

Toward Recoupling?

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

Ludovic Gauvin & Cyril Rebillard

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"Softening growth in China, long the world's foremost consumer of many raw materials, stands to ripple through the emerging world in the form of reduced demand for fuel, metals and other goods that are the mainstay of many emerging economies."

WSJ, Jan. 2016.

- ▶ 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 ?

Main arguments pointing to a hard landing :

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

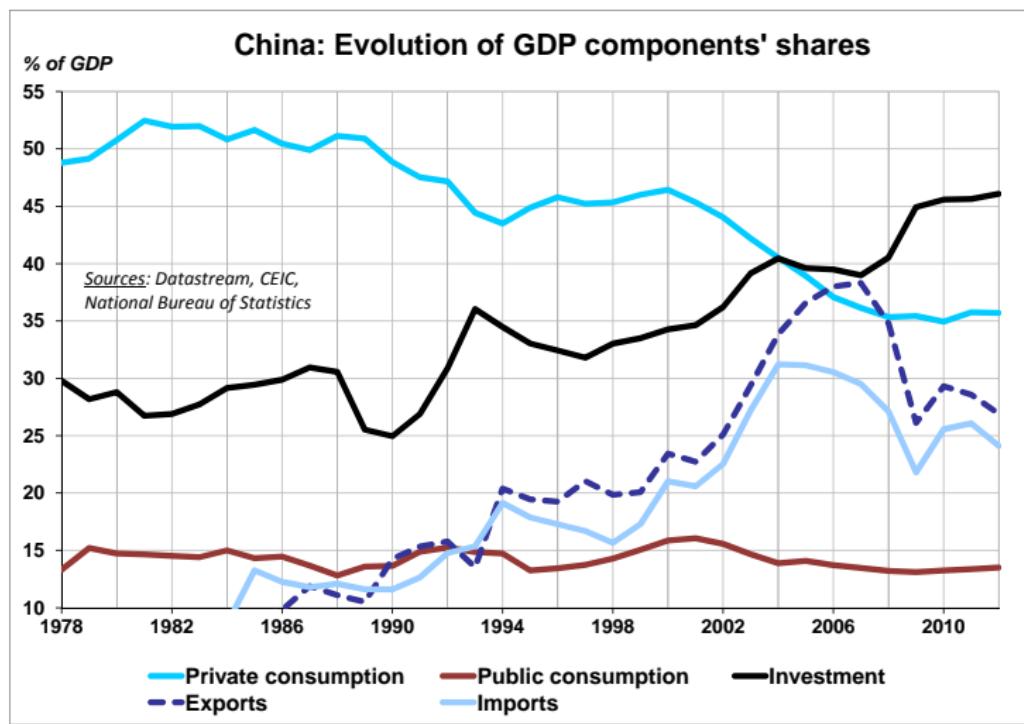


FIGURE : China's internal imbalances.

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

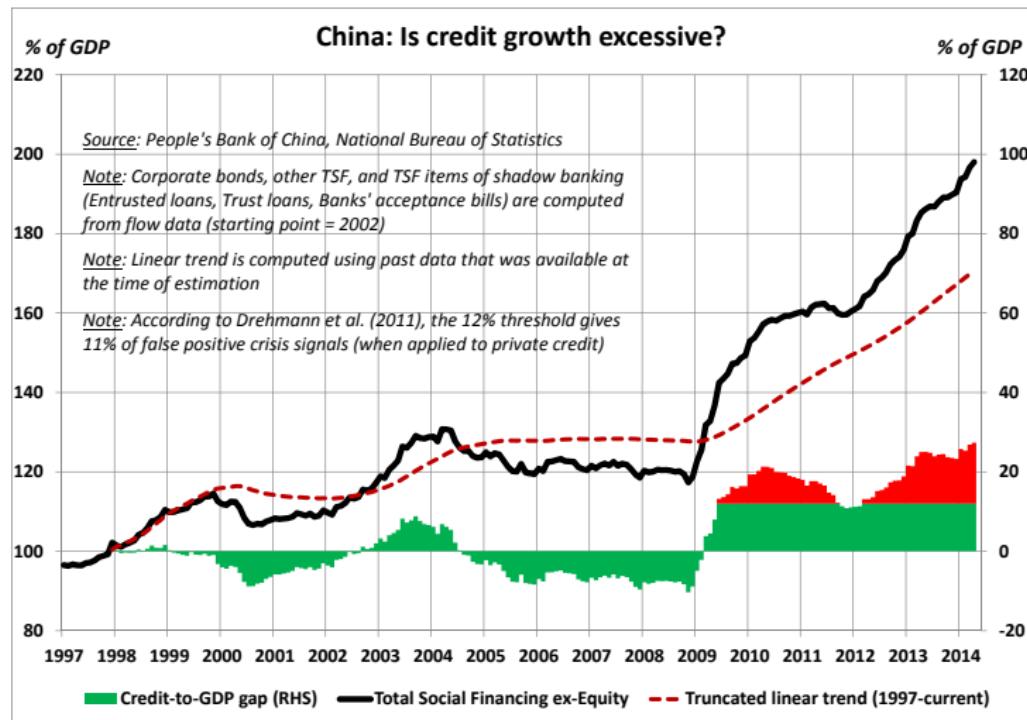


FIGURE : China's total debt surge

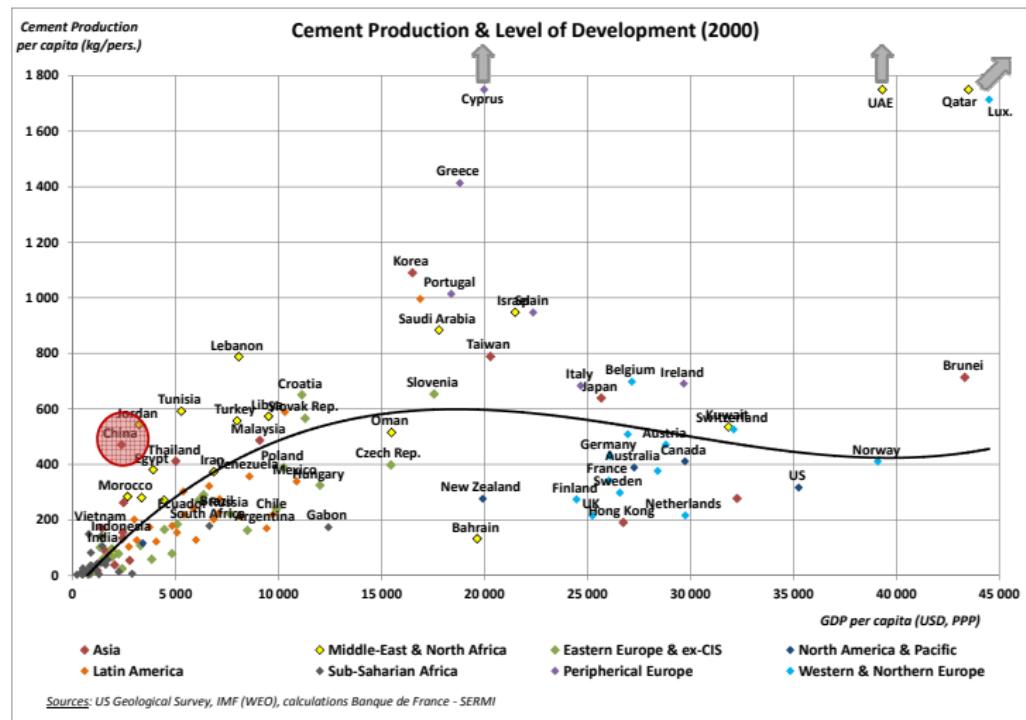


FIGURE : Cement production and level of development (2000).

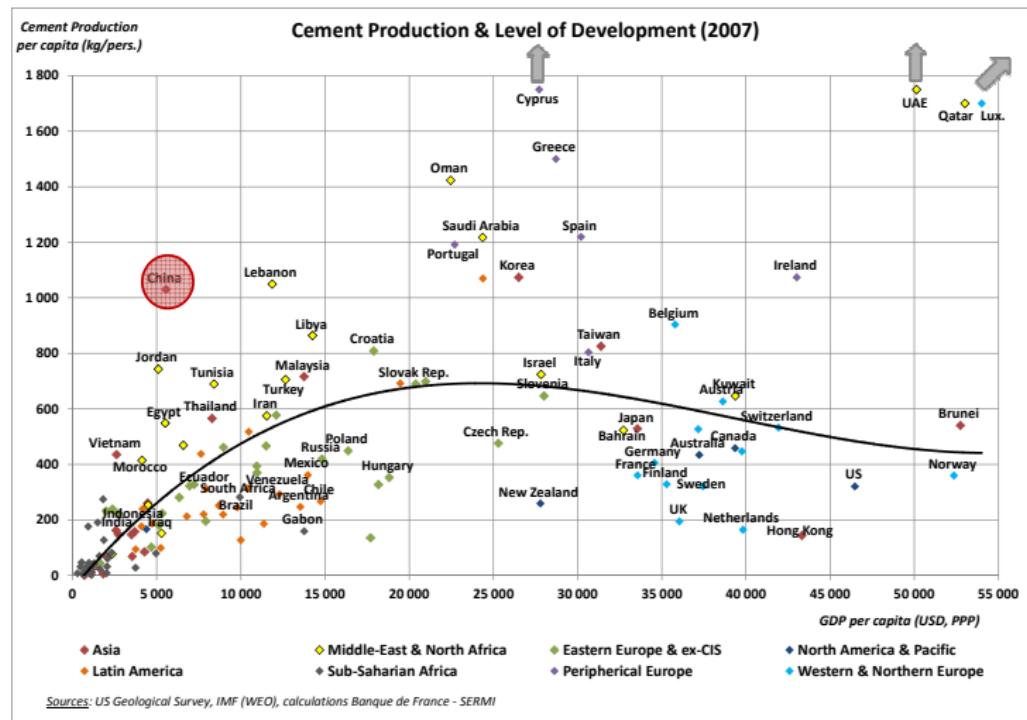


FIGURE : Cement production and level of development (2007).

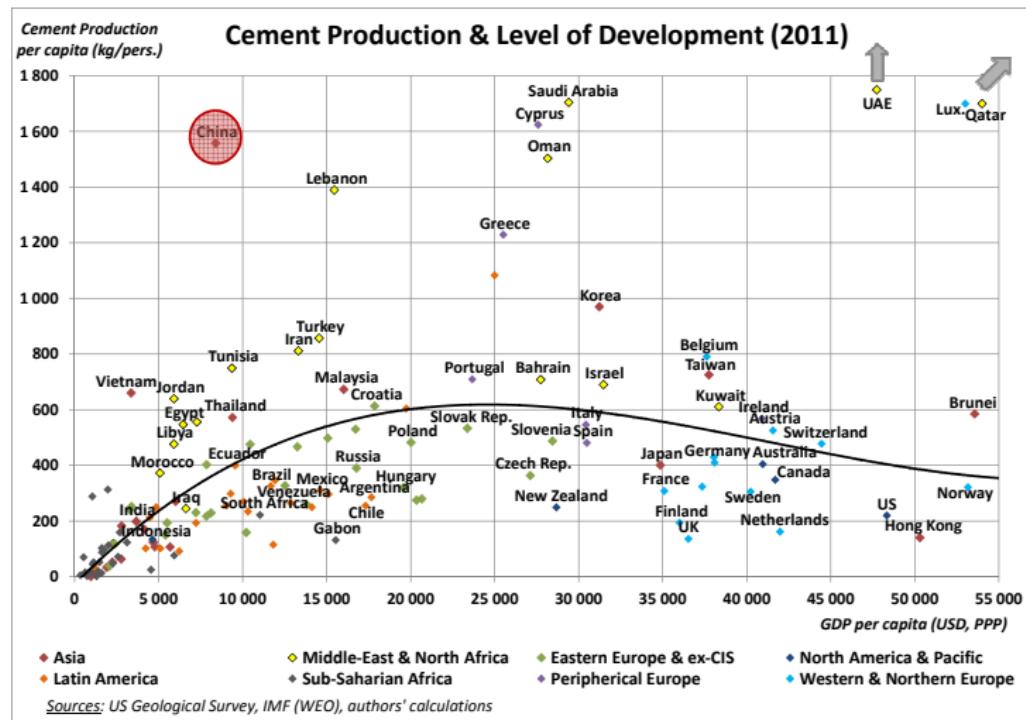


FIGURE : Cement production and level of development (2011).

Main arguments pointing to a hard landing :

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

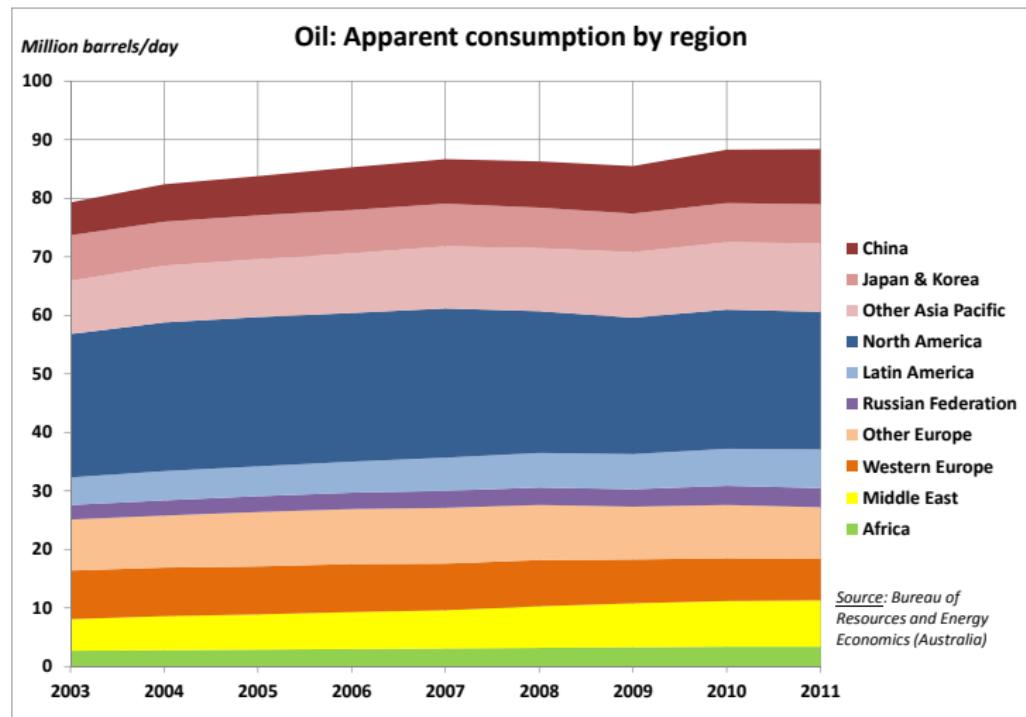


FIGURE : Oil consumption by region.

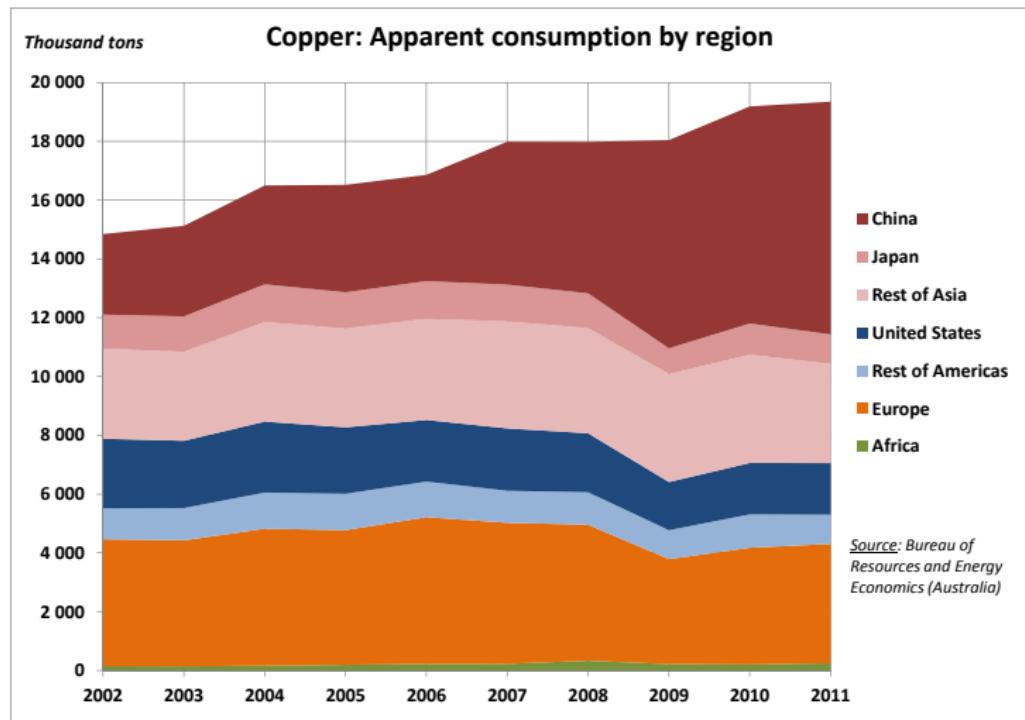


FIGURE : Copper consumption by region.

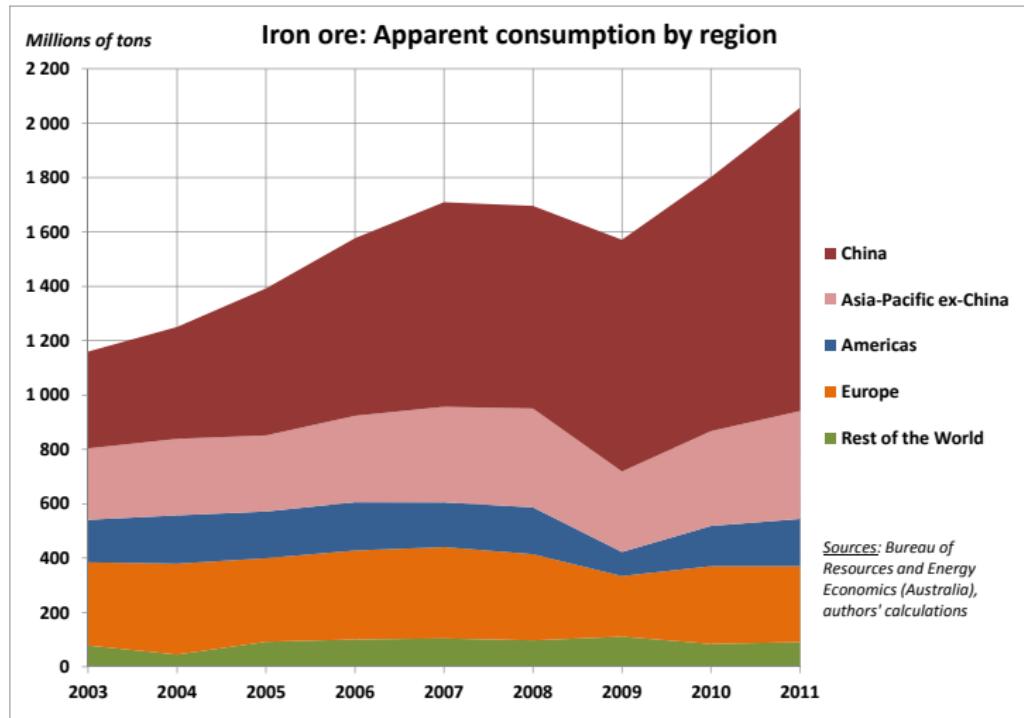


FIGURE : Iron ore consumption by region.

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%.

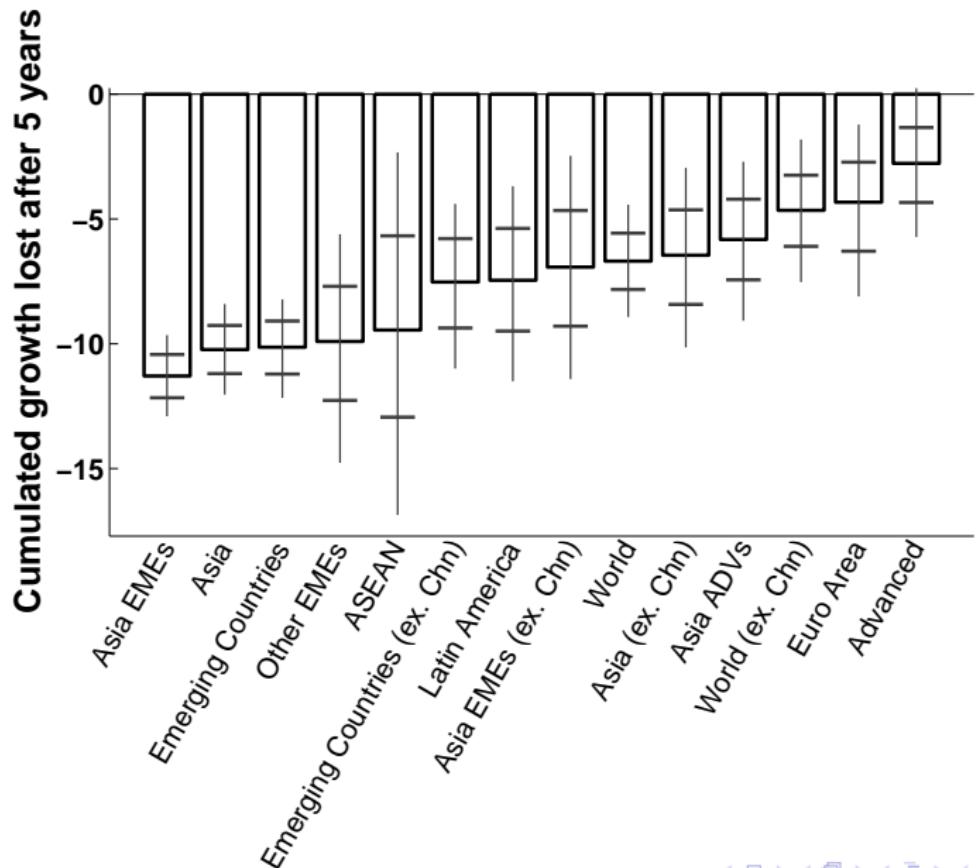
Our scenarios

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.



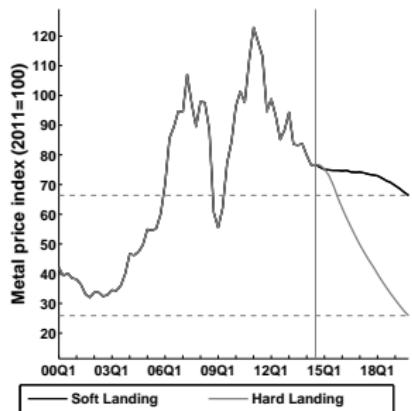
3 possible transmission channels :

1. Commodity prices
2. Real exports
3. Investment

1 possible buffer :

1. Real effective exchange rate

Metal Price index



Oil price

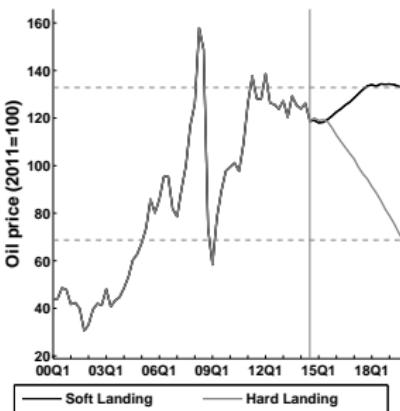


FIGURE : Cumulated export loss.

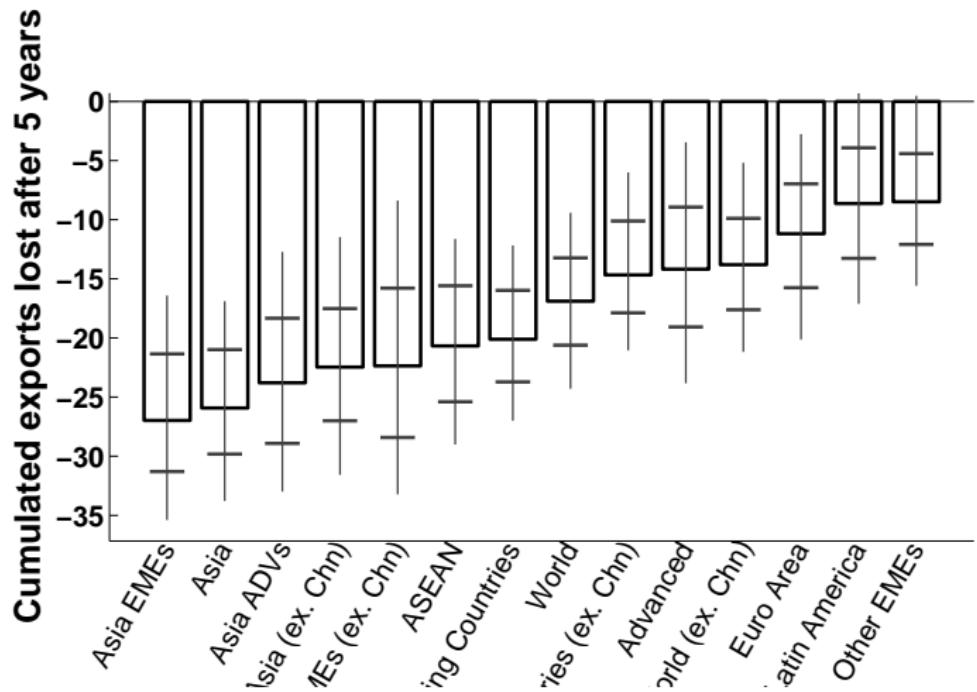
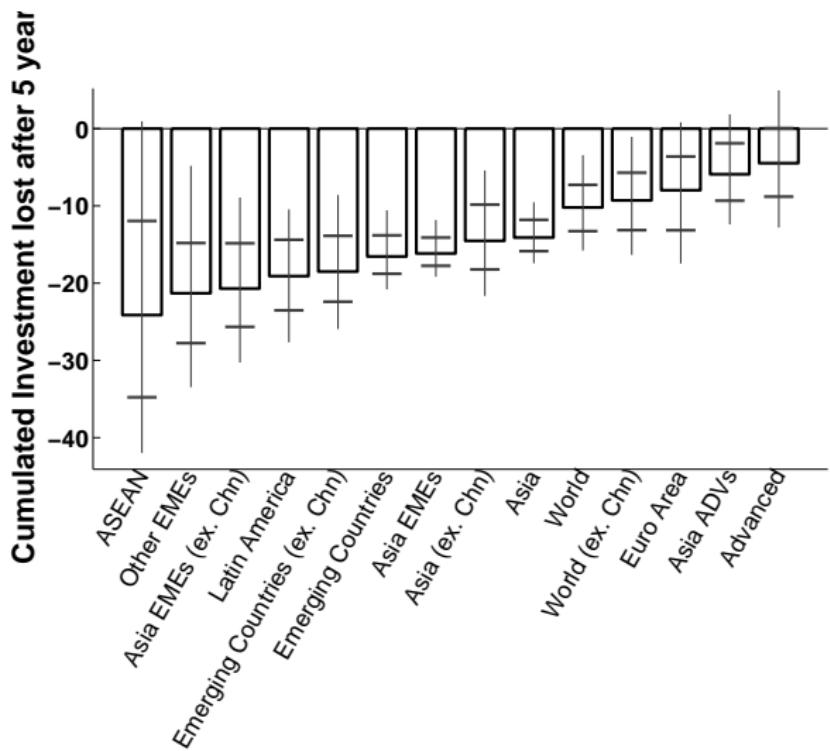
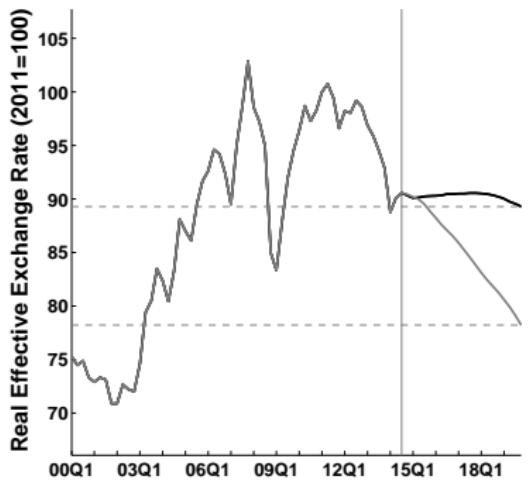


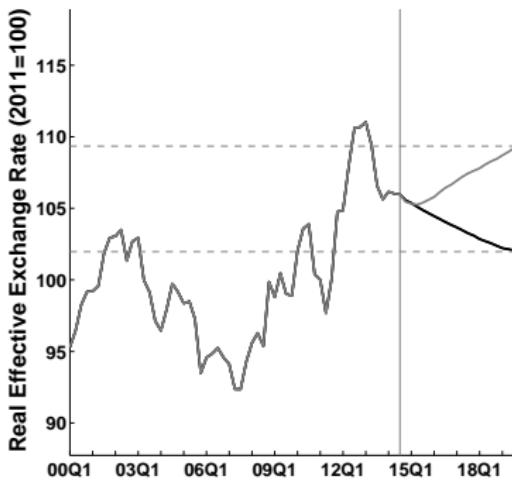
FIGURE : Cumulated investment loss.



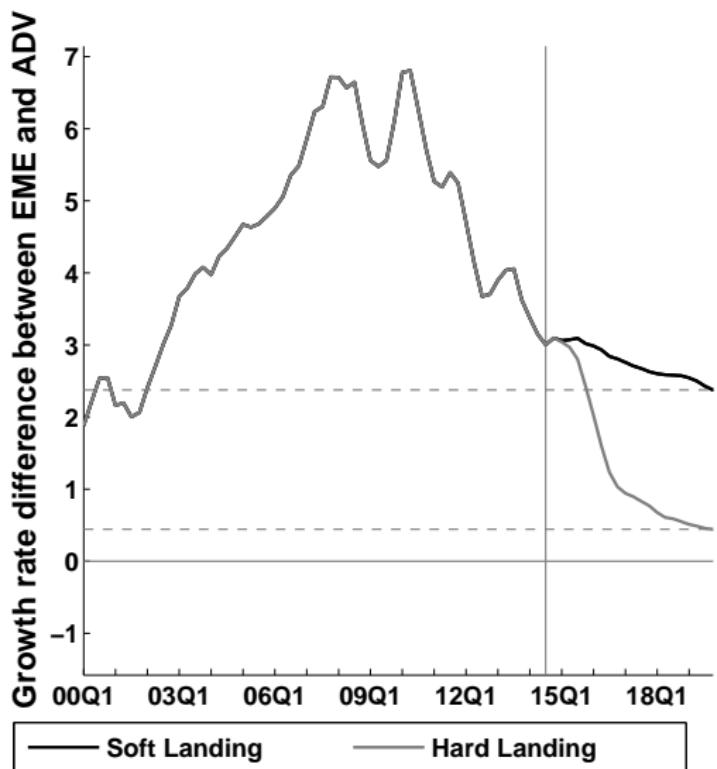
Canada



Peru



— 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

Thank you !

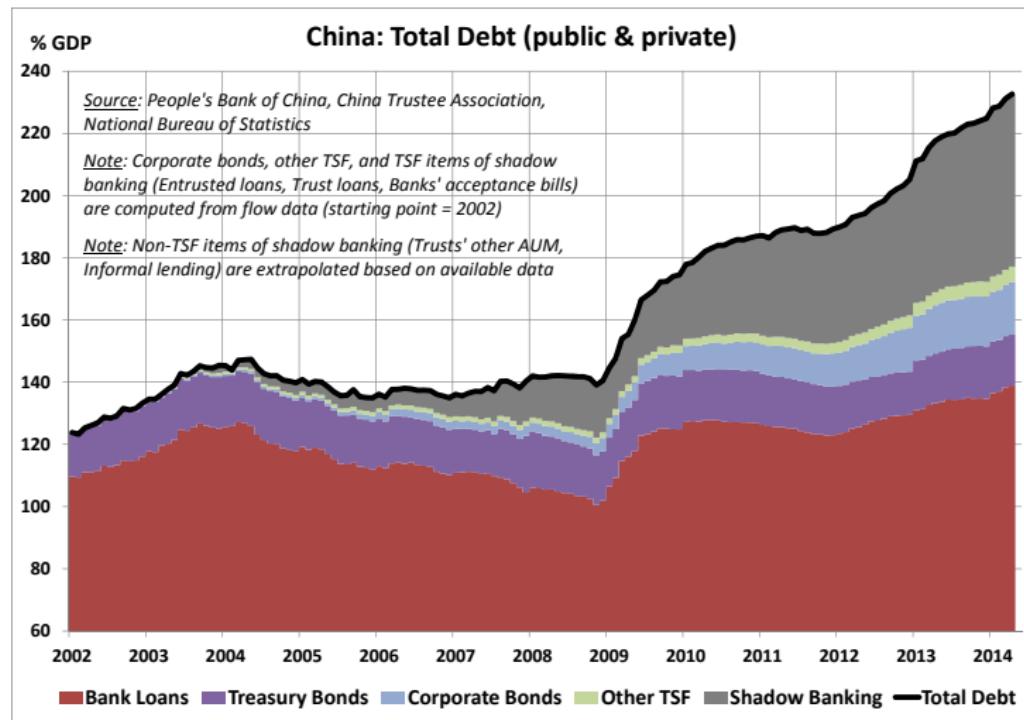


FIGURE : China's total social financing



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



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

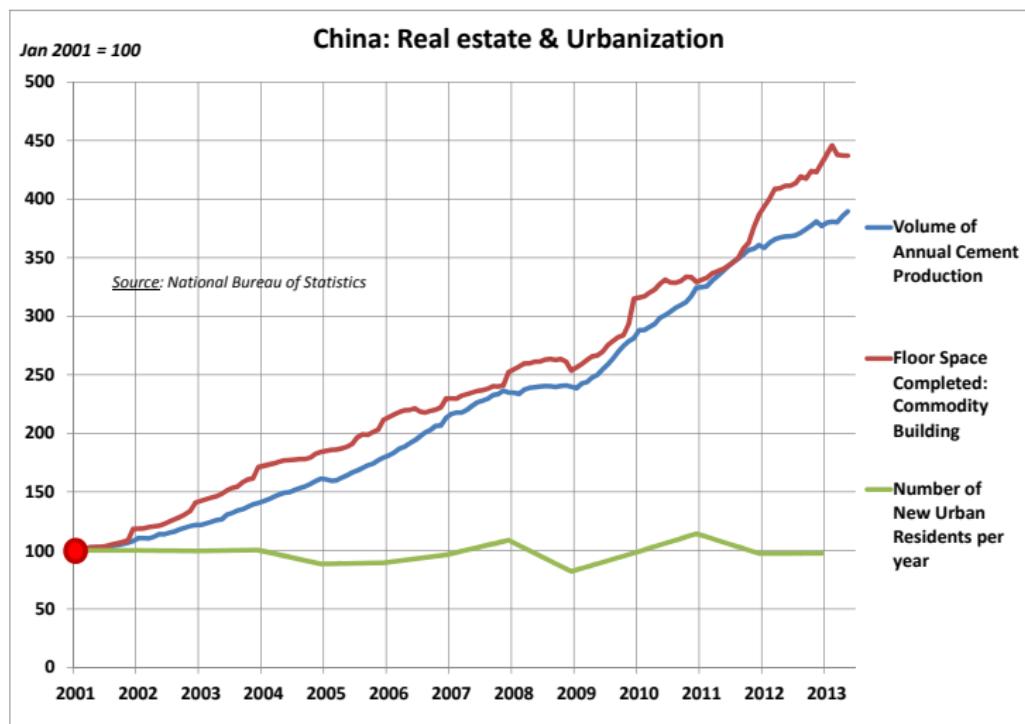


FIGURE : Urbanization and real estate in China.

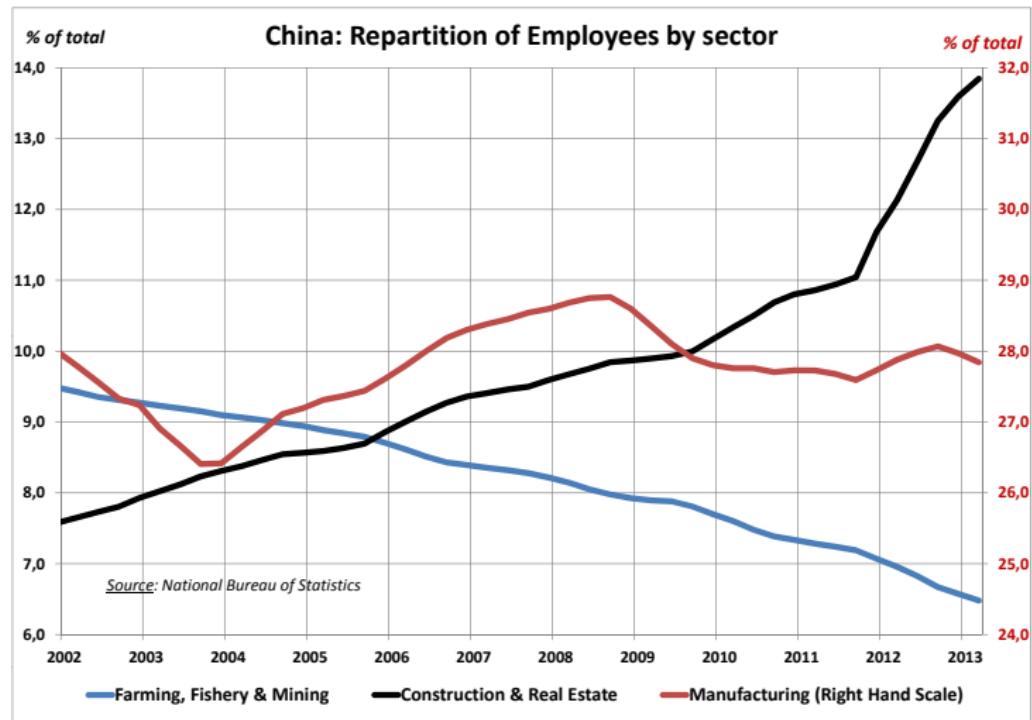
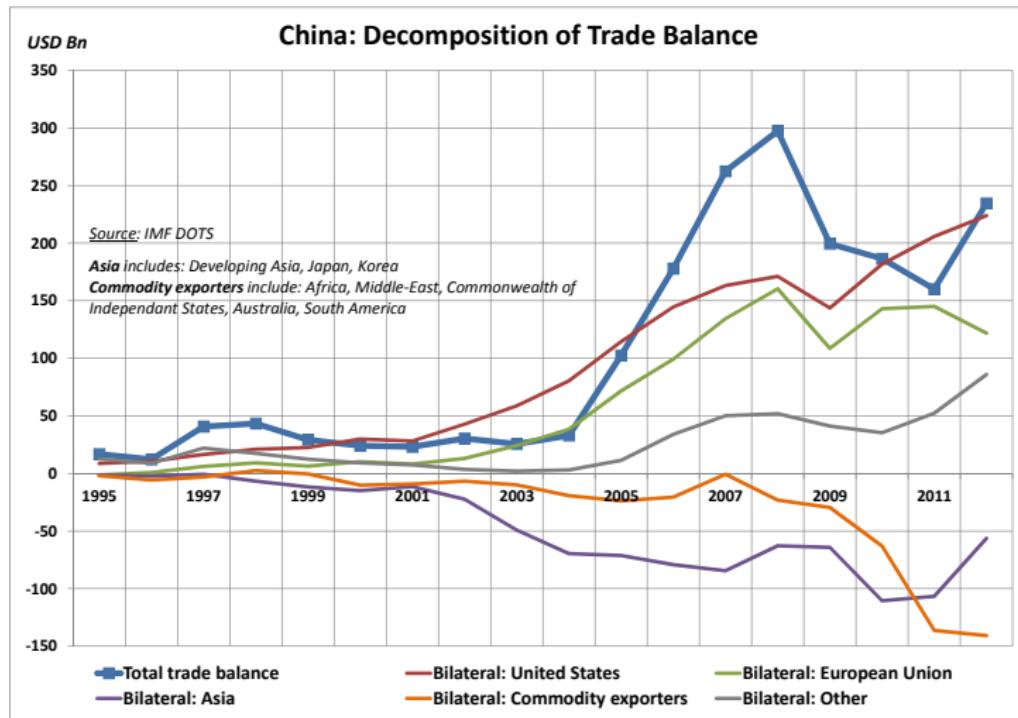
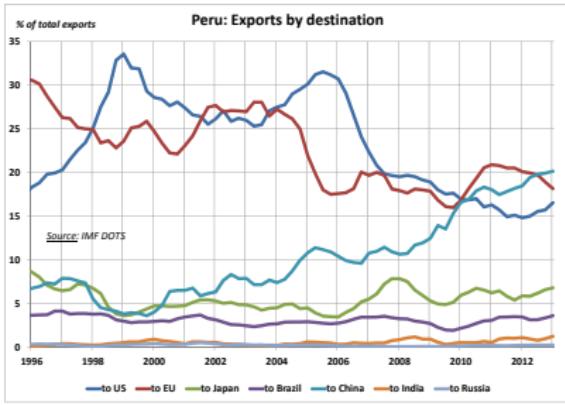
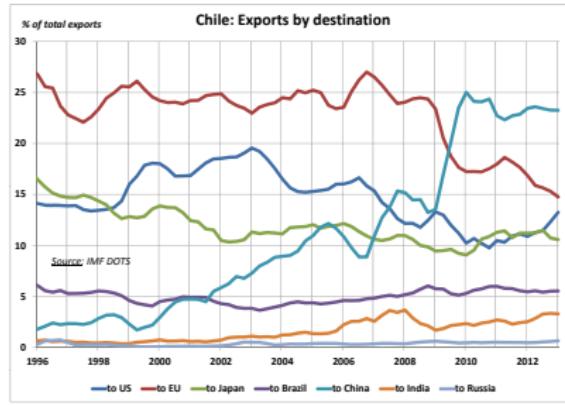
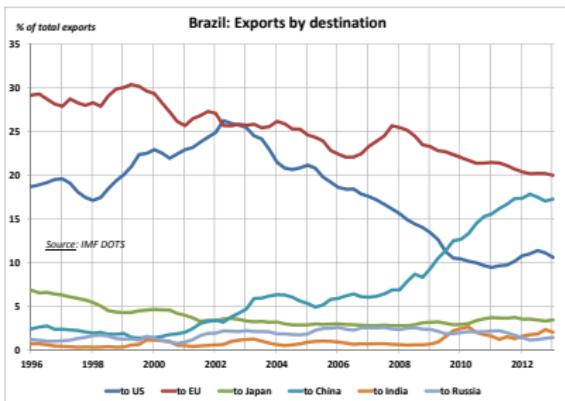
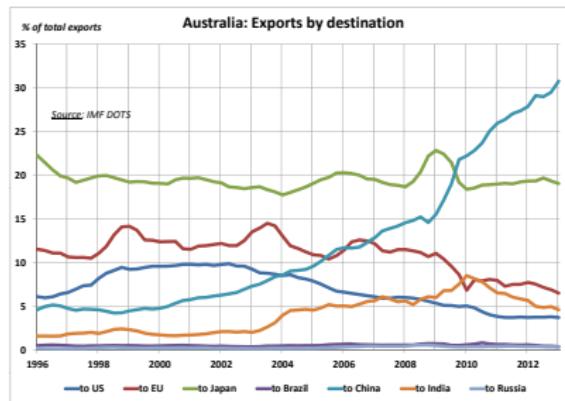


FIGURE : China : Employment by sector.





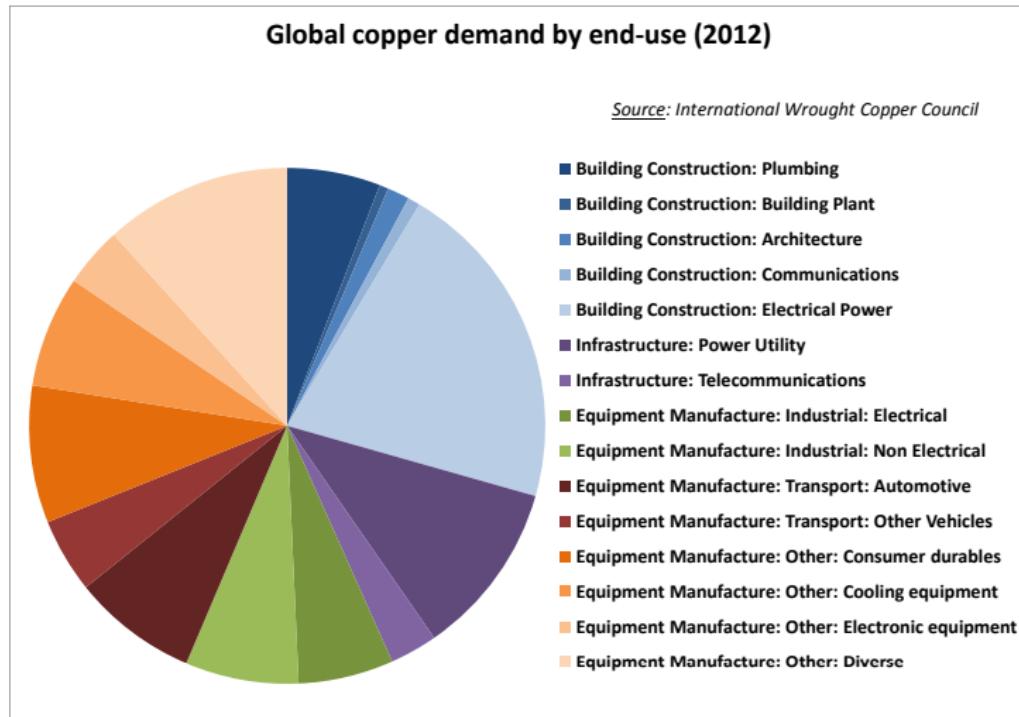


FIGURE : Global demand by end-use : copper.

Global steel demand by end-use (2012)

Source: Metals Consulting International

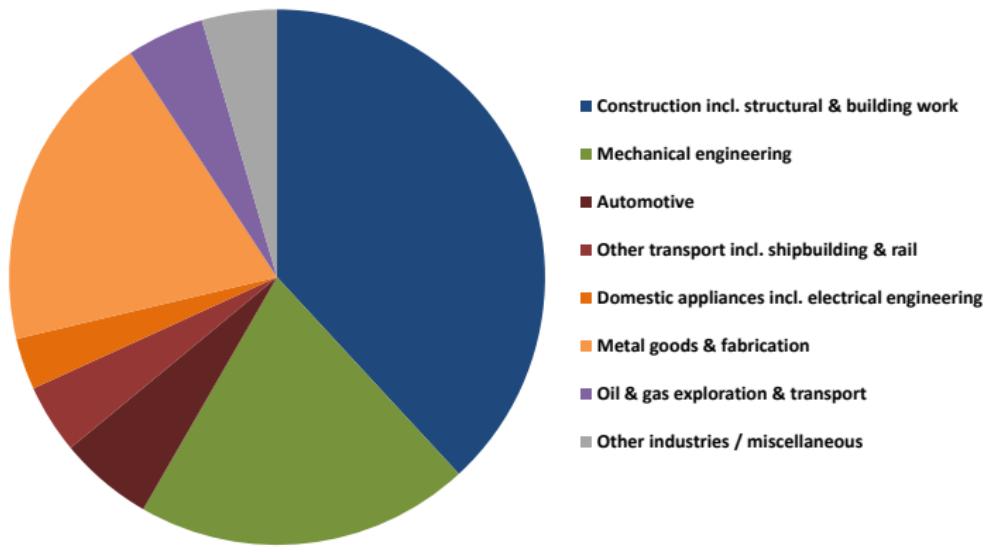


FIGURE : Global demand by end-use : steel.

Global oil demand by end-use (2010)

Source: International Energy Agency, Key World Energy Statistics 2012

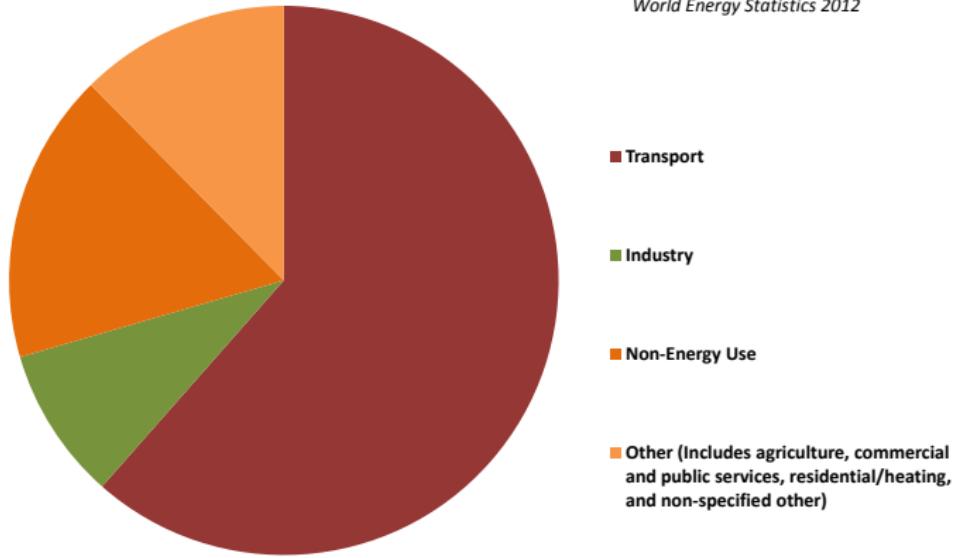


FIGURE : Global demand by end-use : oil.

China: Energy sources by type (2009)

Source: US Energy Information Administration

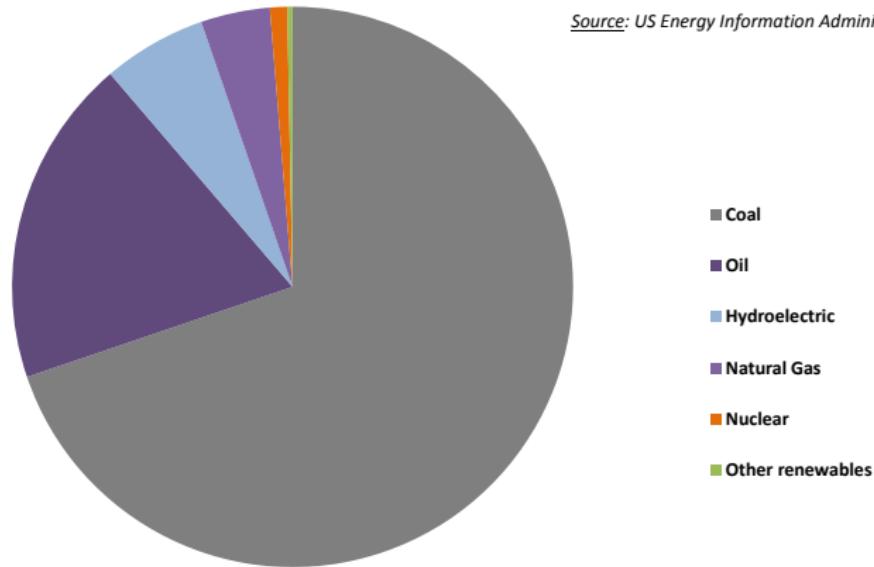


FIGURE : Sources of energy in China.

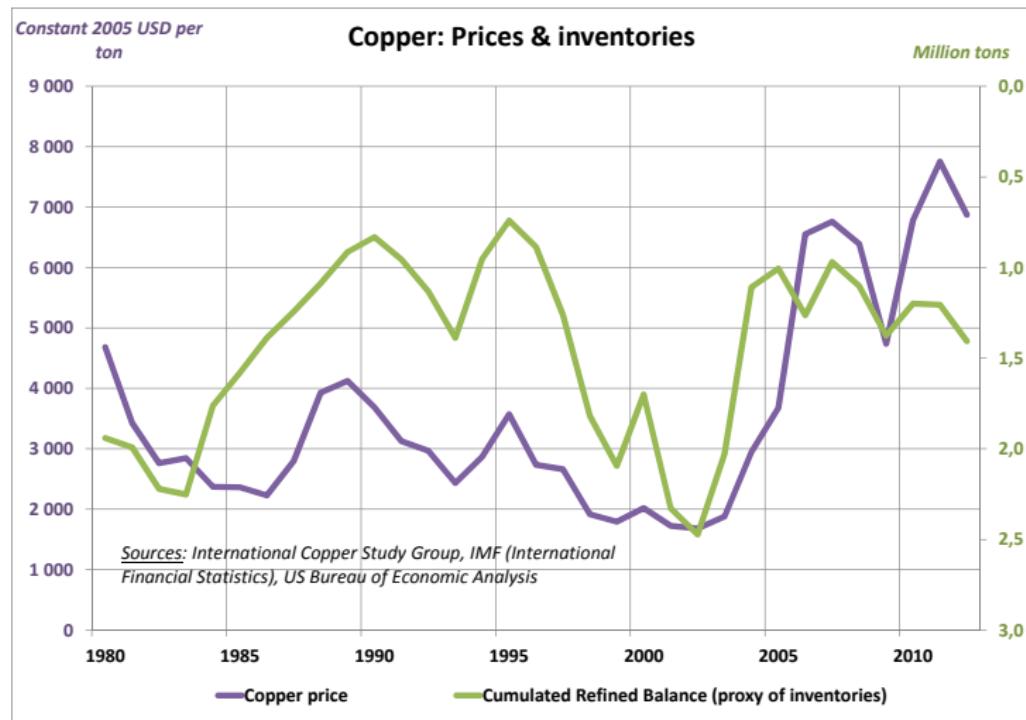


FIGURE : Copper : Prices and inventories.

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).