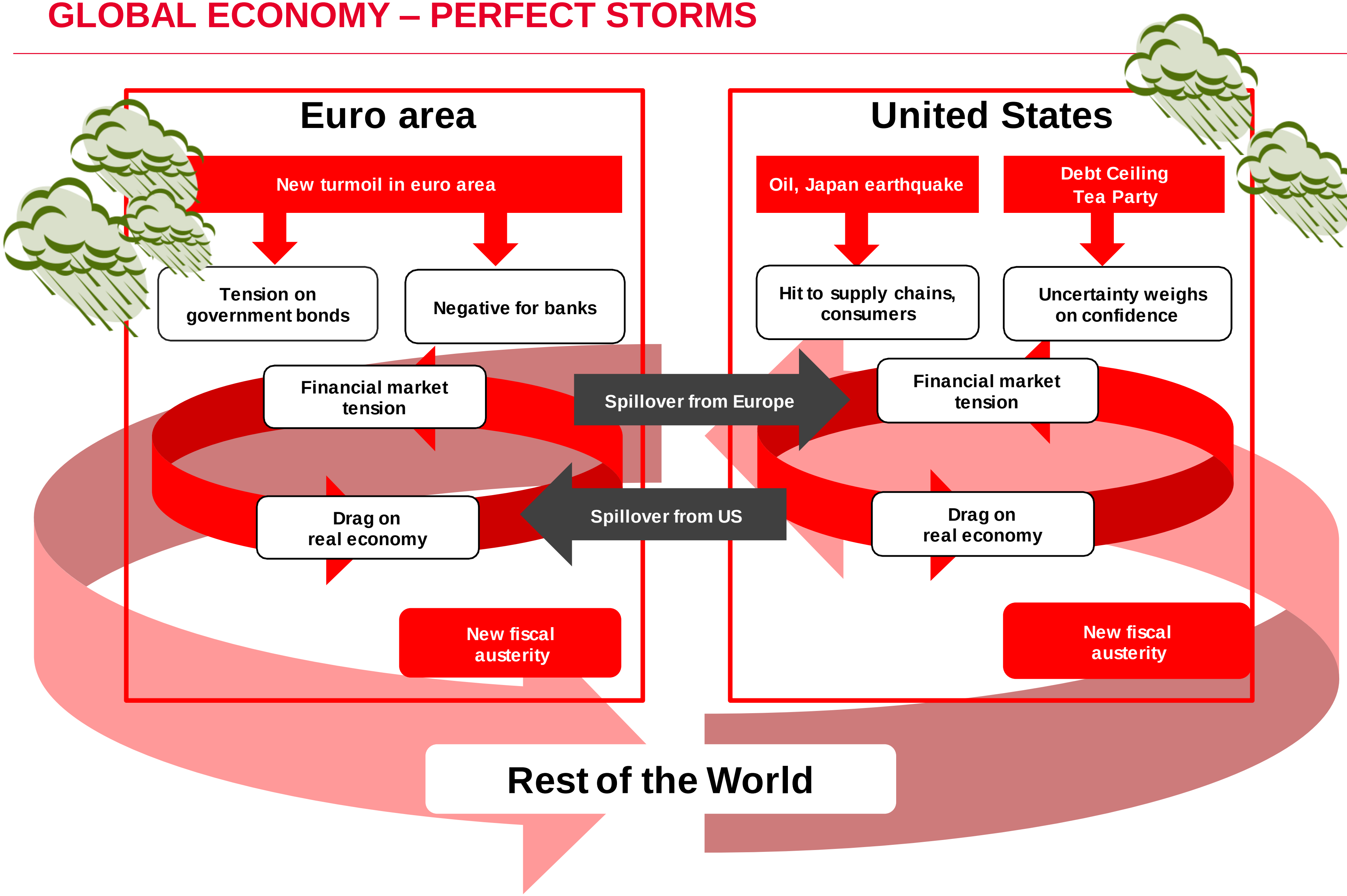
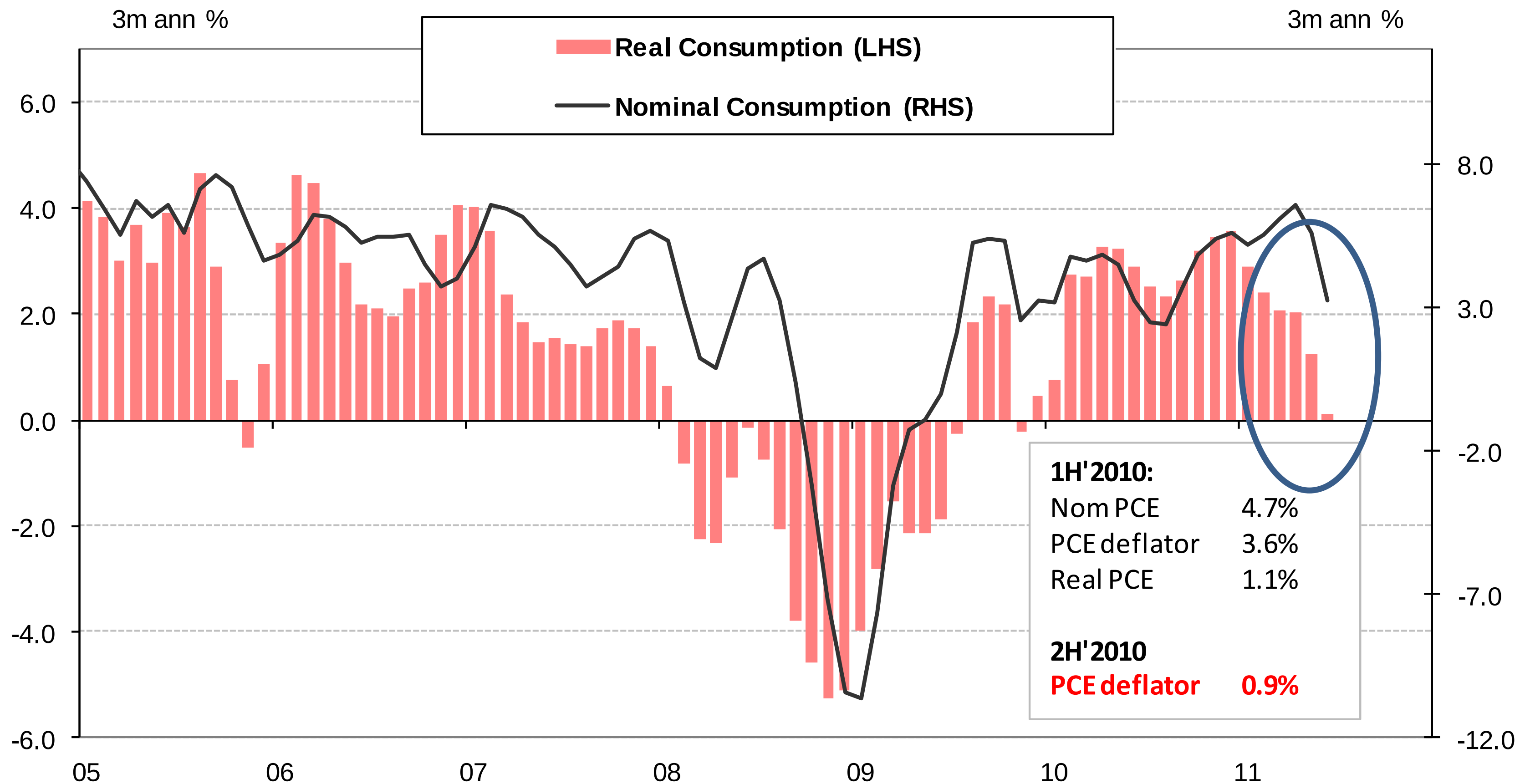
GLOBAL ECONOMY – PERFECT STORMS

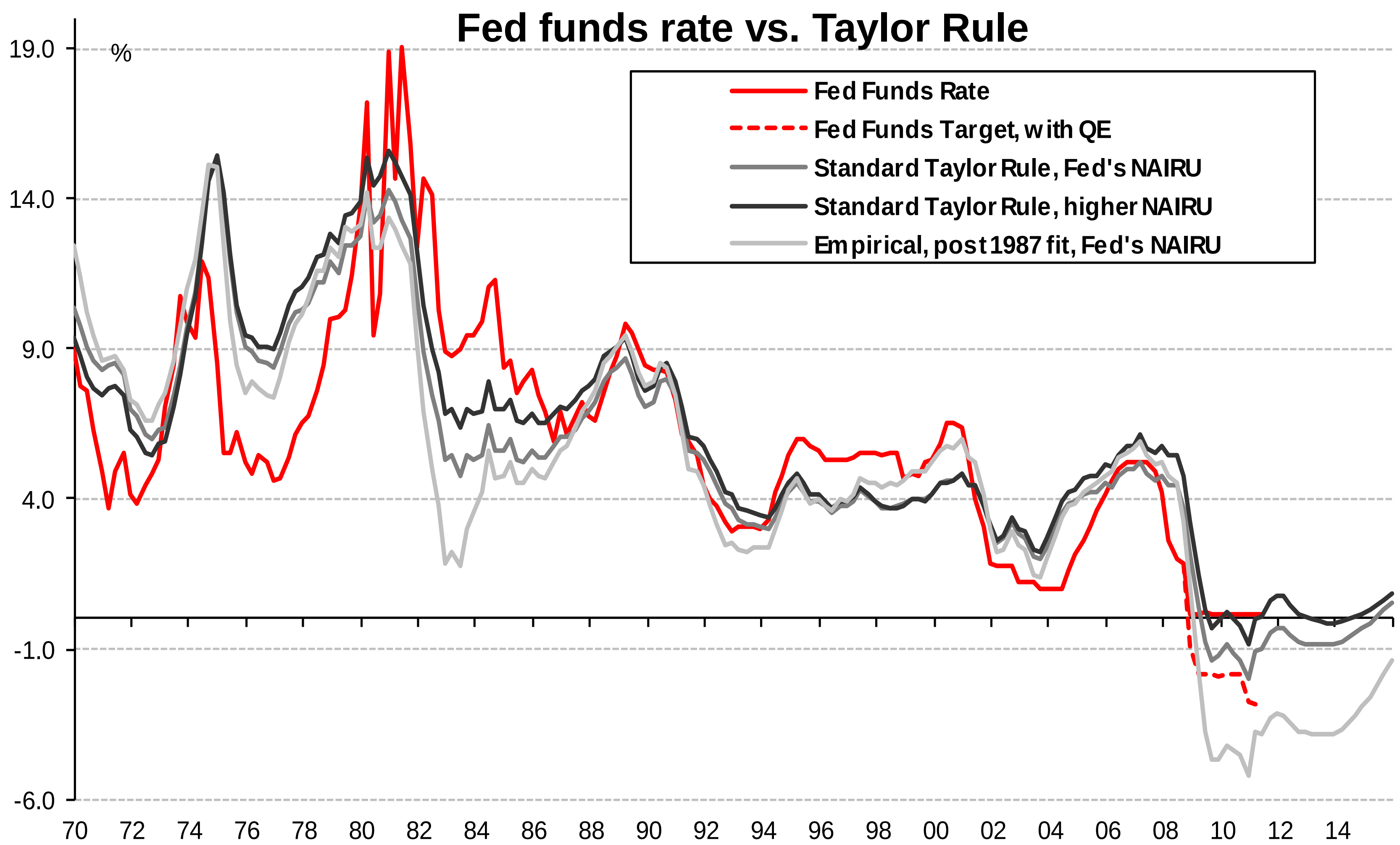


US CONSUMER SPENDING SLOWED SHARPLY IN H1



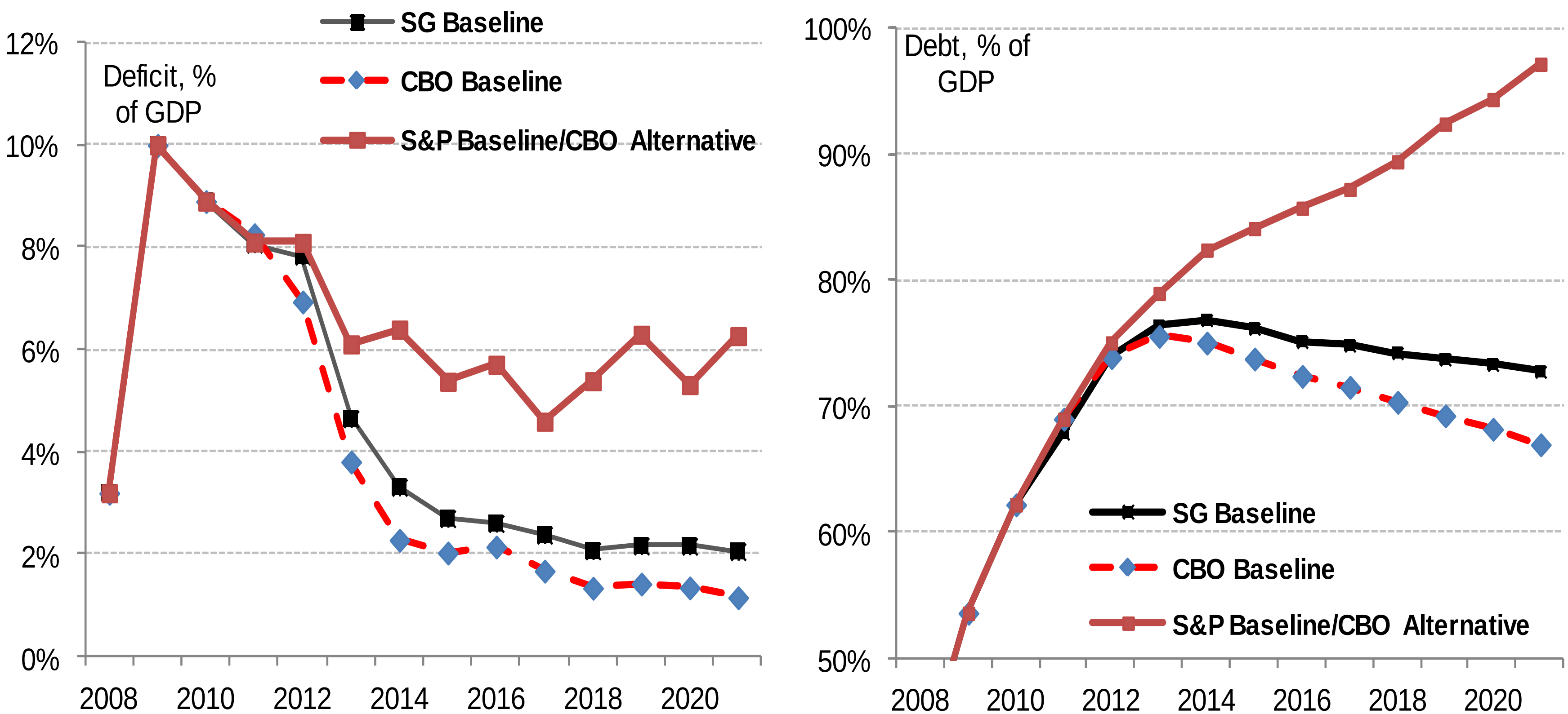
Source: Global Insight, SG Cross Asset Research/Economics

CENTRAL BANKS TO KEEP ACCOMMODATIVE MONETARY CONDITIONS



Source: Global Insight, SG Cross Asset Research/Economics

US AUSTERITY COMING … BUT LIKELY TO BE BACK-END-LOADED



Source: SG Cross Asset Research/Economics

ASIA EX-JAPAN: GROWTH DESCENDING, BUT NOT CRASHING

- Exports, production, investments to cool further
- Consumption and affordable housing to hold up

	-12M	-6M	-3M	0M	latest
Industrial Production China	16.0	13.3	14.9	14.1	14.0
Exports	40.9	25.2	25.3	19.2	20.3
Imports	44.5	29.7	32.8	23.5	23.0
Fixed Asset Inv't	25.8	24.6	24.9	25.6	25.4
Retail Sales	18.5	18.8	16.3	17.3	17.2
Floor Space Started	76.5	12.8	25.1	26.4	34.0
Fiscal Revenue	23.2	18.4	33.7	29.5	26.7
Transportation	17.8	13.4	13.4	14.4	14.8
PMI	53.9	54.6	52.8	51.2	50.7
Consumer Confidence	107.7	102.4	102.4	107.0	108.1
Leading Index	103.9	101.9	101.5	101.8	101.8

% yoy, 3mma except for the latest figure; PMI, Consumer Confidence, Leading Index in level term
Color assigned relative to historical average levels

Source: CEIC, Bloomberg & SG Cross Asset Research / Economics

EURO AREA: CATALYSTS FOR STABILISATION

September	October	November	December
German Constitutional Court			
Fifth review of Greece	Fifth review of Greece		
Ratification of EFSF	Ratification of EFSF		
France & Germany due by end September			
Sep.16: Eurogroup	Oct.3: Eurogroup	Nov.7: Eurogroup	Nov. 29: Eurogroup
	Oct.17/18 EU Summit		Dec. 9 EU Summit

- **The keystone is EFSF ratification**
- **In the interim, the ECB will continue SMP if necessary**

GLOBAL ECONOMY - CLOSE TO STALL-SPEED …
…EURO DEBT CRISIS RESOLUTION HOLDS THE KEY

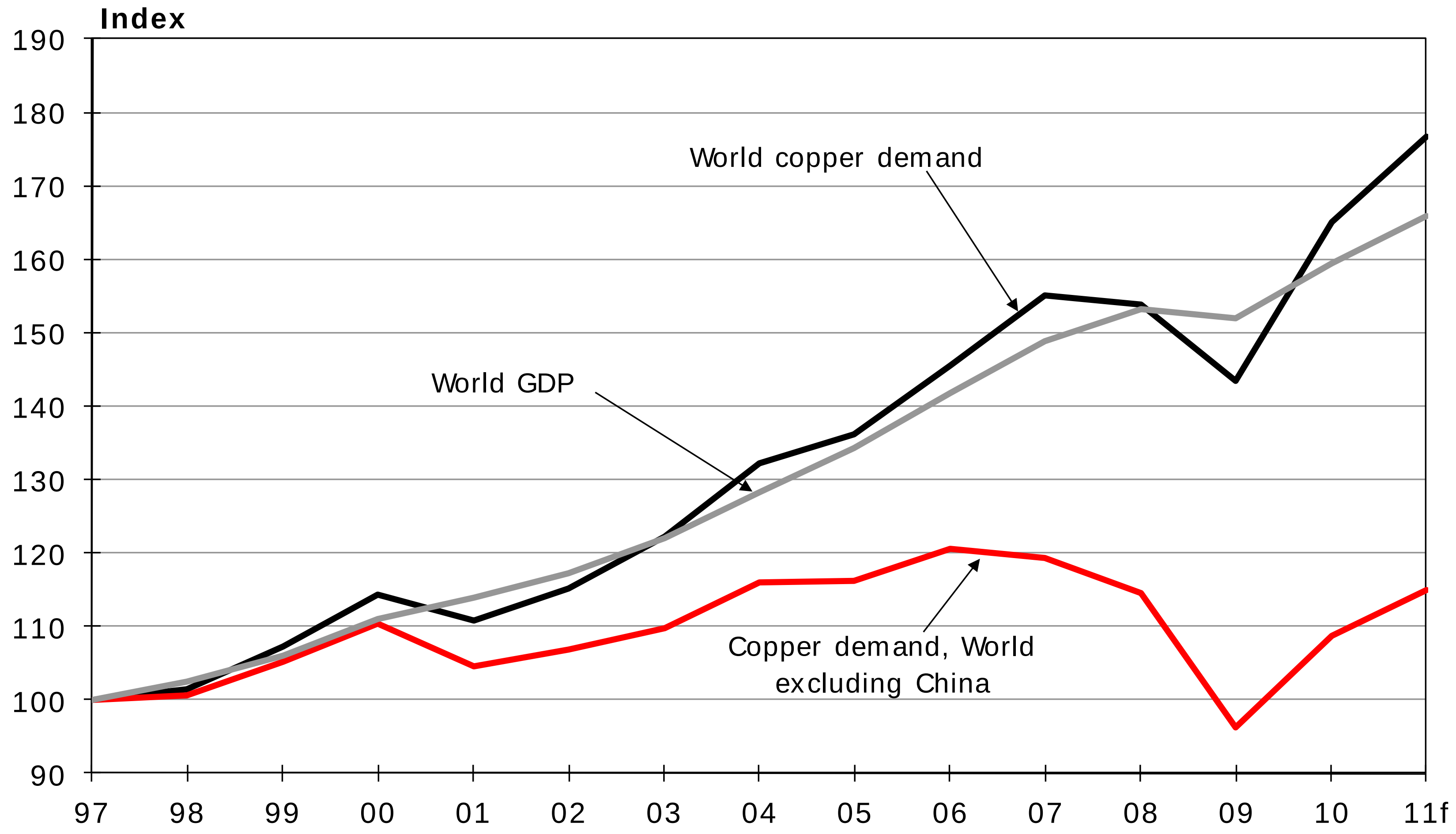
- **Near stall-speed growth in US and Europe**
- **Bumpy landing in China**
- **EM to see growth moderation, but no crash**
- **US / Europe economy is frail, but recession needs a trigger**
  1. Sharp intensification of the euro area debt crisis is the top risk.
  2. Renewed financial instability triggered by asset quality concerns
  3. Sharper fiscal austerity in US
  4. Policy accident triggers China hard landing
  5. Escalation of geopolitical tension (Middle East triggers oil price supply-shock)

ECONOMIC FORECAST SUMMARY

SG Growth and Inflation Outlook

	Real GDP												CPI											
P= previous forecast*	2009	2010	2011f	P*	2012f	P*	2013f	P*	2014f	P*	2015f	P*	2009	2010	2011f	P*	2012f	P*	2013f	P*	2014f	P*	2015f	P*
World (current $ weights)	-1.9	4.3	3.3	3.6	3.3	4.0	3.4	3.8	3.7	4.0	3.9	4.0	1.1	3.6	4.2	4.4	3.5	3.9	3.3	3.7	3.5	3.7	3.6	3.7
World (PPP weights)	-0.8	5.0	4.0	4.3	3.9	4.6	3.9	4.3	4.2	4.5	4.5	4.5	2.5	3.6	4.6	4.6	3.6	3.7	3.4	3.5	3.3	3.4	3.3	3.3
Developed countries (PPP)	-3.9	2.6	1.5	2.0	1.8	2.6	1.8	2.3	2.1	2.5	2.5	2.6	0.0	1.5	2.5	2.7	1.4	1.8	1.4	1.8	1.7	2.0	1.8	2.2
Emerging countries (PPP)	2.7	7.7	6.5	6.7	5.9	6.6	6.0	6.3	6.1	6.4	6.2	6.1	5.3	5.9	6.8	6.7	5.7	5.7	5.2	5.1	4.8	4.8	4.6	4.3
G5																								
Euro area	-4.1	1.7	1.7	1.9	1.1	1.5	1.3	1.6	1.6	1.7	1.9	1.9	0.3	1.6	2.5	2.6	1.6	1.5	1.5	1.5	1.7	1.7	1.9	2.0
USA	-3.5	3.0	1.6	2.7	1.8	3.1	1.8	2.9	2.5	3.4	3.3	3.5	-0.3	1.6	3.0	3.1	1.6	2.1	1.5	2.2	1.8	2.4	1.8	2.6
UK	-4.9	1.4	1.2	1.5	1.7	1.9	1.9	2.0	2.1	2.2	2.3	2.3	2.2	3.3	4.4	4.3	2.5	2.8	1.8	1.8	2.1	2.2	2.5	2.5
Japan	-6.3	4.0	0.1	0.1	3.3	3.6	1.7	1.8	1.5	1.5	1.1	1.1	-1.3	-0.7	-0.3	0.5	-0.4	0.5	0.1	0.9	0.6	0.6	0.8	0.8
China	9.2	10.3	9.1	9.4	8.3	8.8	7.7	7.8	7.4	8.2	7.4	7.6	-0.7	3.3	5.5	5.5	4.0	4.5	4.0	4.0	3.8	4.5	3.8	4.0
Other advanced																								
Germany	-4.7	3.5	3.1	3.3	1.8	2.3	1.6	1.9	1.5	1.5	1.4	1.5	0.2	1.2	2.4	2.4	1.7	1.9	1.9	1.9	2.0	2.0	2.0	2.0
France	-2.6	1.4	1.6	2.0	1.1	1.6	1.0	1.6	1.6	1.6	2.0	2.0	0.1	1.7	2.2	2.3	1.9	1.9	1.8	1.8	2.0	2.0	2.2	2.2
Italy	-5.2	1.3	0.8	0.9	0.2	0.8	-0.4	0.8	0.9	0.8	1.3	1.1	0.8	1.6	2.6	2.5	2.1	1.9	1.6	1.8	1.9	1.9	2.0	2.0
Spain	-3.7	-0.1	1.0	0.9	1.7	1.5	2.3	2.1	2.8	3.0	2.8	3.0	-0.2	2.0	2.8	2.9	0.8	0.7	1.0	1.0	1.2	1.2	1.2	1.2
Canada	-2.8	3.2	2.4	2.9	2.3	2.8	2.2	2.3	2.1	2.2	2.1	2.3	0.3	1.8	3.1	3.3	2.1	2.6	2.0	2.0	2.0	2.0	2.0	2.0
Australia	1.3	2.7	2.2	1.6	3.4	4.2	4.5	4.1	4.6	4.2	4.5	4.0	1.8	2.8	3.3	3.6	2.2	3.6	3.0	3.0	2.6	2.5	2.5	2.5
New Zealand	1.8	1.2	2.1	1.6	2.4	4.1	3.7	3.2	4.5	3.5	4.2	3.2	2.1	2.3	4.3	4.3	2.4	2.6	2.8	2.5	3.0	2.2	2.5	2.0
Sweden	-5.3	5.7	4.3	4.4	1.9	2.1	2.9	2.7	2.7	2.6	2.6	2.6	-0.3	1.3	3.0	2.9	2.3	2.6	2.3	2.6	2.1	2.4	2.0	2.1
Norway	-1.8	2.1	2.4	2.6	3.1	3.2	3.0	3.1	2.8	2.8	2.6	2.6	2.2	2.4	1.6	1.8	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Switzerland	-1.9	2.7	2.1	2.2	1.5	2.0	1.8	1.9	1.8	1.8	1.8	1.8	-0.5	0.7	0.5	0.7	0.5	1.1	1.2	1.9	1.5	1.7	1.2	1.6
Emerging economies																								
Russia	-7.8	4.0	4.0	4.7	3.6	4.3	3.8	4.2	4.2	4.6	4.5	5.0	11.6	6.8	8.6	9.3	7.0	8.1	7.0	7.0	6.0	6.0	5.0	5.0
Czech Republic	-4.0	2.2	2.2	2.0	1.7	2.0	2.0	2.1	2.1	2.5	2.5	2.7	1.0	1.5	1.8	1.8	2.5	2.9	1.9	2.5	1.9	2.2	2.1	2.1
Poland	1.7	3.8	4.0	4.0	3.7	4.2	3.2	4.0	3.8	4.5	4.0	4.0	3.5	3.1	3.7	4.3	3.4	3.5	3.0	3.0	3.2	2.5	3.0	2.5
Romania	-7.1	-1.3	1.5	1.5	2.8	3.0	3.6	3.5	3.8	3.9	4.6	4.8	5.6	6.1	6.3	5.1	4.3	3.5	3.0	3.0	3.0	3.0	3.0	3.0
HK	-2.7	7.0	4.8	6.4	2.0	5.0	4.0	3.1	4.2	5.0	6.5	6.2	0.5	2.4	5.8	5.6	6.9	6.4	5.8	6.1	4.8	5.1	4.5	5.0
Taiwan	-1.9	10.9	4.3	5.8	1.6	4.8	3.7	3.8	4.0	4.0	4.6	4.8	-0.9	1.0	1.8	1.8	2.7	2.7	2.8	2.8	2.3	2.3	2.3	2.3
S. Korea	0.3	6.2	4.0	4.1	3.6	5.0	4.1	4.4	4.3	4.4	4.5	4.7	2.8	3.0	4.2	4.0	3.7	3.7	3.5	3.5	3.5	3.5	3.5	3.5
India	8.0	8.5	8.3	8.1	7.1	9.5	8.4	10.0	8.8	9.0	9.1	8.0	12.3	10.5	8.3	7.0	7.1	5.0	6.5	6.0	7.0	5.0	7.0	4.0

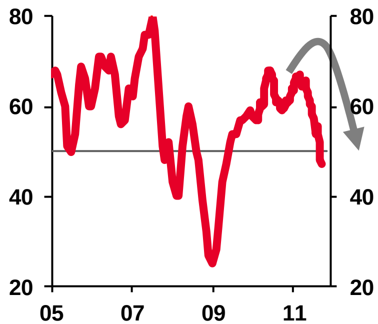
COPPER DEMAND – FOCUS IS ON EMERGING MARKETS RATHER THAN WESTERN WORLD



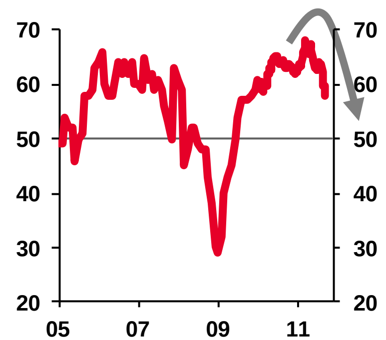
SG PROPRIETARY NEWSFLOWS ARE WORRYING FOR THE BRICS

- Disappointments on growth (lower) and inflation (higher)

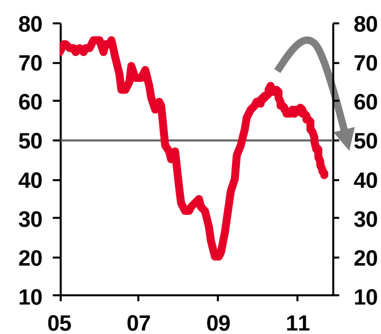
Brazil economic newsflow



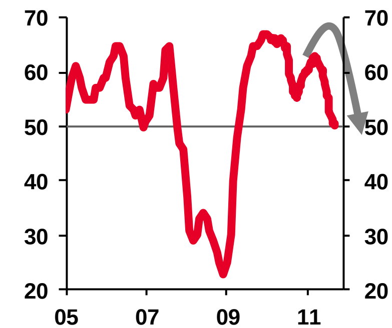
Russia economic newsflow



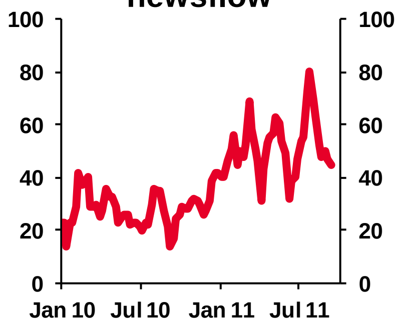
India economic newsflow



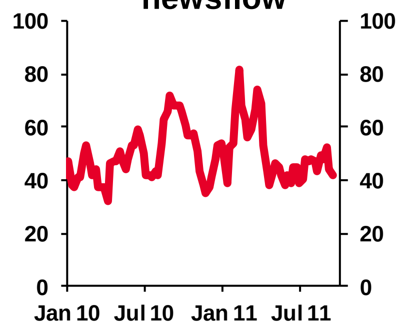
China economic newsflow



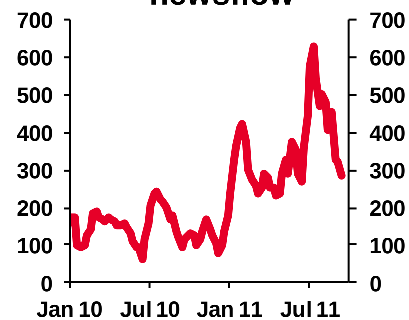
Brazil inflation newsflow



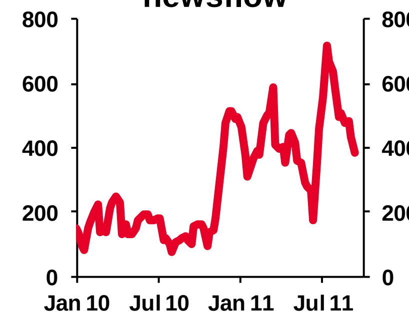
Russia inflation newsflow



India inflation newsflow



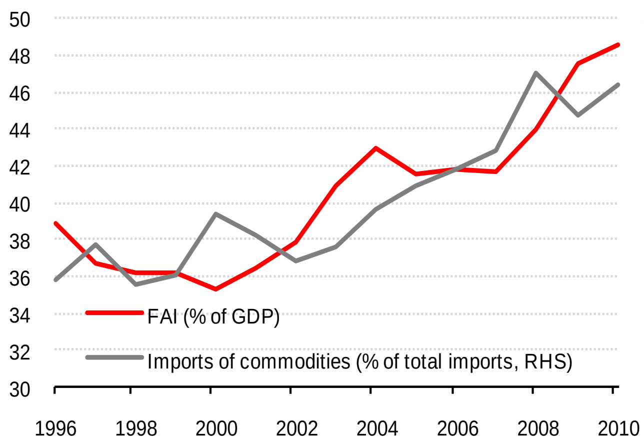
China inflation newsflow



Source: Dow Jones, SG Newsflow Watch

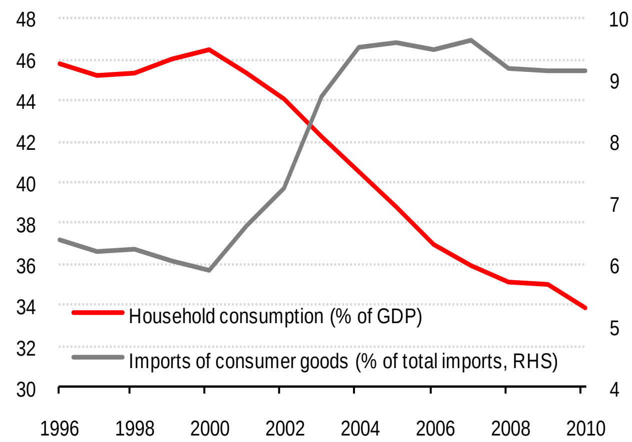
FIXED ASSET INVESTMENT HAS BEEN THE KEY DRIVER FOR CHINAS METAL CONSUMPTION.. BUT WILL THIS CONTINUE?

China's investment boom…



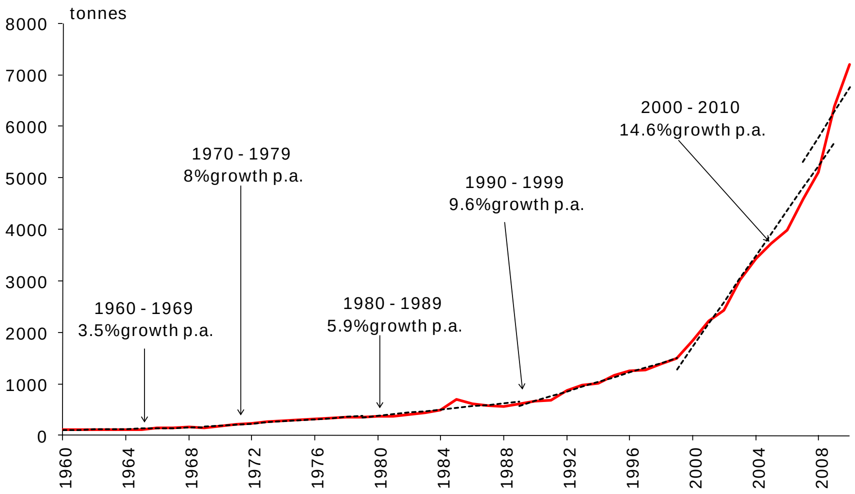
Source: CEIC, SG Cross Asset Research

… little evidence of a consumer boom



Source: CEIC, SG Cross Asset Research

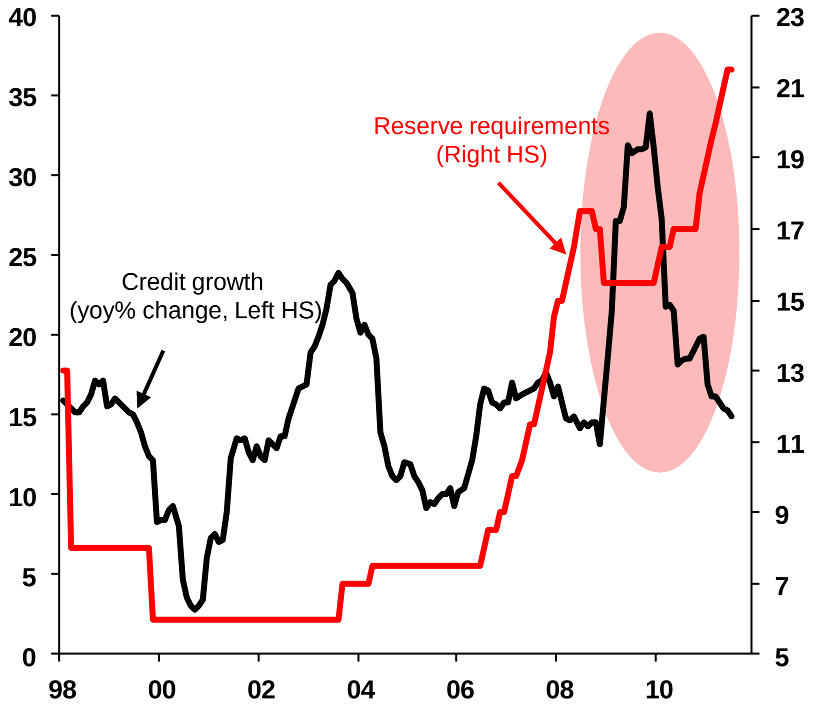
- Infrastructure boom largely financed by banks lending aggressively to local governments
- Local government debt now stands at CNY 10.7 trillion (25% of GDP)
- Public mood over infrastructure projects souring as a result of local government land grabs / public safety concerns

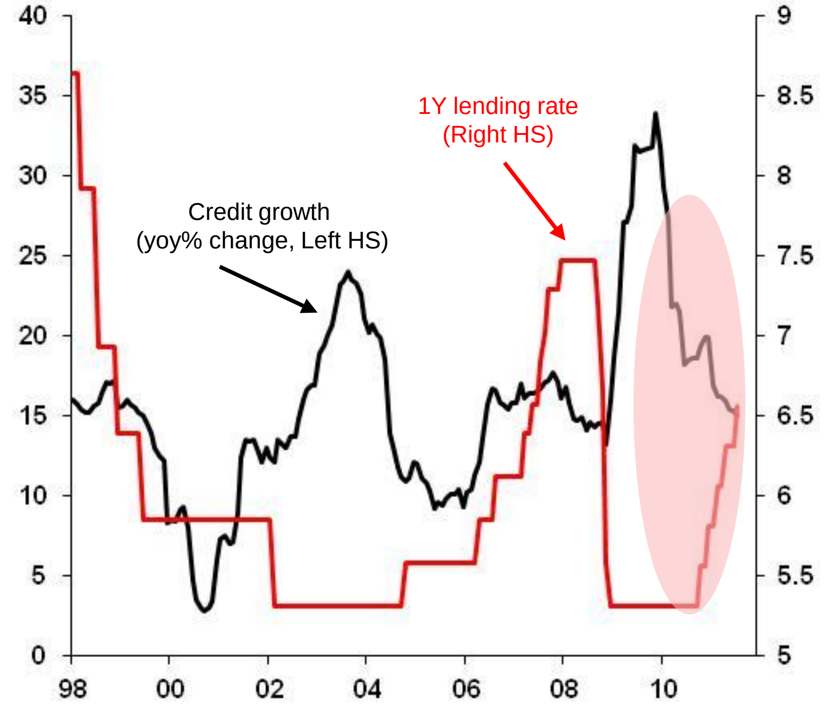


Source: BME, Brook Hunt, SG Cross Asset Research

CONTROLLING LOAN GROWTH IN CHINA REMAINS CHALLENGING

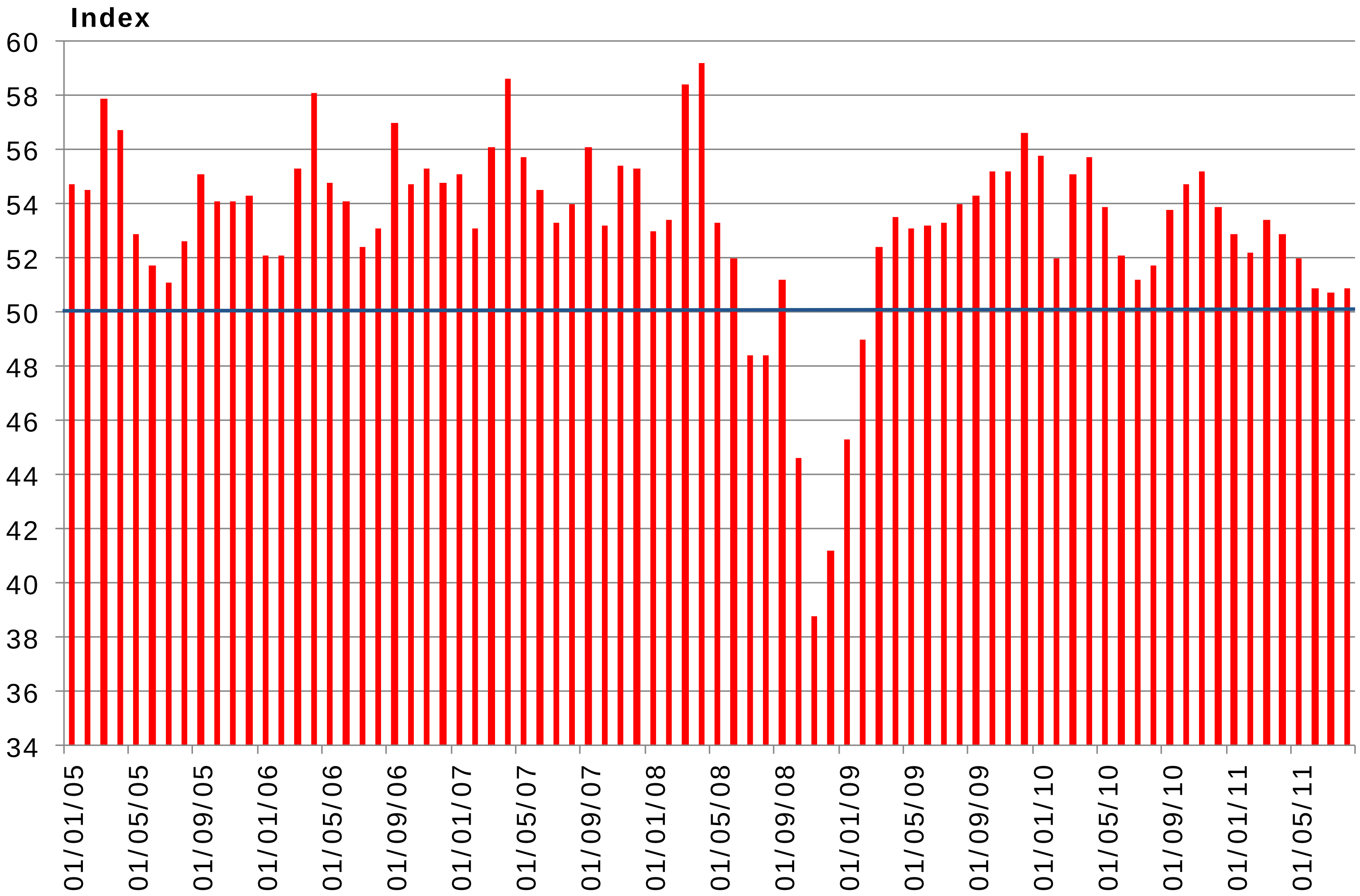
- **Efforts are nonetheless paying off – expect to see slowing FAI as restricted bank lending bites**





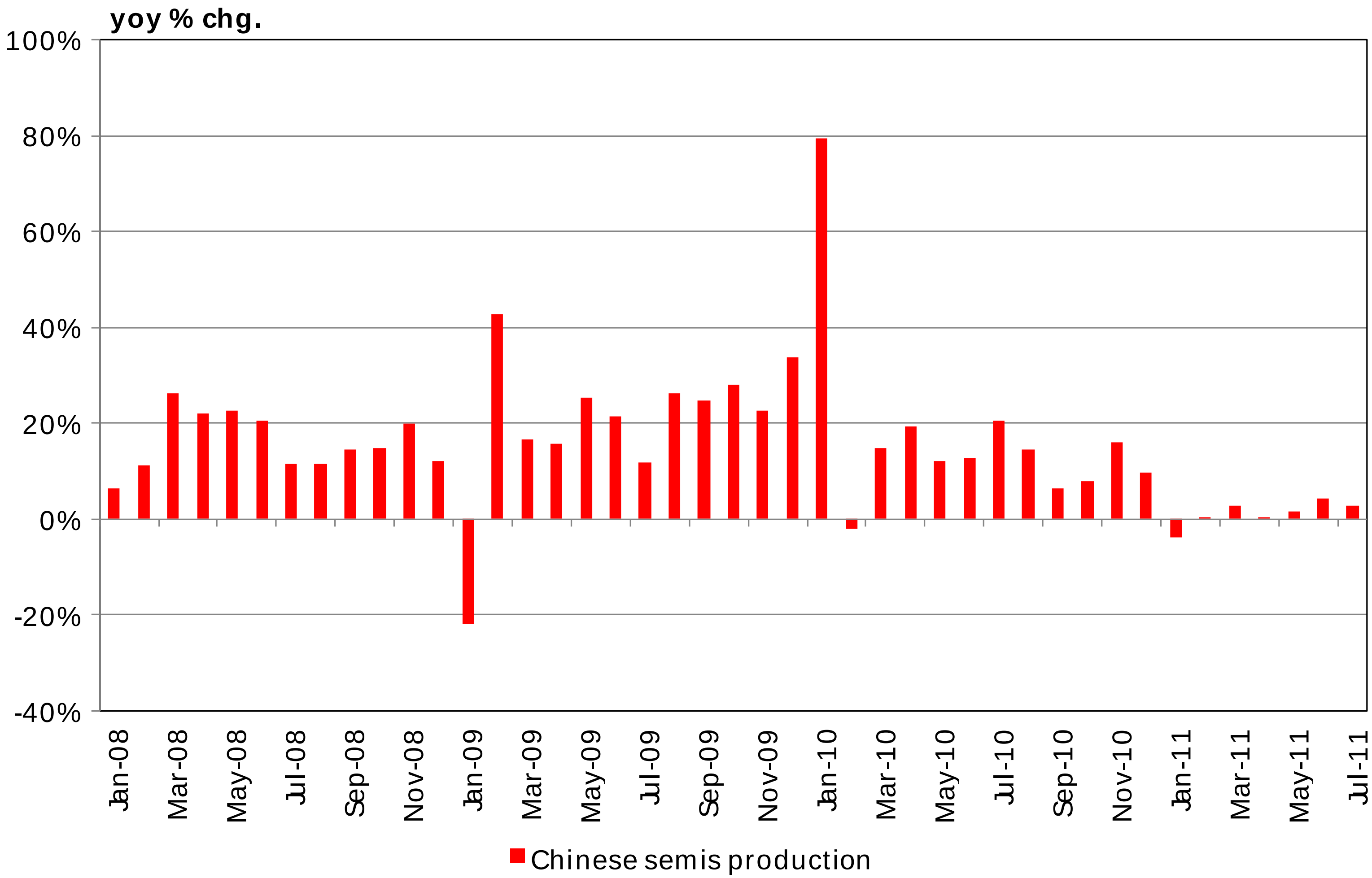
Source: Datastream, Bloomberg, SG Cross Asset Research

CHINA'S MANUFACTURING IS SHOWING CLEAR SIGNS OF SLOWING



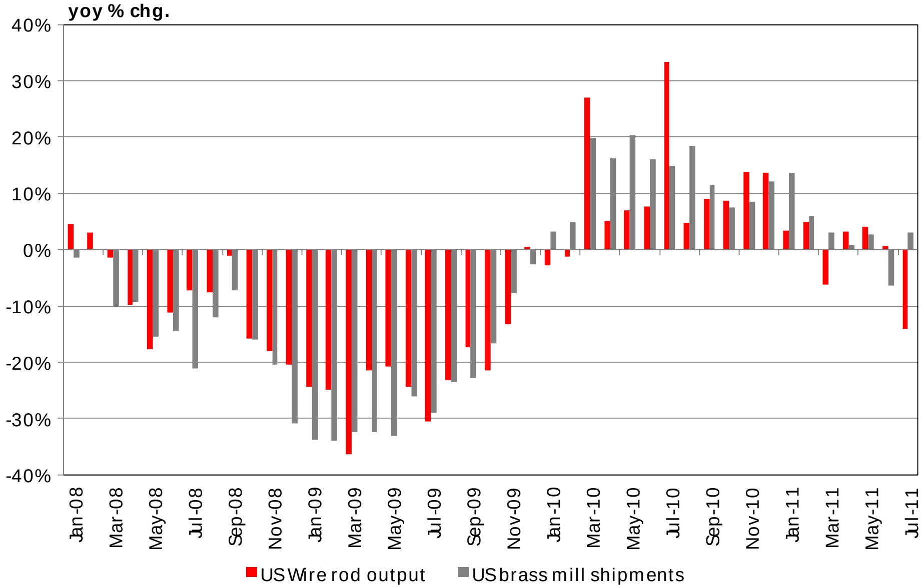
Source: NBS, SG Cross Asset Research

CHINESE COPPER SEMIS PRODUCTION GROWTH HAS SLOWED DRAMATICALLY IN 2011…

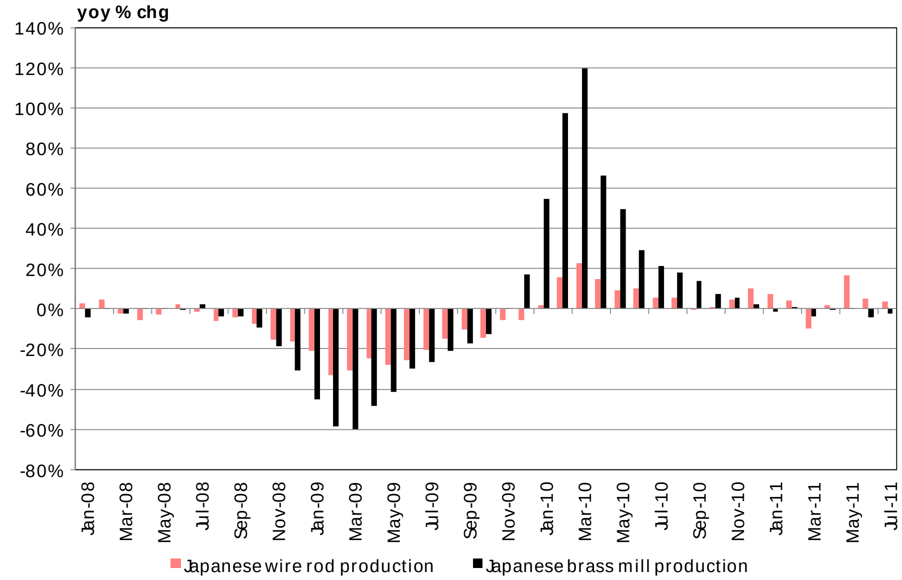


…AND THE STORY IS NOT PARTICULARLY POSITIVE ELSEWHERE

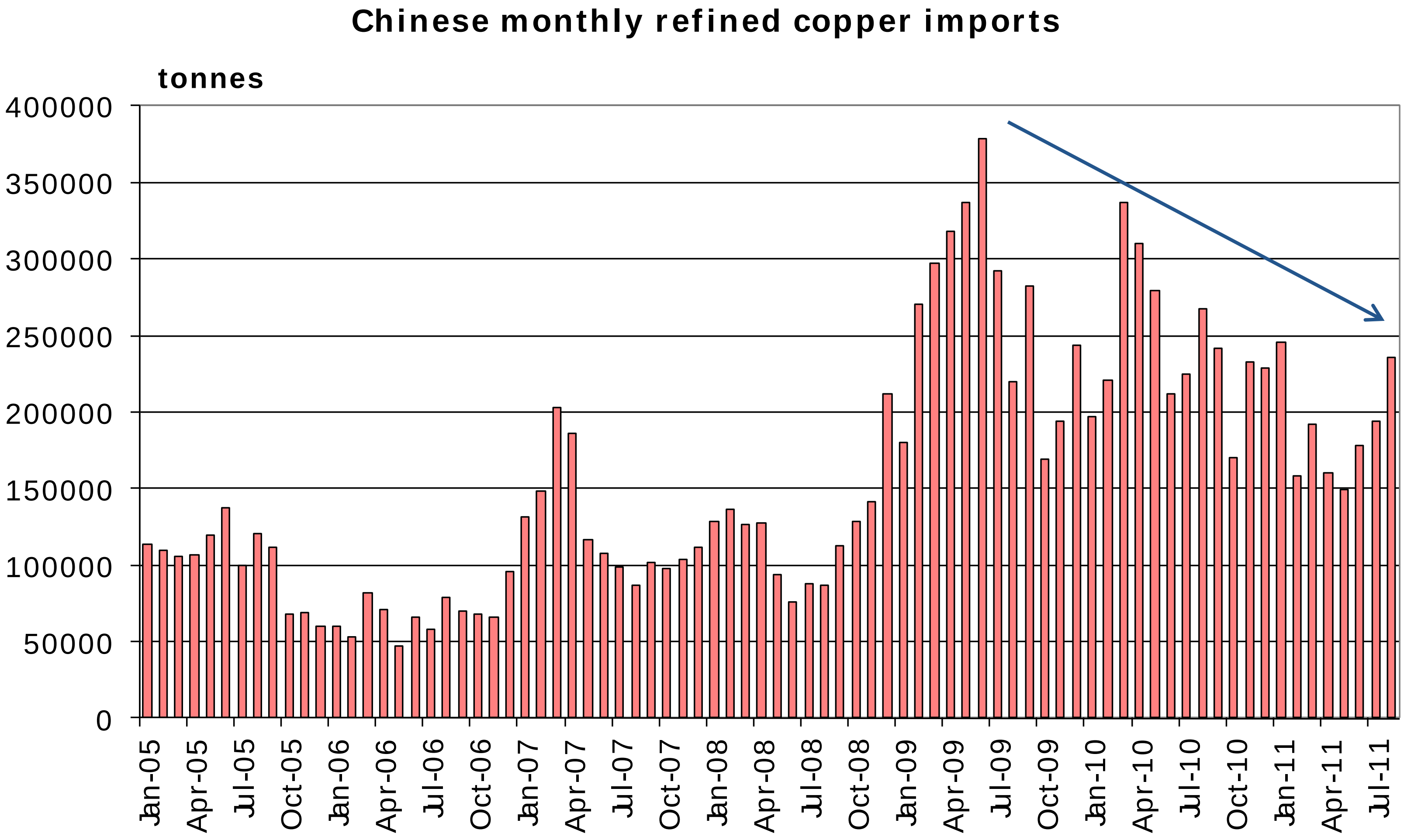
US semis production has been weak…



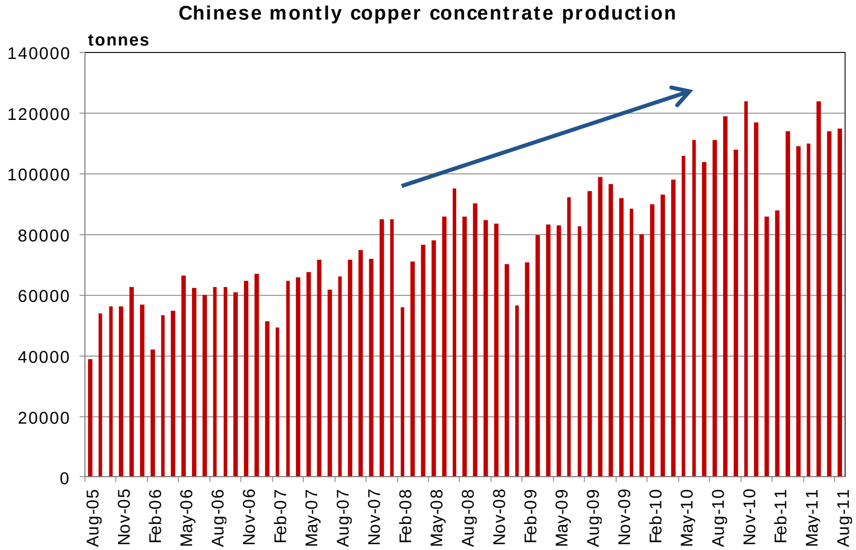
.. While Japan is yet to see a post earthquake pick-up…

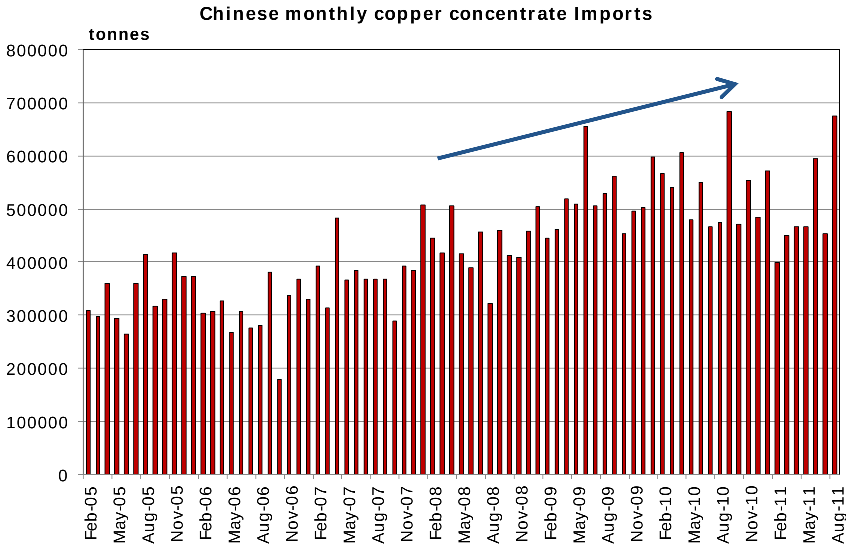


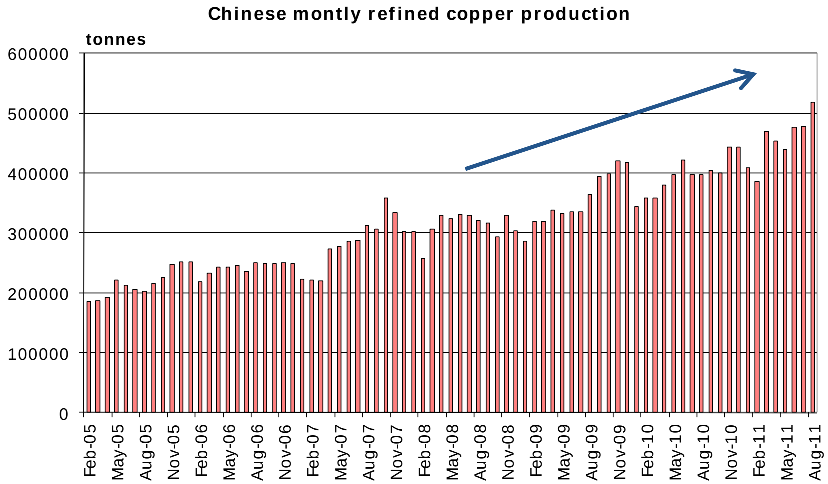
CHINA'S REFINED IMPORTS CONTINUE TO DISAPPOINT…



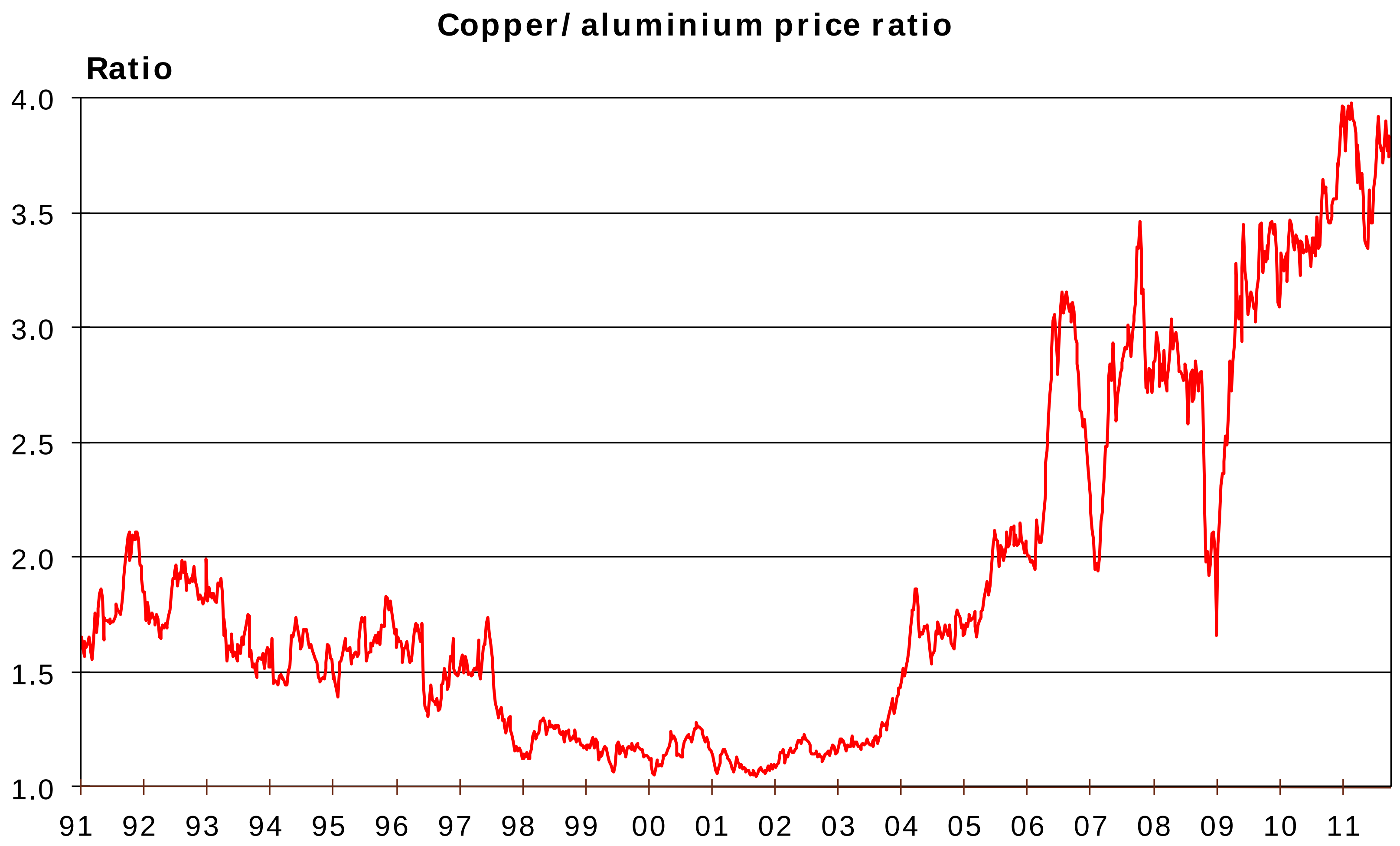
.. PARTLY AS CHINA GROSS DOMESTIC REFINED PRODUCTION, BUT ALSO SIMPLY A FACTOR OF NORMALISING DEMAND GROWTH





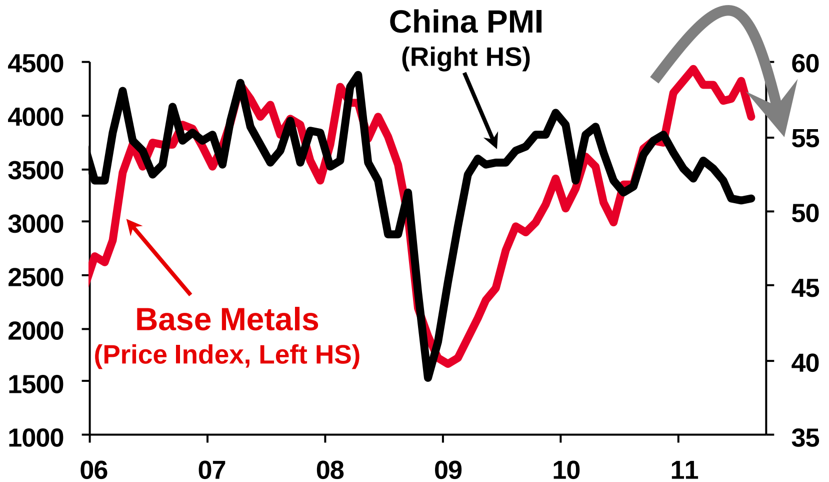


SUBSTITUTION IS ERODING COPPER DEMAND – ALUMINIUM IS INCREASINGLY USED IN LOW/MEDIUM VOLTAGE CABLING IN CHINA

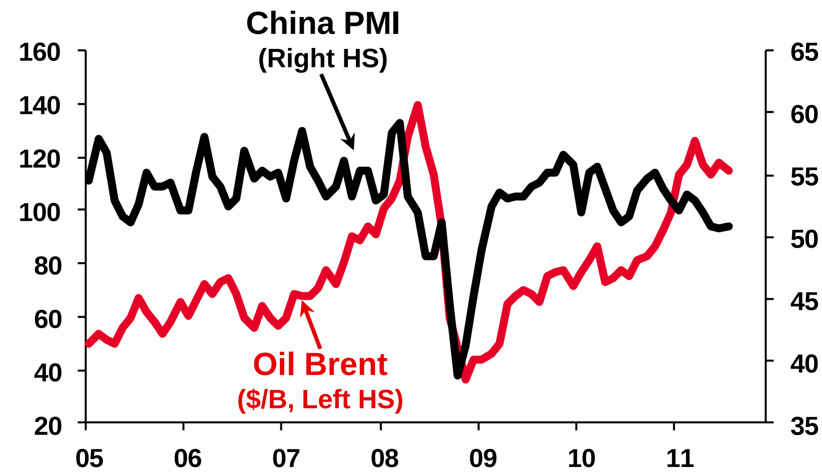


IF CHINA SLOWS DOWN, COMMODITIES OUTLOOK WEAKENS

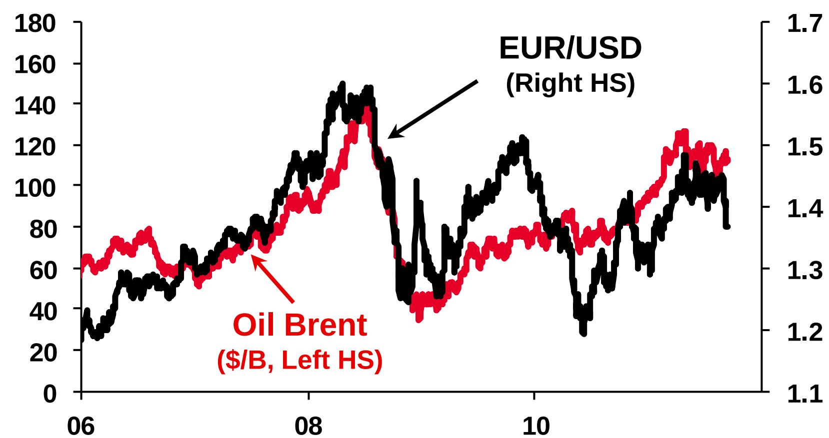
Chinese growth is key factor for base metals



Basic industries a proxy for Chinese growth

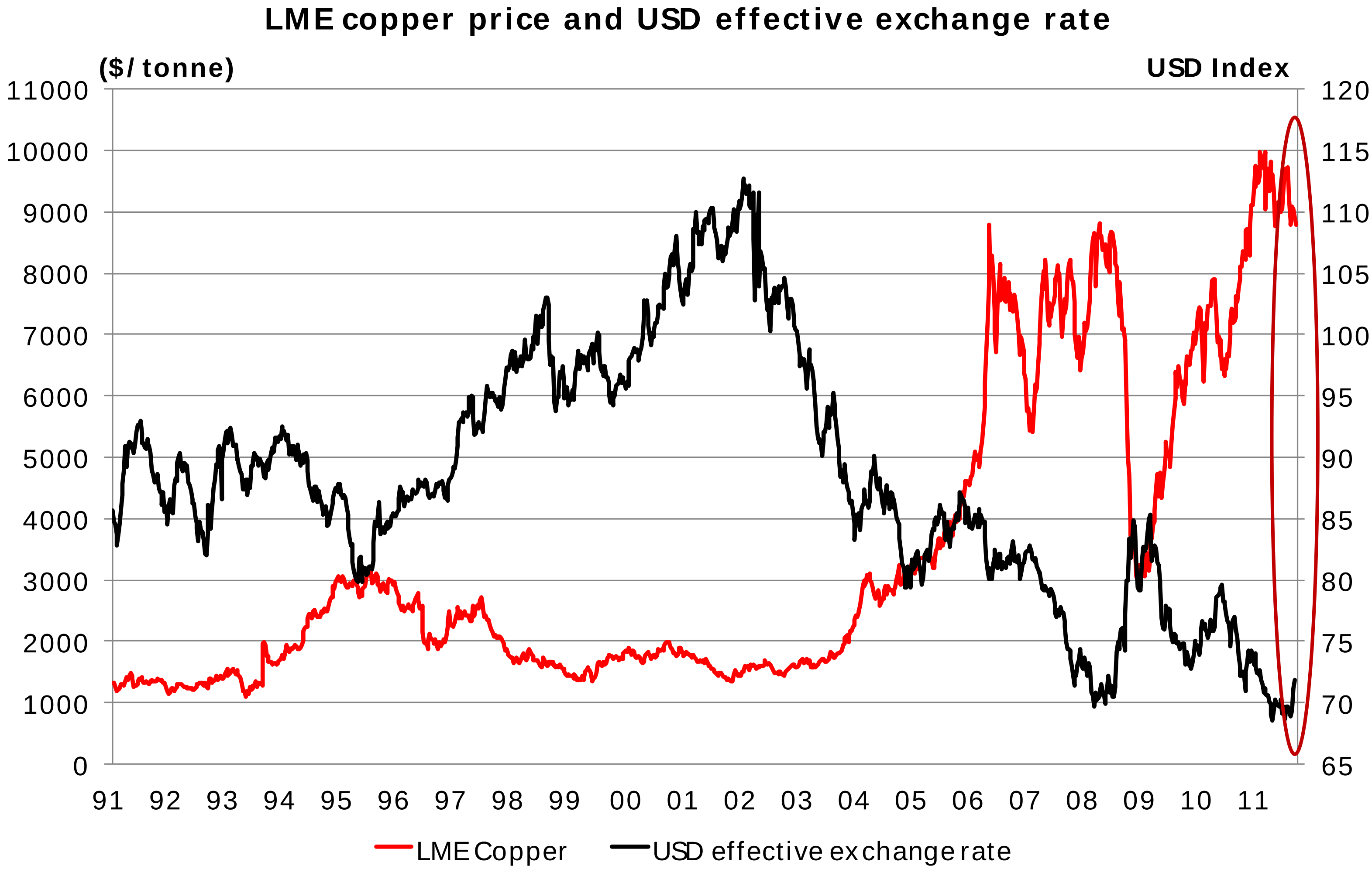


USD rebound vs. euro suggests declining energy prices



Source: Reuters, Ecowin, MSCI, Datastream, Bloomberg, SG Cross Asset Research

DOLLAR VS. EURO – NOW NO LONGER COPPER PRICE SUPPORTIVE



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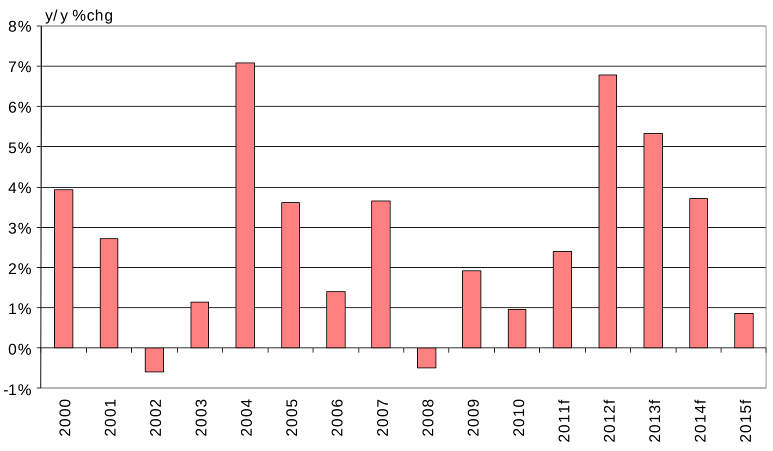
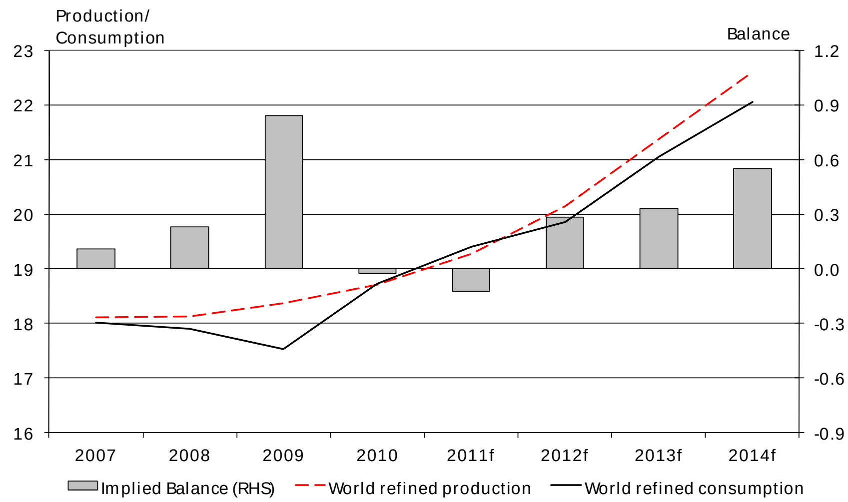
SG FUNDAMENTAL COPPER VIEW – EXPOSED TO WEAKENING DEMAND & RISING SUPPLY

- Copper prices should drop on weakening demand and rising mining output. Production issues continue to dominate headlines and have provided support for copper prices.
- The market continues to focus on the production disruptions at copper mining complexes, in Chile and Indonesia in particular, as the key source of price support.
- However, even allowing for production losses due to well-publicised disruptions, slow project ramp-ups, etc., we project mine supply will grow by 2.4% this year rather than the flat picture painted in some corners, with growth coming from Mexico, the US, China, and Africa.
- Looking forward to 2012, we continue to expect a pick-up in mine production, with mine supply growth accelerating to 8.4%, even allowing for a significant disruption allowance.

Mine supply outlook – strong growth expected



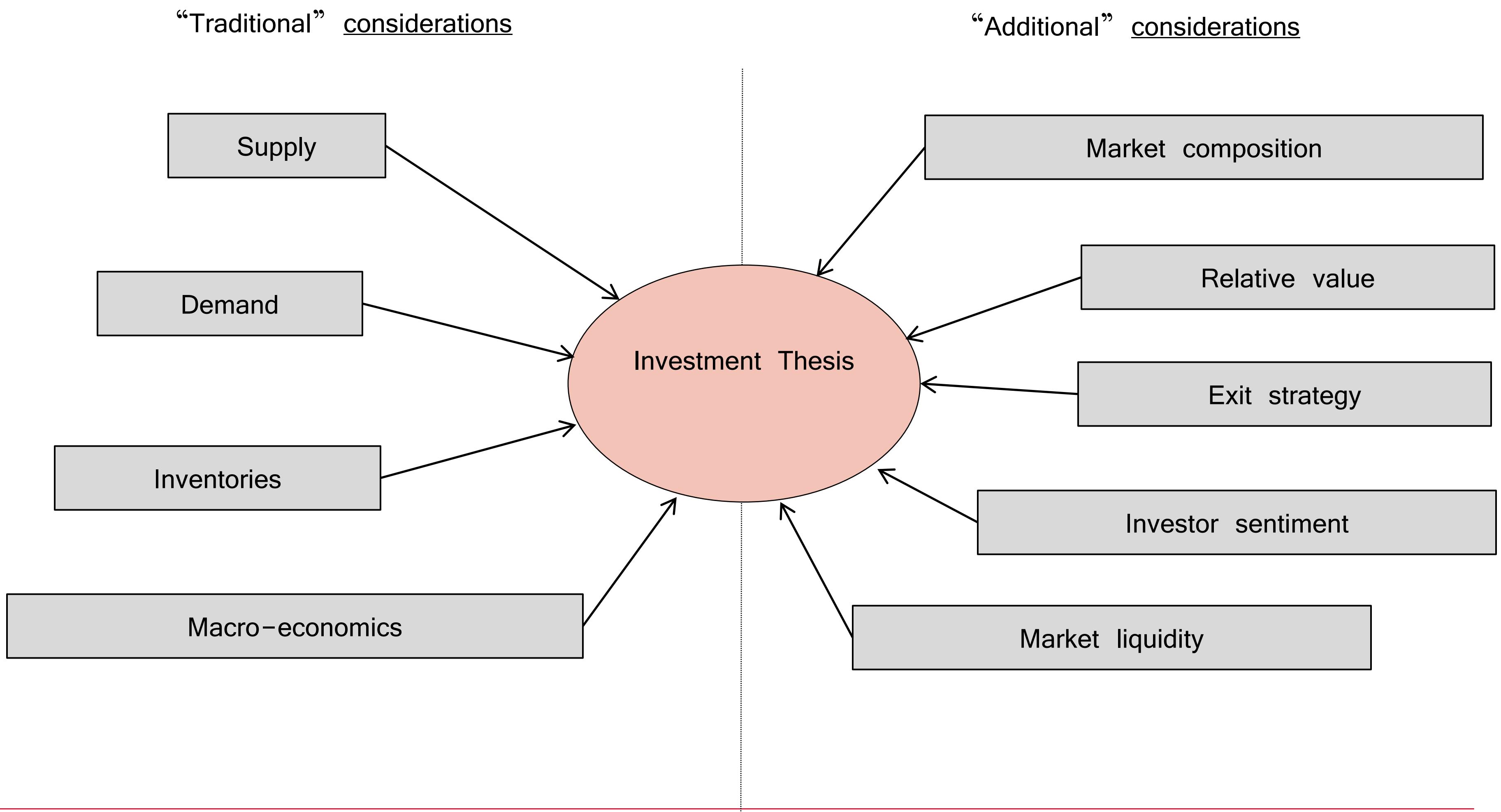
Copper market balance (million tonnes)



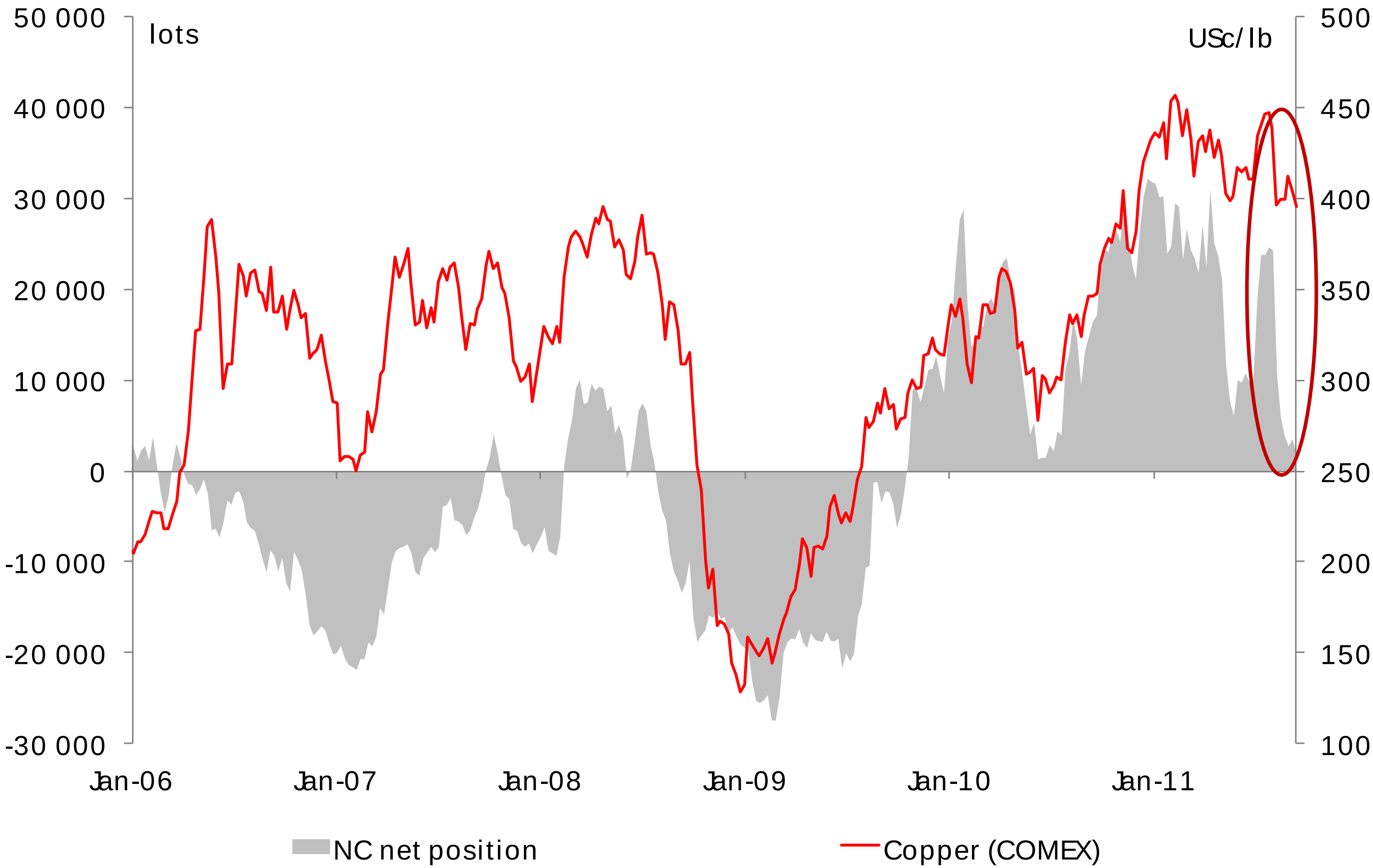
Source: SG Cross Asset Research

HEDGE FUNDS /SPECULATIVE INVESTORS LOOKS AT COMMODITY MARKETS FROM A FUNDAMENTAL SUPPLY DEMAND PERSPECTIVE….

Preliminary data points to pick-up in investor outflows in August/September driven by energy and base metals



SLOWING CHINA, US/EUROPE MACRO UNCERTAINTY PROMPTED A FUND SELL OFF SINCE JULY…



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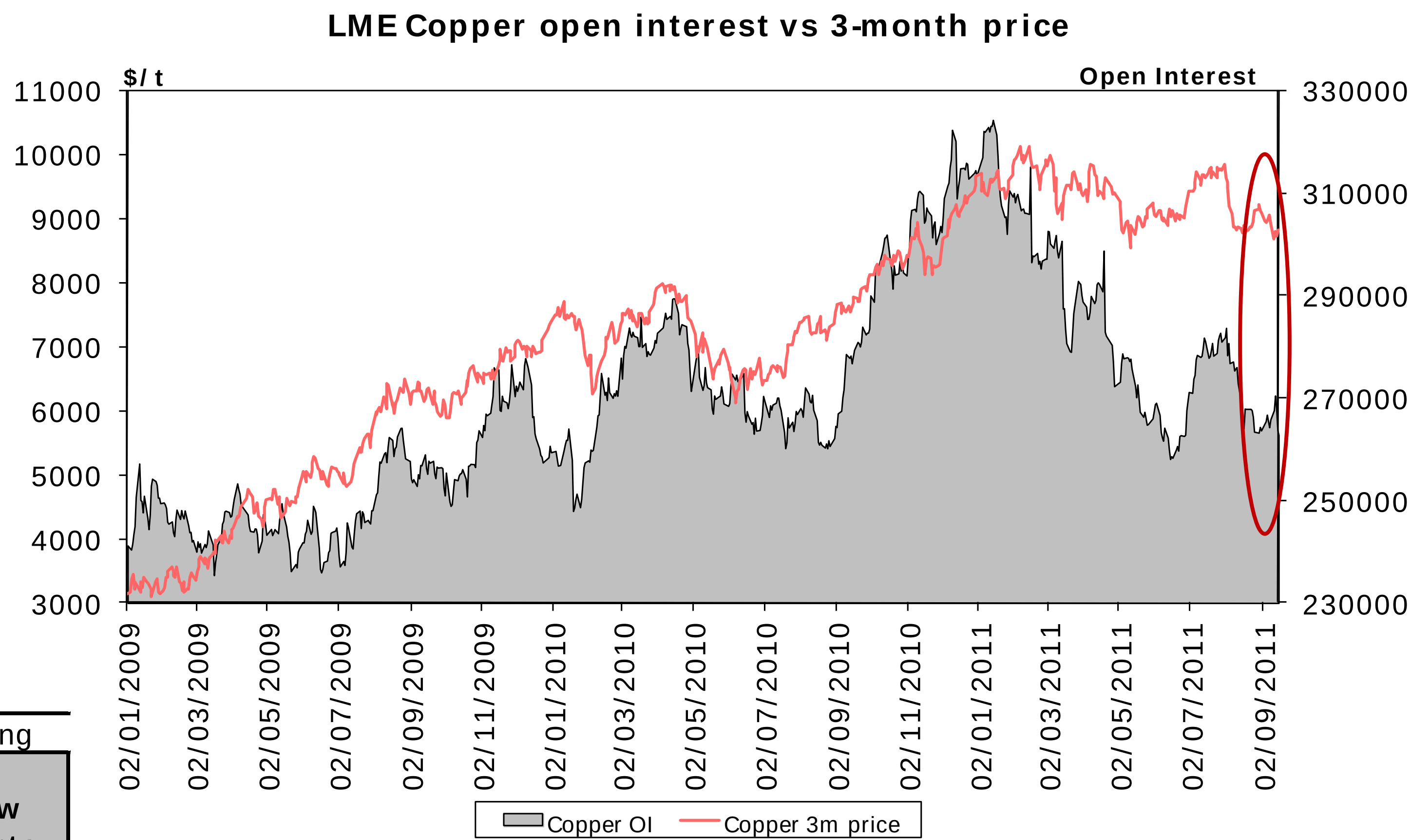
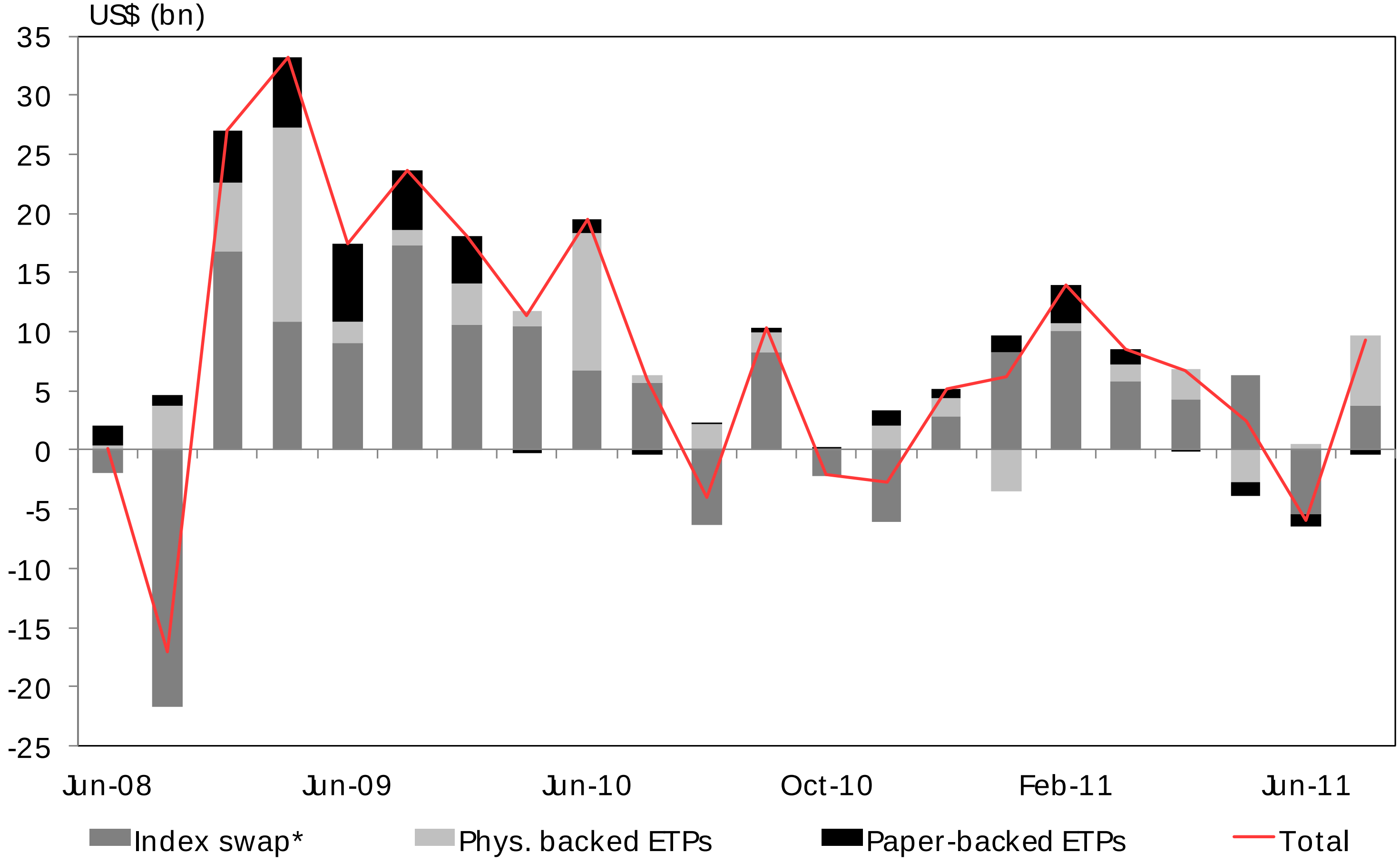
… LME OPEN INTEREST DATA SUGGESTS MOVES TO SHORT COPPER EMERGED LATE AUGUST AS THE MACRO PICTURE DARKENED..



Open Interest	Price: Rising	Price: Falling
Rising	**New Longs**	**New Shorts**
Falling	**Short Covering**	**Long Liquid-ation**

INVESTOR FLOWS GENERALLY SLOWED DURING H1 – JULY PICK-UP LARGELY RELATED TO PRECIOUS METALS

Preliminary data points to pick-up in investor outflows in August/September driven by energy and base metals



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ETFS – WHAT CHANCE OF SUCCESS FOR COPPER?

The main issues which to-date have inhibited the launch/success of base metals ETFs relate to:

- **Logistics**
  - Metal used to back the ETF needs to be obtainable without paying a premium, and of an LME grade so it can be easily to the metals markets if investors wish to exit the investment
  - Warehouses to store metal used to back an ETF need to be located in areas close to metal producers/consumers, and close to LME warehouses to minimise the cost of delivery
- **Costs**
  - LME warehousing costs are around 35 cents/t per day (close to $130/t per year). With copper at $8,000/t, rent, Insurance and other costs would absorb around 4-5% of the cost of copper per year
  - At current gold prices ($1,790/oz), 1 tonne of gold = $57,550,000. This is the equivalent of 24,000 t of Aluminium, 6,300 t of Copper, and 2,630 t of nickel. It is easy to see why precious ETFs have been a success!

SG COPPER FORECASTS

SG copper forecasts

Mt		2007	2008	2009	2010	2011f	2012f
World mine capacity		18.79	19.45	20.24	20.60	21.34	22.38
Capacity utilisation (%)		84.01	80.8	79.1	78.5	77.6	80.2
World mine production		15.78	15.71	16.01	16.16	16.56	17.95
World copper-in-concentrates production		12.67	12.56	12.66	12.80	13.02	14.00
Blister/concentrate stock increase		0.07	0.01	-0.18	-0.32	-0.22	0.10
World refined production:	- Mine-through-smelter/refinery	12.47	12.29	12.70	12.99	13.18	13.62
	- Mine/leach/SX-EW	3.11	3.19	3.33	3.36	3.53	3.84
	- Secondary	2.53	2.65	2.33	2.35	2.56	2.68
World refined consumption		18.01	17.90	17.42	18.78	19.40	19.96
Implied balance		0.11	0.23	0.94	-0.08	-0.12	0.19
Chinese official stocks change		0.25	0.00	0.23	0.00	0.00	0.00
Reported stocks:	- Change	-0.10	0.13	0.27	-0.14	0.12	0.10
	- Level	1.03	1.16	1.43	1.29	1.41	1.51
	- Weeks' consumption	3.0	3.3	4.3	3.6	3.8	4.0
LME cash price:	**- $/tonne**	**7,125**	**6,945**	**5,155**	**7,535**	**9,145**	**8,710**
	- c/lb	**323.2**	**315.0**	**233.8**	**341.8**	**414.8**	**395.1**

Source: SG Cross Asset Research

CONCLUSIONS

- Concerns over European sovereign debts issues will remain a dominant theme impact investor attitudes towards metals over the next 12 months
- The US dollar is expected to continue to rebound vs. the Euro – not positive for dollar denominated commodity prices
- Worries about slowing Chinese growth are expected to drive more fundamental market related concerns
- Added to a slowing demand side, it is becoming apparent that concerns over lack of mine supply growth appear to be easing, with mine supply expected to pick up for most metals into 2012
- ETF impact on base metals likely to be very limited going forward. We see little prospect of large scale ETF products being launched in the short to medium term

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