

# Toward Recoupling?

## Assessing the Global Impact of a Chinese Hard Landing through Trade and Commodity Price Channels

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6th BoC/ECB Conference, 08/06/2015

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- ▶ China's rapid growth over the past decade => driver of the rise in energy and mineral commodity demand => benefit to commodity exporters (Jenkins et al., 2008).
- ▶ Slow down in the last few years and concerns about the sustainability of the growth model (Eichengreen et al. 2012, IMF 2013b, RGE 2013).
- ▶ While a majority of analysts still view a soft landing as their baseline scenario, several reasons can be put forward to justify a more pronounced slowdown (overinvestment, debt and real estate trends).

# Outline

China's growth prospects and commodities

Methodology

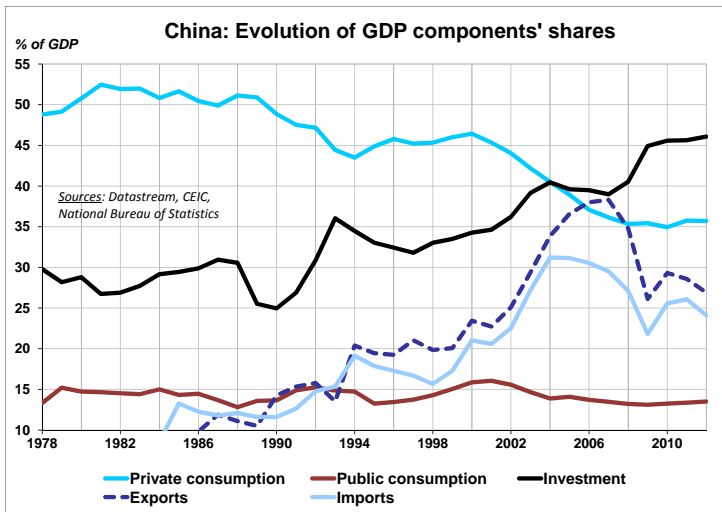
Results

Towards Recoupling ?

Appendix

## Main arguments pointing to a hard landing :

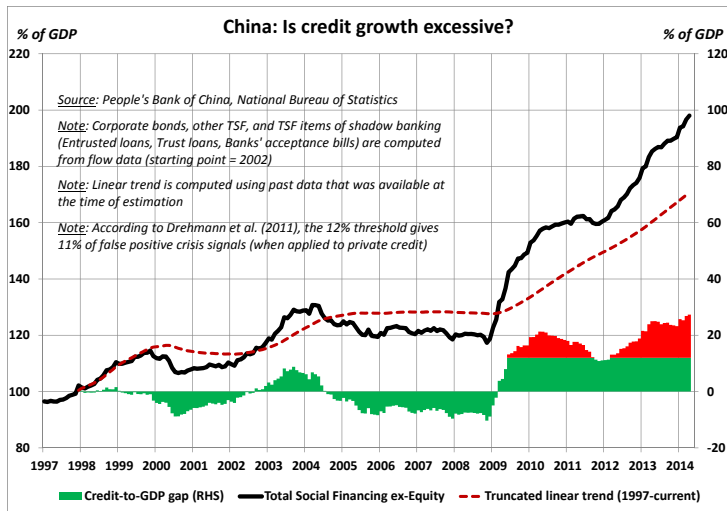
1. Historical rebalancing precedents (following overinvestment)
2. Debt dynamics
3. Probable real-estate bubble



**FIGURE :** China's internal imbalances.

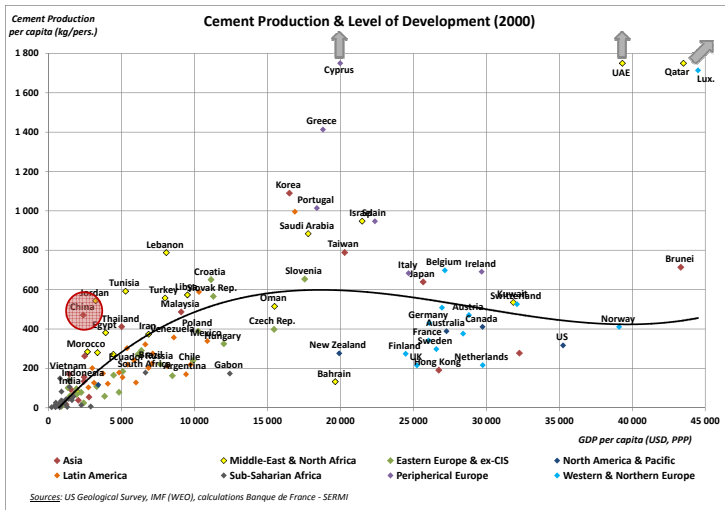
## What does history tell us ?

- ▶ RGE (2013) : The Myth of a Gradual Rebalancing and Soft Landing for China
  - ▶ 47 episodes of rebalancing after investment-led growth
  - ▶ Growth is 3.5 percent lower on average 5 years after the investment peak (compared to 5 years before)
  - ▶ Imbalances in China much more acute
- ▶ Eichengreen et al (2012) : When fast-growing economies slow down : International evidence and implications for China
  - ▶ China shares many of the characteristics of "slowdown economies"
  - ▶ High investment-to-GDP ratio, undervalued currency, ageing population

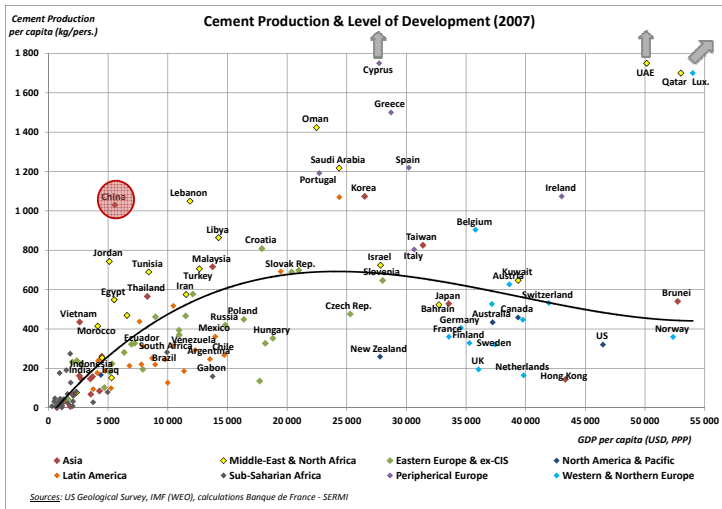


**FIGURE :** China's total debt surge

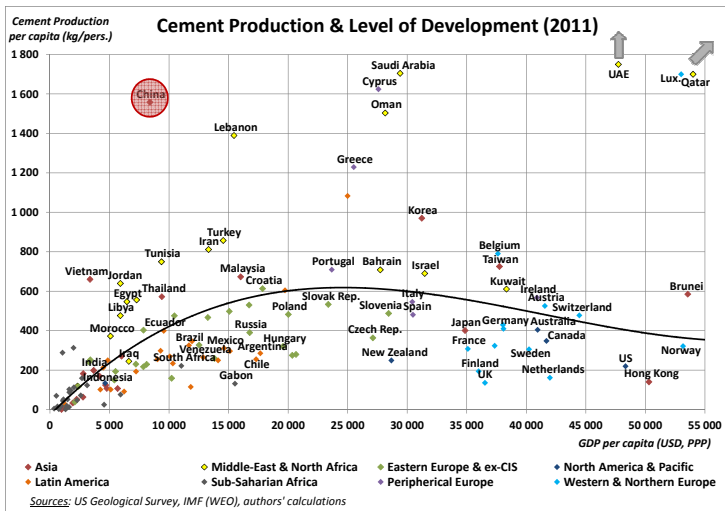




**FIGURE :** Cement production and level of development (2000).

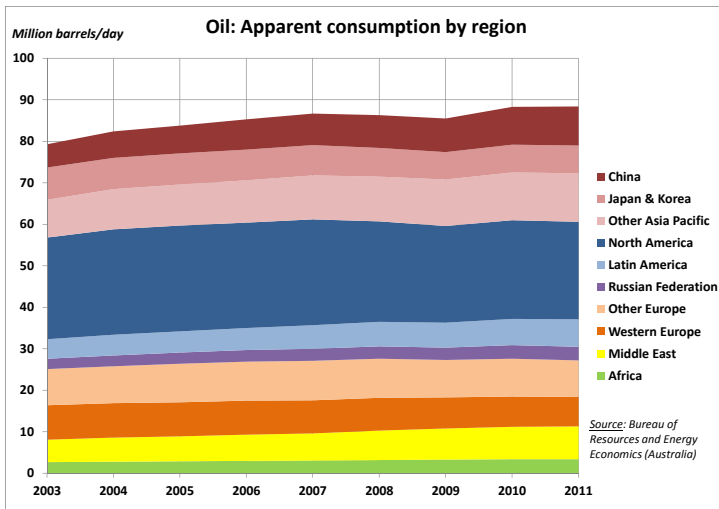


**FIGURE :** Cement production and level of development (2007).

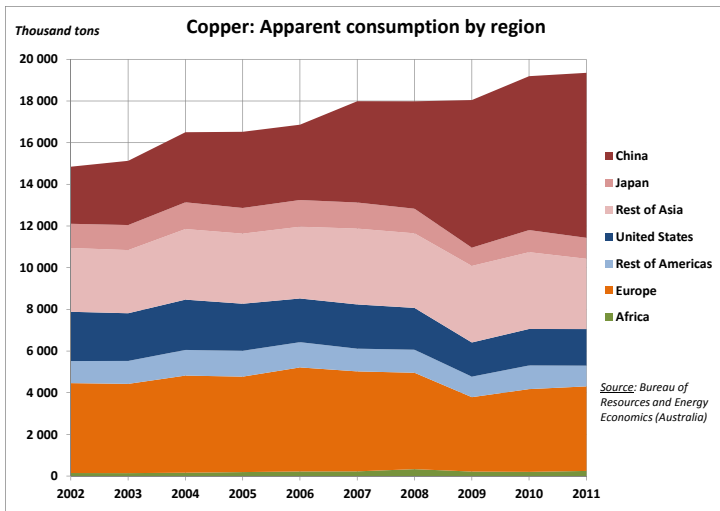


**FIGURE :** Cement production and level of development (2011).

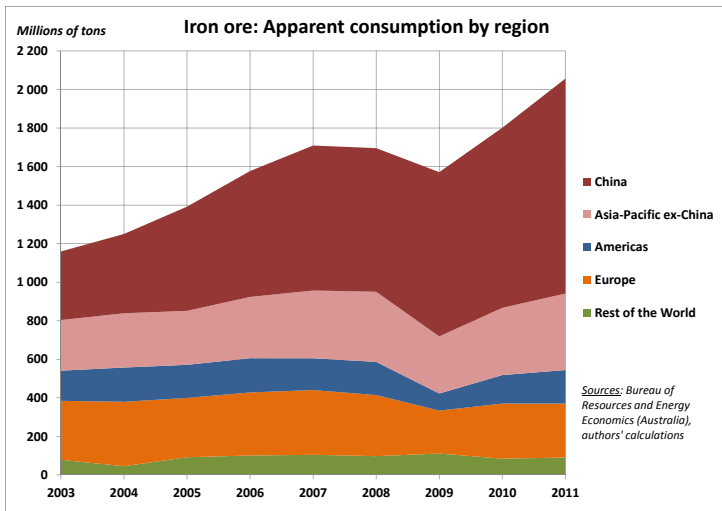




**FIGURE :** Oil consumption by region.



**FIGURE :** Copper consumption by region.



**FIGURE :** Iron ore consumption by region.

Global VAR (first developed by Dees et al. 2007, Pesaran et al. 2004).

Widely used in the international macro literature :

- ▶ Useful to study international linkages with a limited time sample.
- ▶ Construct 1 VECMX by country.
- ▶ For a given country, a given exogenous variable (for example foreign GDP) is the weighted average of other countries' corresponding variables (other countries' GDP).



VARX for each country :

$$x_{it} = a_{i0} + a_{i1}t + \sum_{j=1}^p \Phi_{ij}x_{i,t-j} + \sum_{k=0}^q \Gamma_{ik}x_{it-k}^* + u_{it}$$

By "pooling" estimated VARX one can rewrite the GVAR :

$$X_t = FX_{t-1} + D_t + V_t$$

Unconditional forecast mean and variance-covariance matrix :

$$\mu_h = E_1 F^h X_T + \sum_{s=0}^{h-1} E_1 F^s D_{T+h-s}$$

$$\Omega_{hh} = E_1 \sum_{s=0}^{h-1} F^s \tilde{\Sigma} F'^s E_1'$$

Conditional forecast is conceptually similar to counter-factual analysis (Pesaran et al. 2007, Dubois et al. 2009).

Conditional forecast mean :

$$\mu_h^* = \mu_h + (s'_{h\bar{H}} \otimes I_k) \tilde{\Omega} (I_{\bar{H}} \otimes \Psi') [(I_{\bar{H}} \otimes \Psi) \tilde{\Omega} (I_{\bar{H}} (I_{\bar{H}} \otimes \Psi'))]^{-1} \tilde{g}_{\bar{H}}$$

Bootstrap R=1000 simulations :

1. For each  $r$  simulation we recalculate  $X_t^{(r)}$  :

$$X_t^{(r)} = FX_{t-1}^{(r)} + D_t + V_t^{(r)}$$

- 1.1 This allows to estimate  $F^{(r)}$  (and intercept and trend).
- 1.2 Compute  $\mu_h^{(r)}$  and  $\mu_h^{(r)*}$ .
2. Calculate median and other quantiles for conditional and unconditional forecasts.

- ▶ 36 countries (88% of world GDP) + 1 Metal (MPI) block + 1 oil block.
- ▶ From 1995 Q1 to 2014 Q3.
- ▶ The impact of countries on "commodity blocks" is weighted by the share of each countries in global consumption of metals and oil :
  - ▶ MPI block : Copper and Iron ore consumption.
  - ▶ Oil block : Oil demand.
- ▶ Several "crisis dummies" for Asia, Russia, Brazil, Turkey, Argentina, GFC, Euro Area.

	Countries		Oil block		Metal block	
	Dom.	For.	Dom.	For.	Dom.	For.
GDP	X	X		X		X
Inv.	X	X		X		X
Exp.	X					
Inf.	X	X				
REER	X					
Oil price		X	X			
Oil surplus			X			
Oil prod.			X			
Metal price		X			X	
Metal invent.					X	
Metal prod.					X	

# The hard landing scenario

Some studies :

- ▶ Pettis (2013) : China will grow at no more than 3% during rebalancing.
- ▶ Nabar & N'Daye 2013 (IMF WP 13-204) : downside scenario in which China would grow at no more than 4%.

# Our scenarios

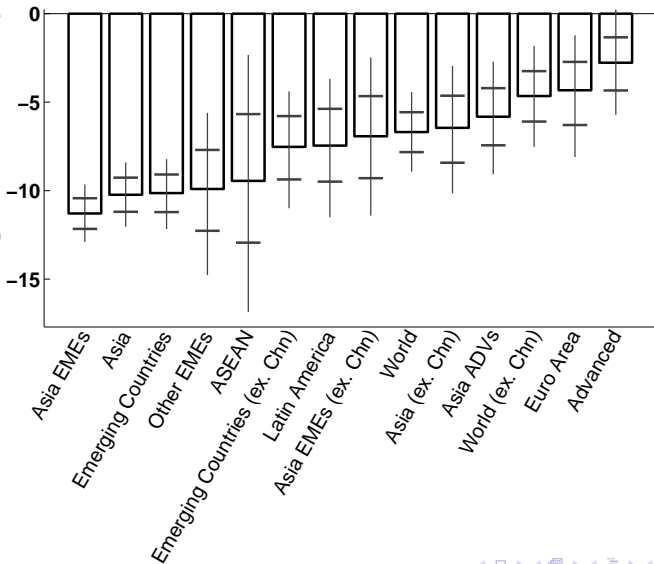
## Soft landing scenario :

- ▶ GDP growth slowdown to 6% in 5 years.
- ▶ Investment growth slowdown to 4% in 5 years.
- ▶ Investment-to-GDP ratio around 42% after 5 years.

## Hard landing scenario :

- ▶ GDP growth slowdown to 3% within 2 years.
- ▶ Investment growth slowdown to 1% within 2 years.
- ▶ Investment-to-GDP ratio around 40% after 5 years.

**Cumulated growth lost after 5 years**





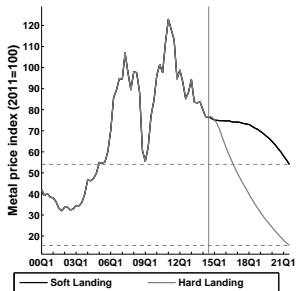
### 3 possible transmission channels :

1. Commodity prices
2. Real exports
3. Investment

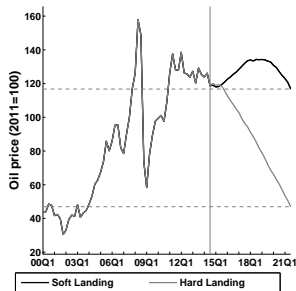
### 1 possible buffer :

1. Real effective exchange rate

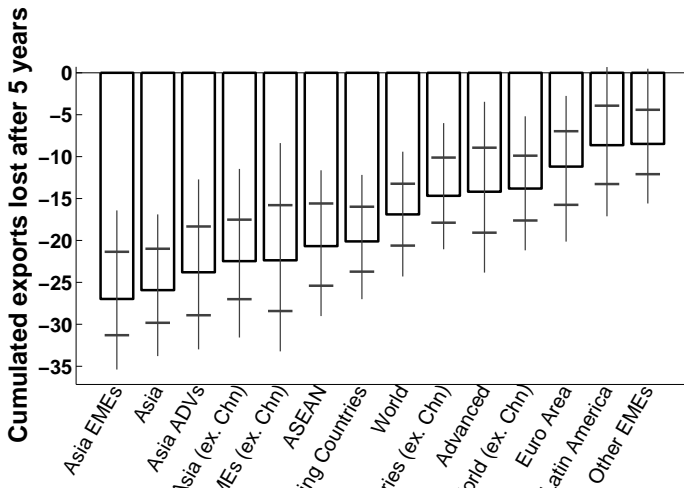
## Metal Price index



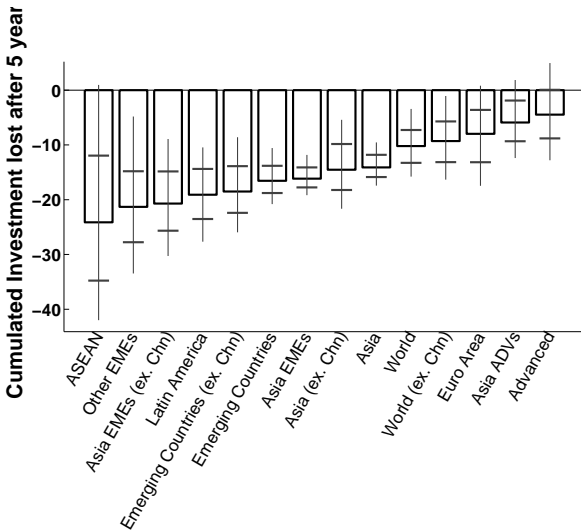
## Oil price

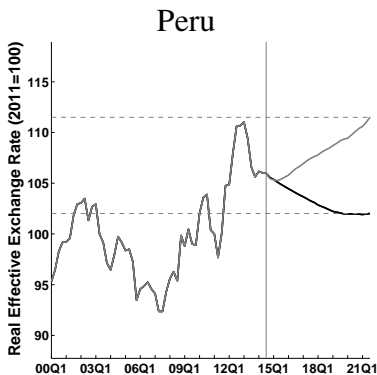
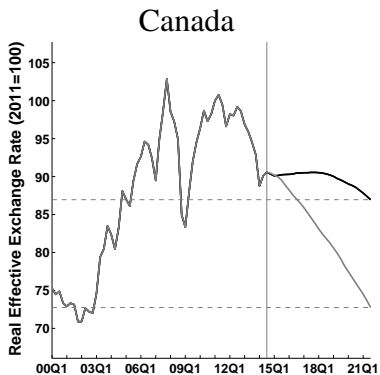


**FIGURE : Cumulated export loss.**

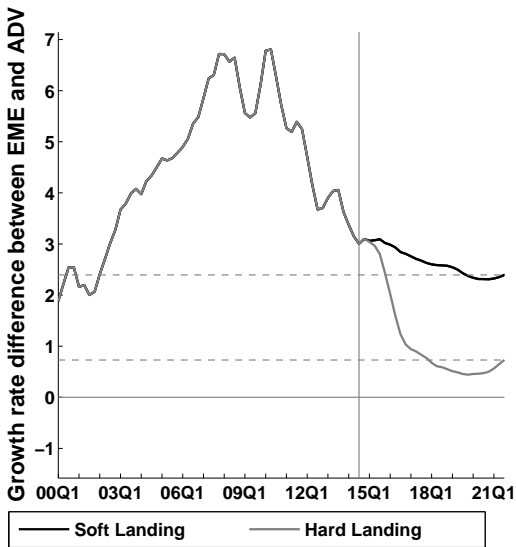


**FIGURE : Cumulated investment loss.**





— Soft Landing    - - - Hard Landing



# Limits

## Financial :

- ▶ Financial contagion=> Confidence=> Investment
- ▶ Rise in risk aversion => Capital outflows from EMEs
- ▶ Interaction with Fed tapering

## Commodities :

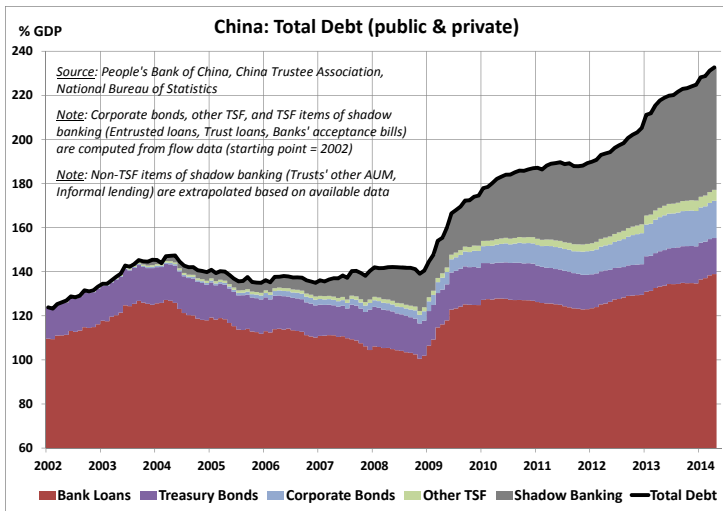
- ▶ Overestimation of the impact on metal prices
- ▶ Linear model
- ▶ Lack of supply considerations (inflexion of oil producers' strategy)

# Conclusion

- ▶ China : Imbalances, credit growth, real-estate bubble : towards a hard landing ?
- ▶ Large impact on both regional partners and commodity exporters
- ▶ Provides a possible interpretation for decoupling :
  - ▶ Decoupling = Emergence of China + Imbalanced growth + Impact on commodity exporters ?
  - ▶ Hard landing in China may trigger partial recoupling







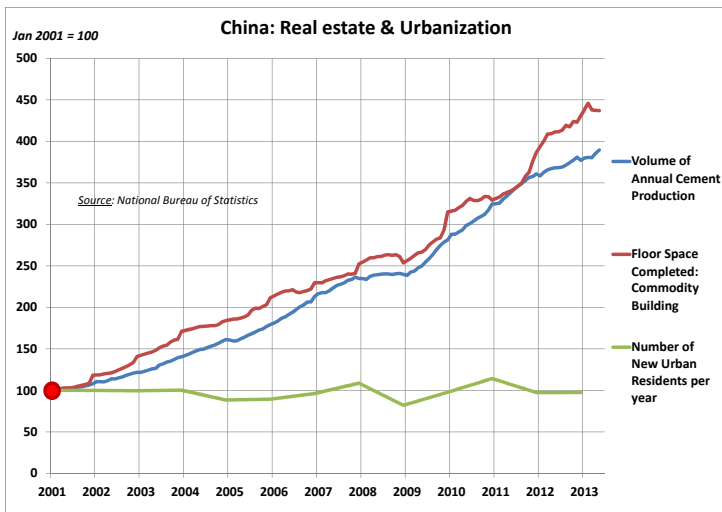
**FIGURE : China's total social financing**



**FIGURE :** Price-to-rent ratios in China's ten largest cities.



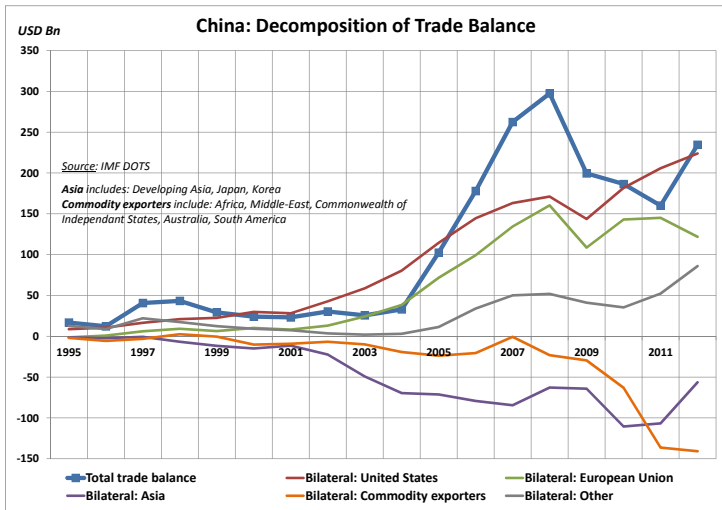
**FIGURE :** Price-to-income ratios in China's ten largest cities.

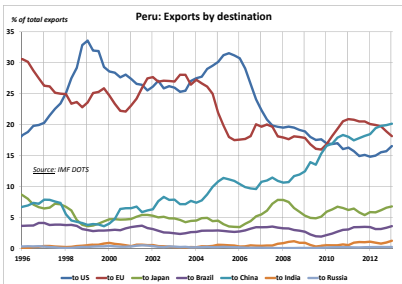
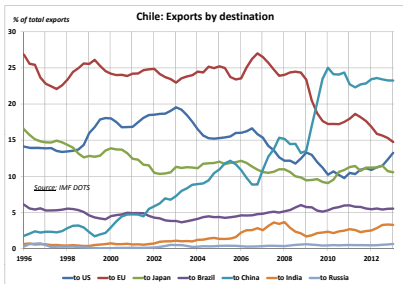
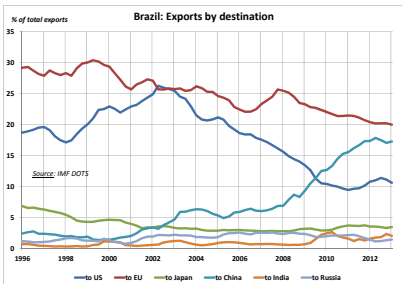
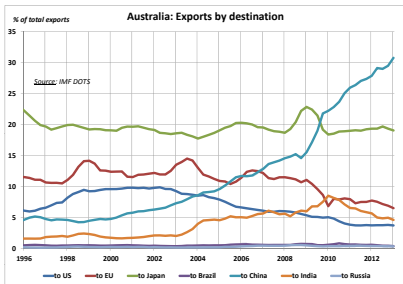


**FIGURE :** Urbanization and real estate in China.

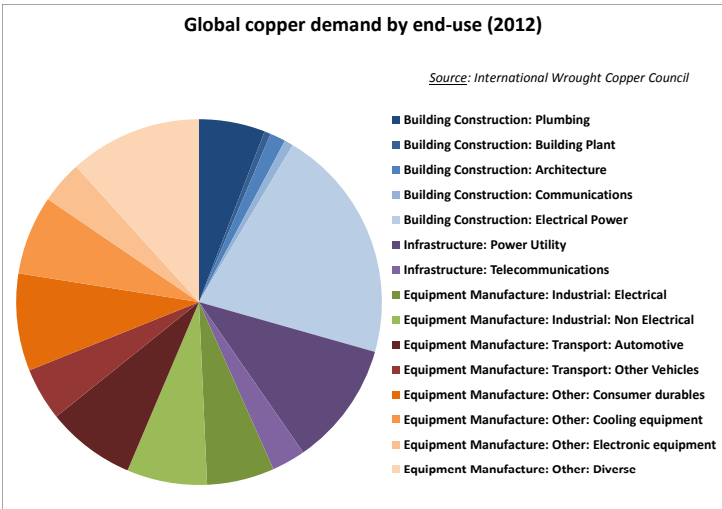


**FIGURE :** China : Employment by sector.

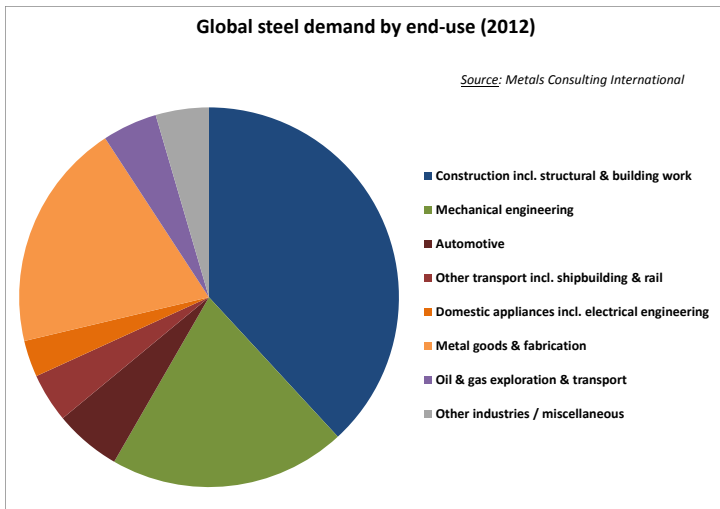




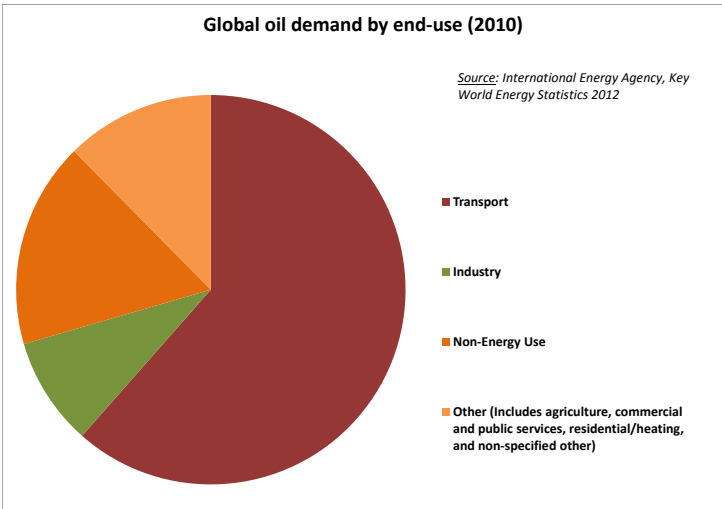




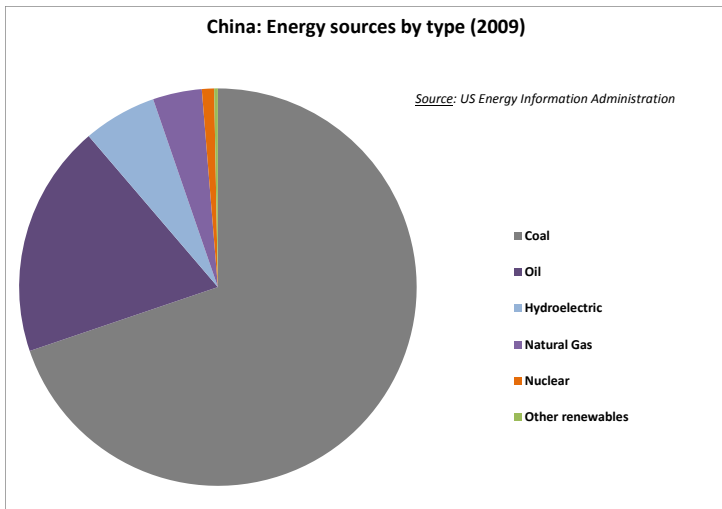
**FIGURE :** Global demand by end-use : copper.



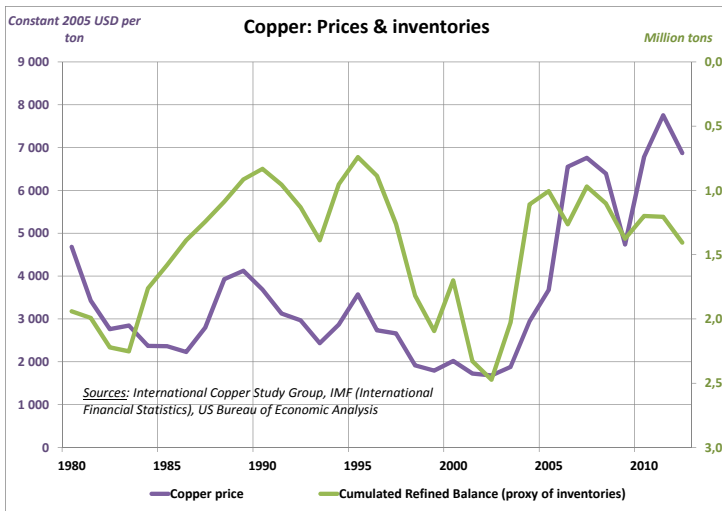
**FIGURE :** Global demand by end-use : steel.



**FIGURE :** Global demand by end-use : oil.

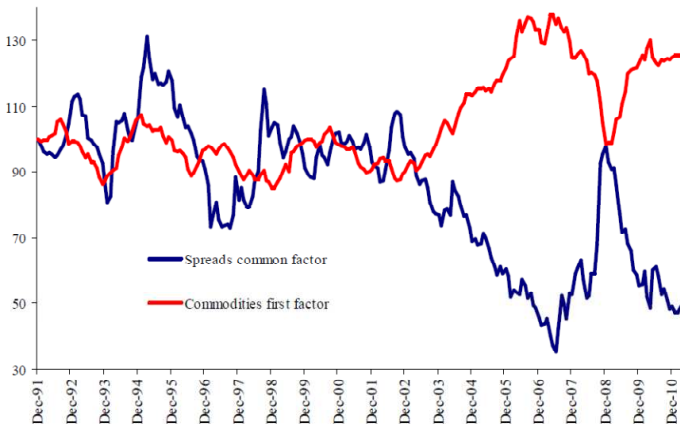


**FIGURE :** Sources of energy in China.



**FIGURE : Copper : Prices and inventories.**

**Figure 9. Association between spreads common factor and the first common factor of commodity prices (indices Dec-91=100)**



**FIGURE :** Latin America : Negative correlation between commodity prices and sovereign spreads (Bastourre et al, 2013).