GENERAL DYNAMICS

NASSCO

Shipbuilding Costs

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JECKU TEM
USA Delegation

Overview

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- Conclusion

Steel

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- Largest Steel Producing Countries/Region (2012)(mmt)
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- Largest Steel Consumption Countries/Regions (2012)(mmt)
- Steel Production & Consumption (2002 vs 2012)
- Major Importers and Exporters of Steel 2012
- Major Steel Input Cost (Jan. 2007 – July 2013)
- Steel Prices
- Steel Plate price forecasts (2005-2015)

Steel Economic Conditions and Outlook

- The world faces disappointing Economic recovery and steel industry remains oversupplied
  - In Europe: declining domestic market, over capacity, high labor costs, pricey energy
  - In China: massive overcapacity, slow down economy, increase in export
  - In U.S.: Signs of recovery economy, cheap energy, resurgent motor industry

World Crude Steel Production (2006-2013)(mmt)

- 2010 remains to have the highest growth of 16% due to recovery
- 2012 YOY growth slows down to 1%
- 2013 is predicted to have 2% growth

	2013 (Jan - June)	2012 (Jan - June)	% Change
Total World	790	774	2%
China	390	363	7%
Japan	55	54	1%
EU	84	89	-5%
S. Korea	33	35	-5%
U.S.	43	46	-6%

Years	World	YOY Change	AVG Growth
2006	1,249	102	9%
2007	1,347	98	8%
2008	1,341	-6	0%
2009	1,236	-105	-8%
2010	1,432	196	16%
2011	1,536	104	7%
2012	1,547	11	1%
2013e	1,580	33	2%

* Source: World Steel in Figures

Largest Steel Producing Countries/Region (mmt)

	2012		2011	12 vs 11	12 vs 11	
	Ton	%	Ton	% Change	Net Growth	%
Total World	1,547	100%	1,536	1%	11	100%
China	717	46%	702	2%	15	137%
EU	163	11%	172	-5%	-9	-80%
Japan	107	7%	108	0%	0	-4%
U.S.	89	6%	86	3%	2	22%
India	78	5%	74	6%	4	39%
Russia	70	5%	69	2%	2	14%
S. Korea	69	4%	69	1%	1	6%

Source: World Steel in Figures

World Steel Consumption (2006-2014)(mmt)

- 2010 remained to have the highest growth in consumption of 14% from prior year
- 2012 reached 1% growth, fell short of the projected growth of 3.5%
- 2013 and 2014 are projected to be 3%

Years	World	YOY Change	AVG Growth
2006	1,139	97	9%
2007	1,219	79	7%
2008	1,219	(0)	0%
2009	1,140	(79)	-6%
2010	1,300	160	14%
2011	1,395	95	7%
2012	1,413	17	1%
2013e	1,454	41	3%
2014e	1,500	46	3%

* Source: World Steel in Figures

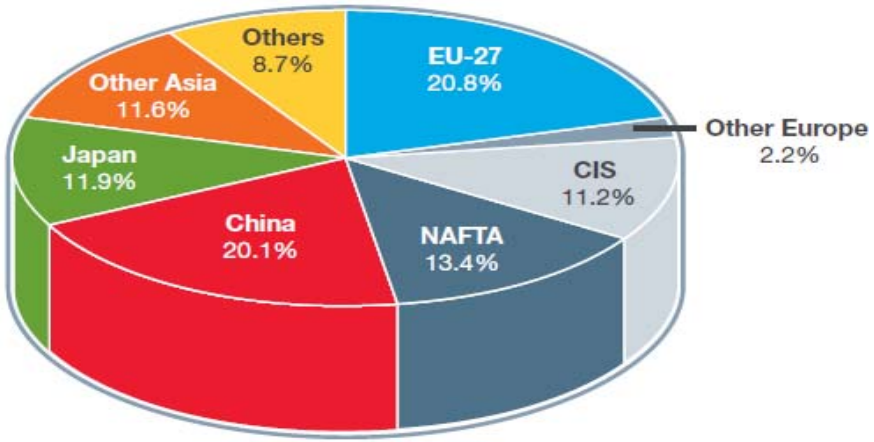
Largest Steel Consumption Countries/Region (mmt)

	2012		2011	12 vs 11	12 vs 11	
	Ton	%	Ton	% Change	Net Growth	% Change
Total World	1,413	100%	1,395	1%	17	100%
China	646	46%	634	2%	12	69%
EU	140	10%	154	-9%	-14	-83%
U.S.	97	7%	80	21%	17	97%
Japan	64	5%	64	0%	0	-1%
India	72	5%	70	3%	2	10%
S. Korea	54	4%	56	-4%	-2	-13%
Russia	42	3%	41	2%	1	5%

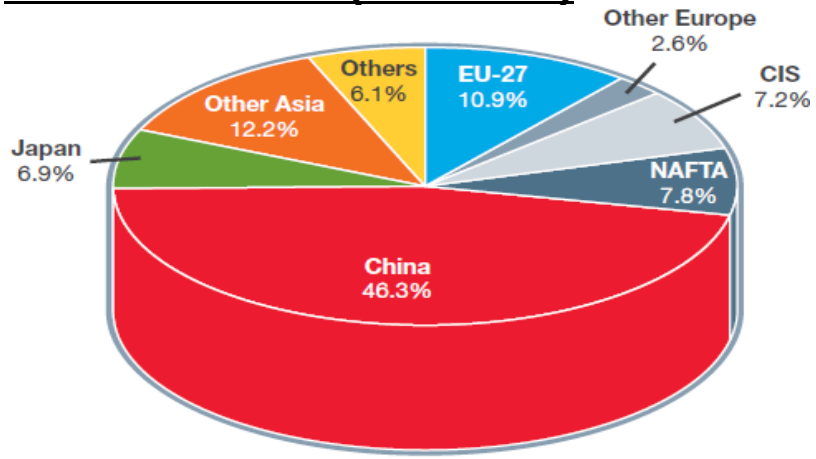
Source: World Steel in Figures

Steel Production & Consumption (2002 vs. 2012)

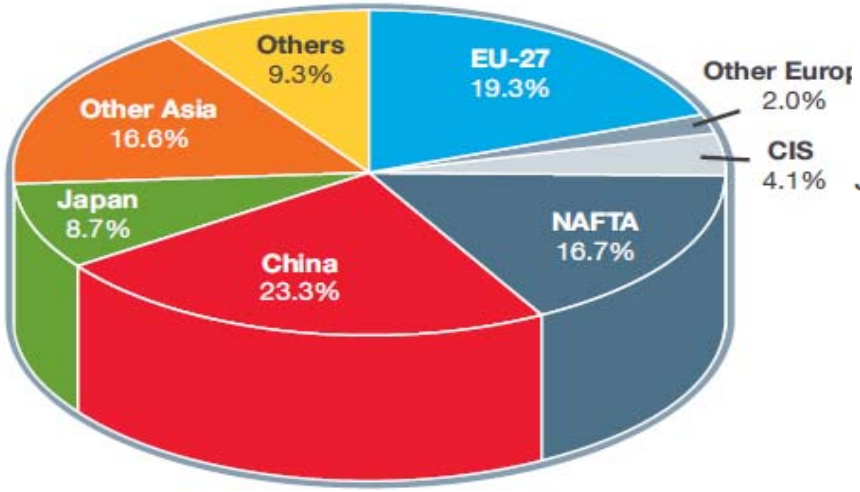
2002 Production (905 mmt)



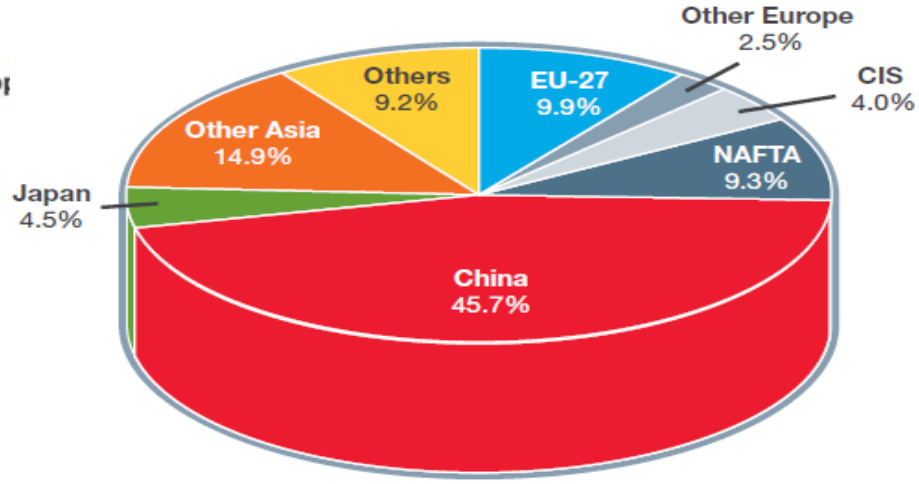
2012 Production (1547 mmt)



2002 Consumption (822 mmt)



2012 Consumption (1413 mmt)



Source: World Steel in Figures

Major Exporters & Importers of Steel (2012)

Rank	Net Exports (exports-imports)	MMT
1	China	40.6
2	Japan	35.7
3	Ukraine	22.3
4	Russia	19.8
5	EU**	17.6
6	South Korea	9.8
7	Turkey	7.2
8	Brazil	5.9
9	Italy*	4.3
10	Belgium*	3.9
11	Austria*	3.1
12	Germany*	3.1
13	Taiwan, China	3
14	Slovakia*	2.6
15	Spain*	2.2

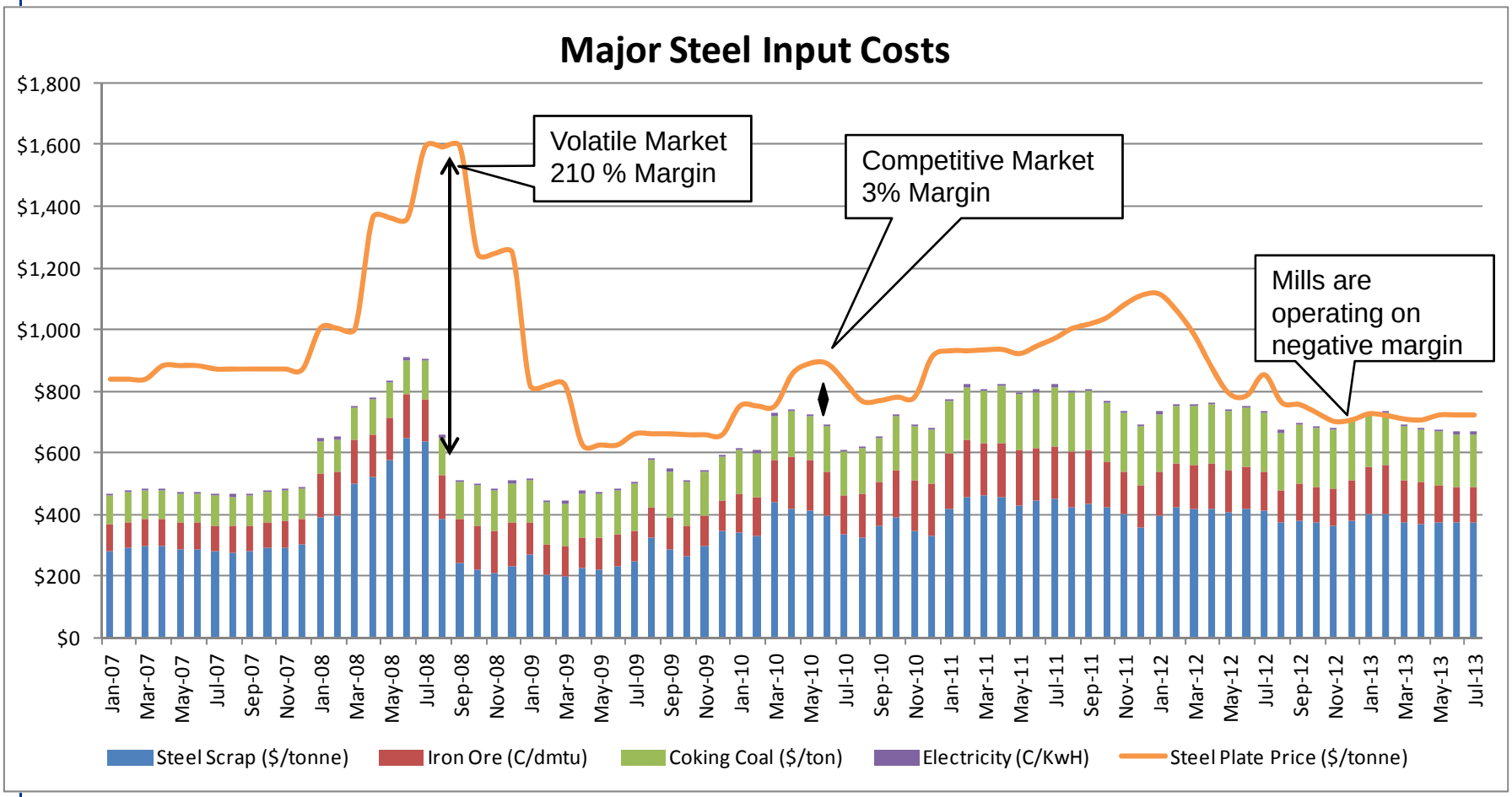
Rank	Net Imports (exports-imports)	MMT
1	United States	17.9
2	Thailand	13.6
3	Indonesia	11.3
4	South Arabia	7.8
5	Vietnam	6.5
6	United Arab Emirates	6
7	Iran	5.3
8	Algeria	5
9	Mexico	4.3
10	Philippines	4.3
11	Iraq	4
12	Canada	3.5
13	Egypt	3.4
14	Singapore	3.1
15	Lebanon	3

* data for individual EU countries include intra-European trade

** excluding intra-regional trade

Source: World Steel in Figures

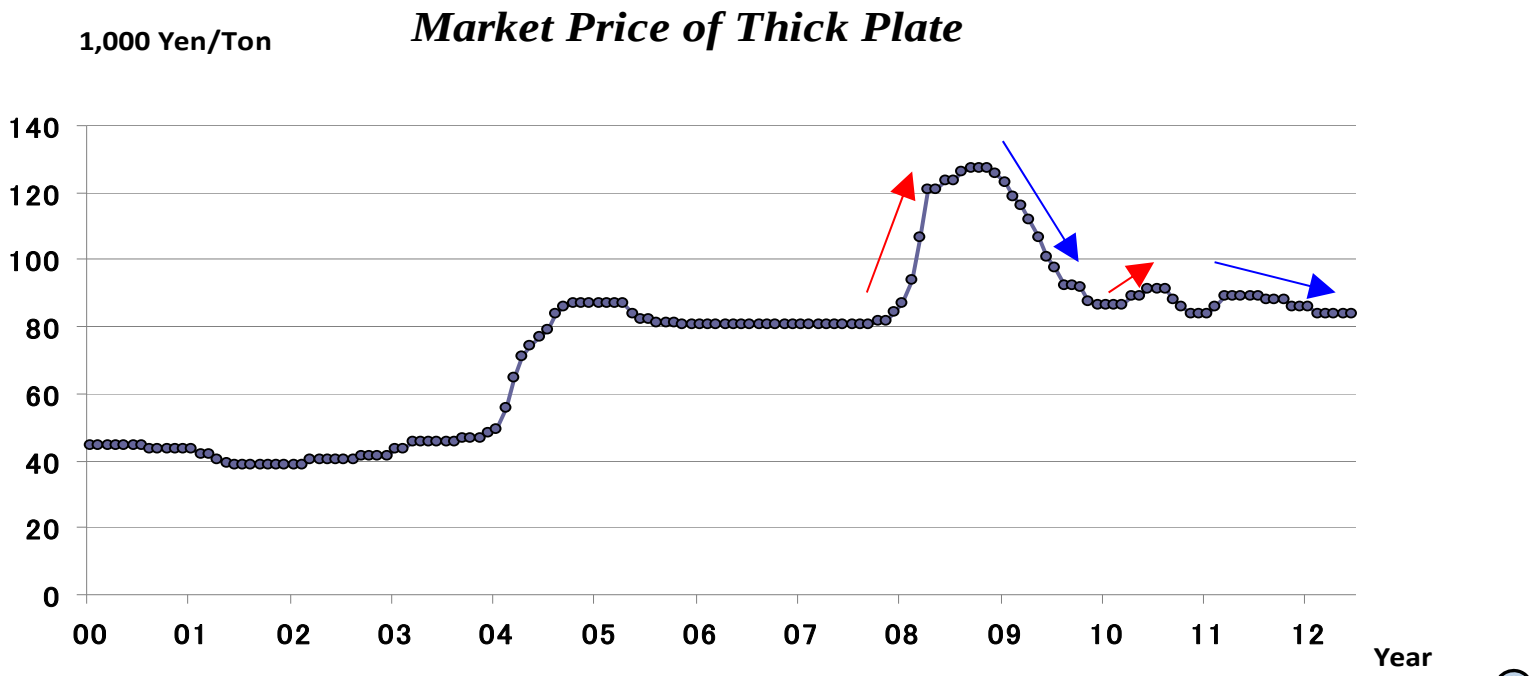
Major Steel Input Cost (Jan. 2007 – July 2013)



Source: Steelonthenet.com & AMM

LME Steel Billet Price (2008 – 2013)

Steel Price in Japan

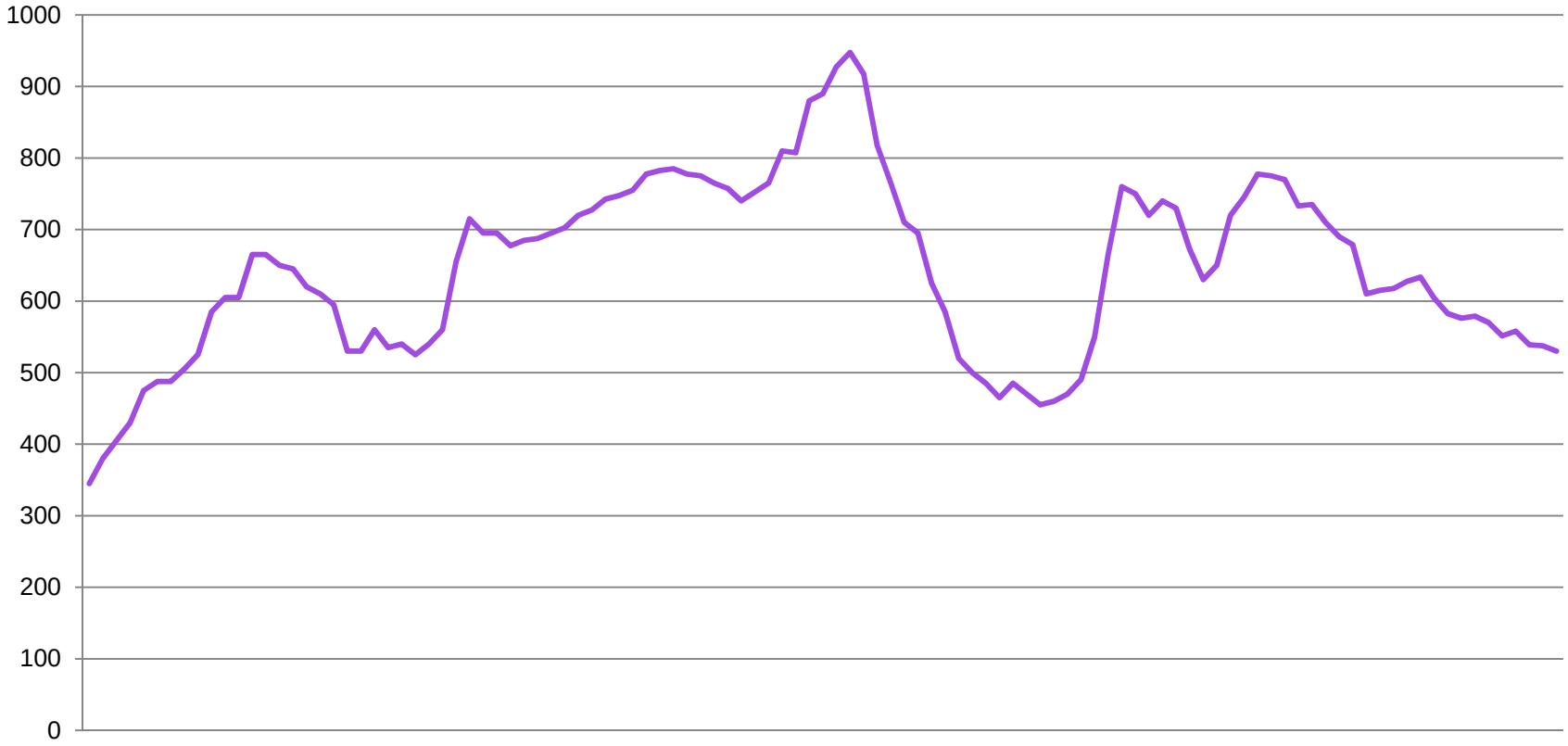


It is anticipated that the steel price will be gradually going down due to the decline in steel demand from the sluggish shipbuilding market. However, it is understood that the steel price quoted by Japanese Mills against domestic shipbuilders is still now higher than that of foreign customers when converted to US$.

Note: The market price differs from yard's actual purchasing price. Source: Japan Metal Daily

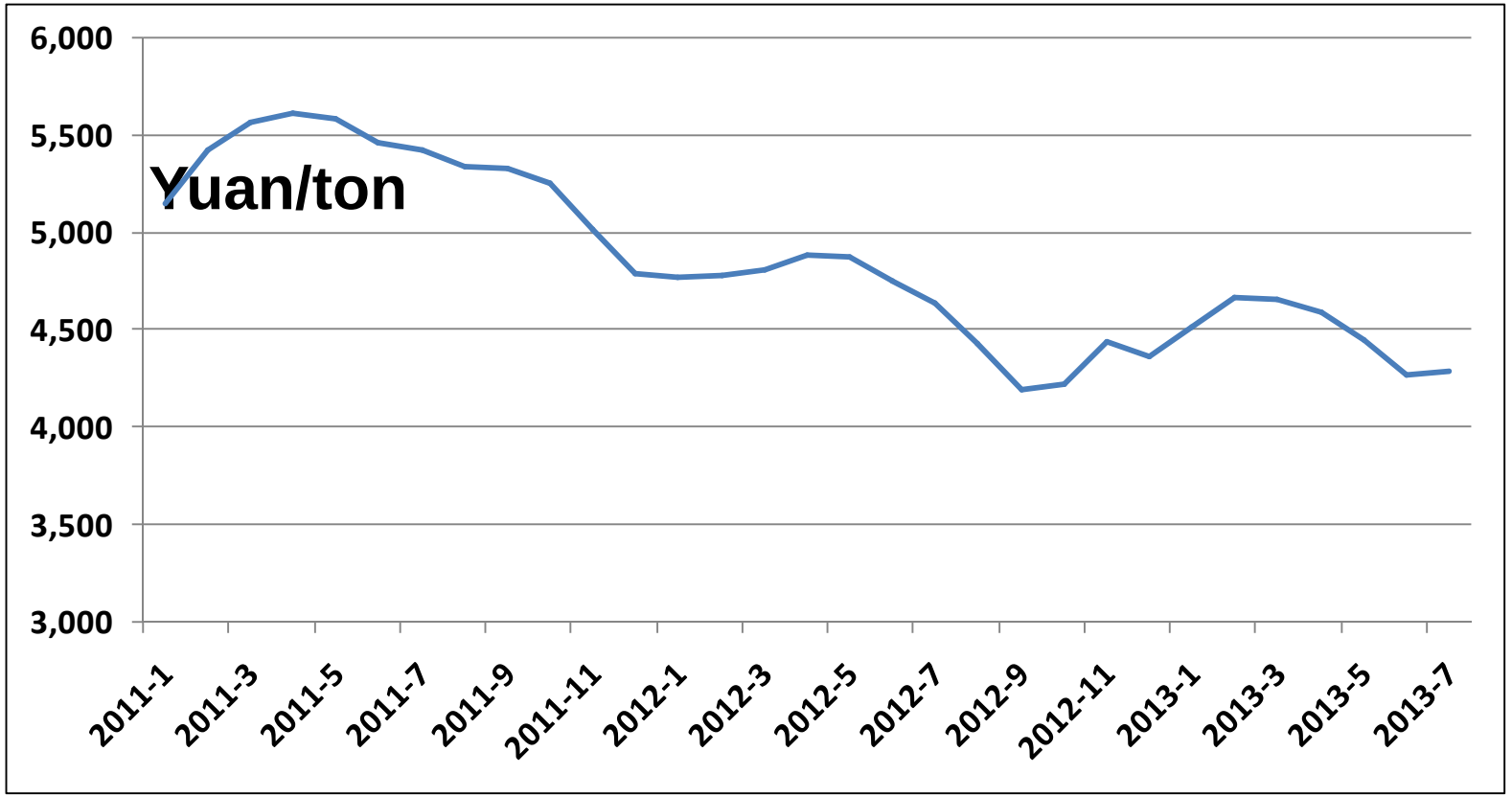
Steel Prices in Europe (2004 – 2013)

Average prices for 10 mm plates (€/ton) 2004-2013



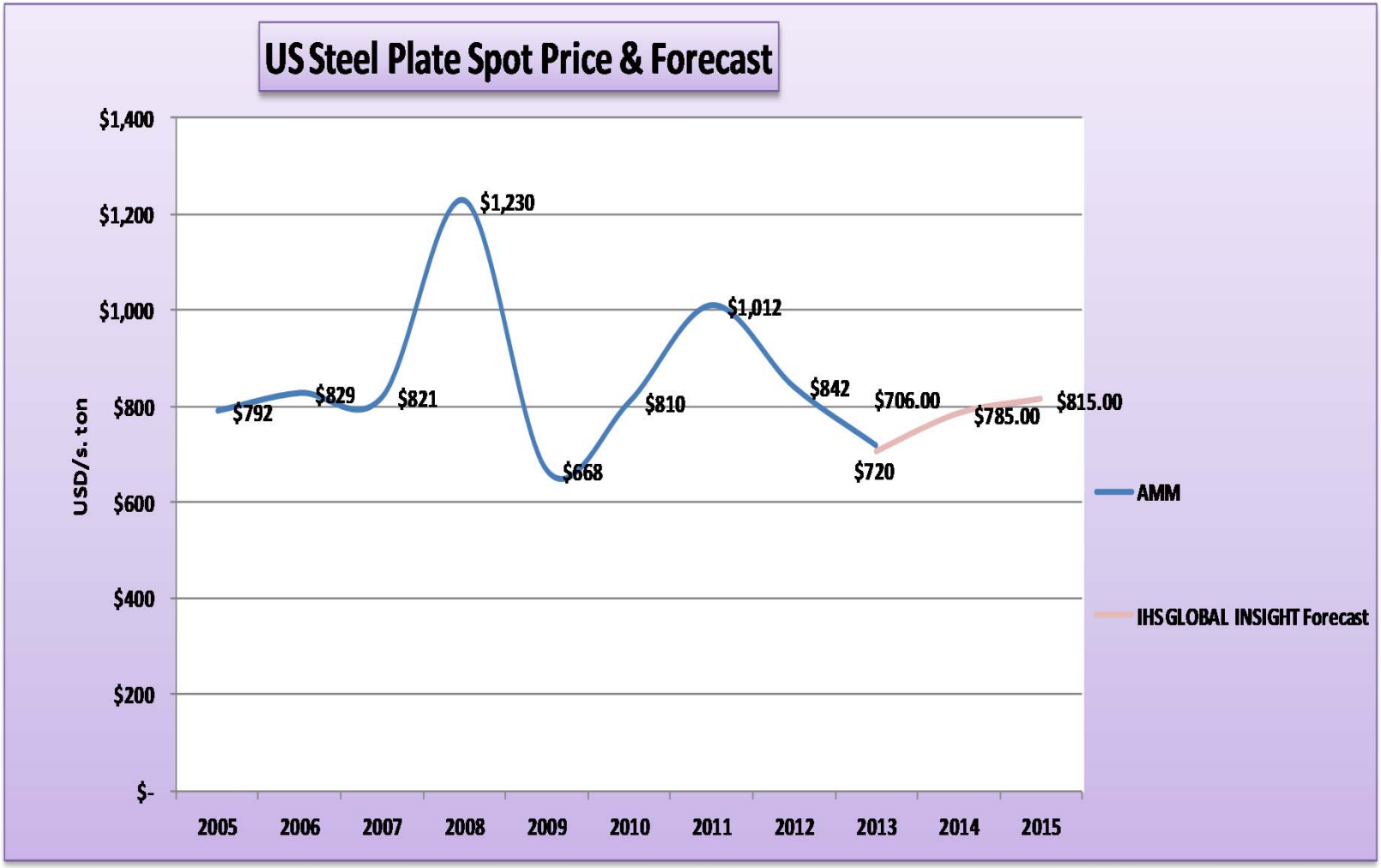
Source: Klöckner

Steel Prices in China (2011 – 2013)



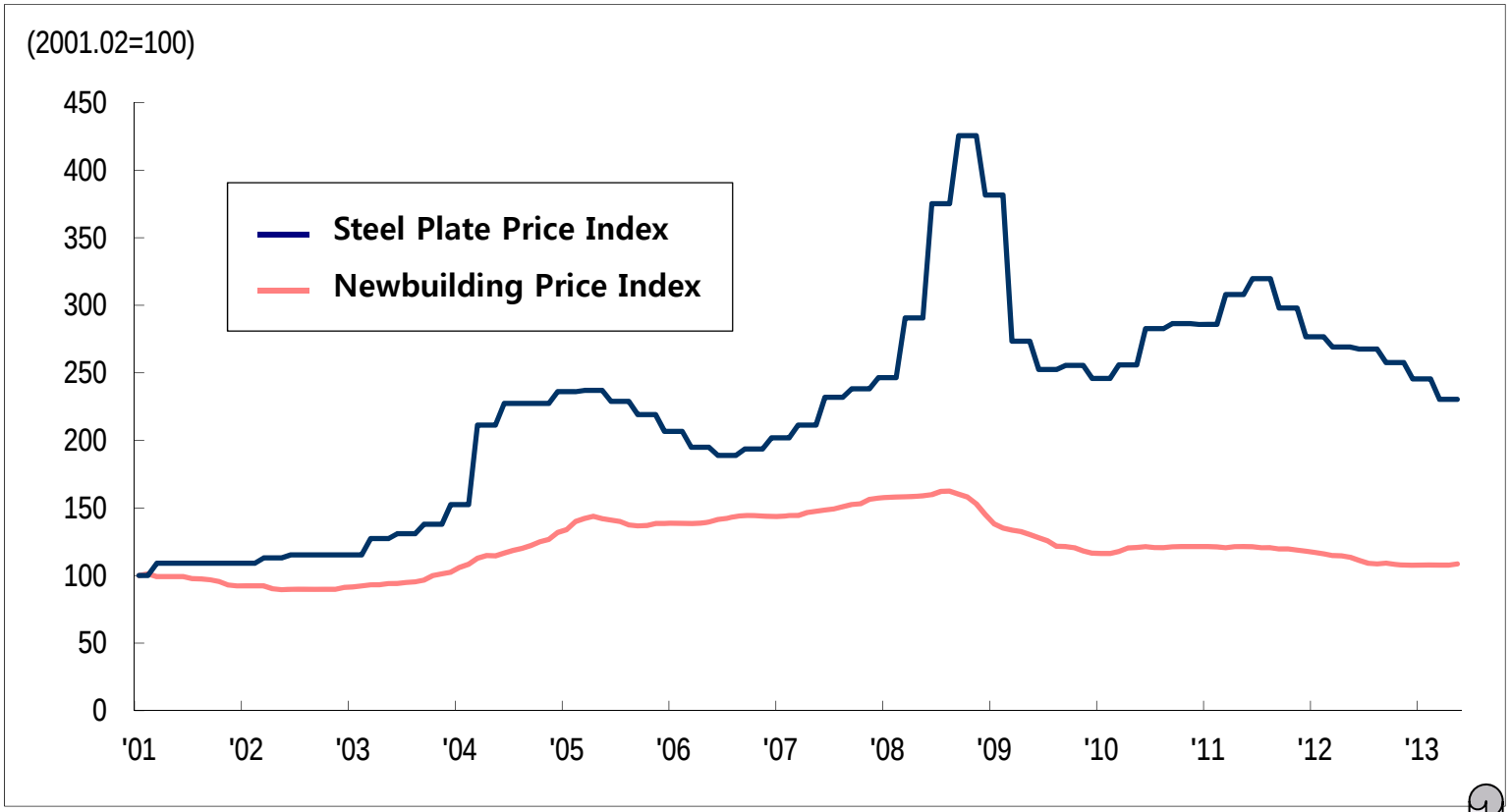
The average price of 20mm shipbuilding plate is 5330 yuan / ton in 2011, 4596 yuan / ton in 2012 ,but it is about 4300 yuan / ton now, decreased by 19.3% than 2011. **Source: CSIC ERC**

Historical Steel Plate & IHS Price Forecasts (2005 – 2015)



Source: IHS Global Insight

Newbuilding Price Index vs. Steel Plate Price Index



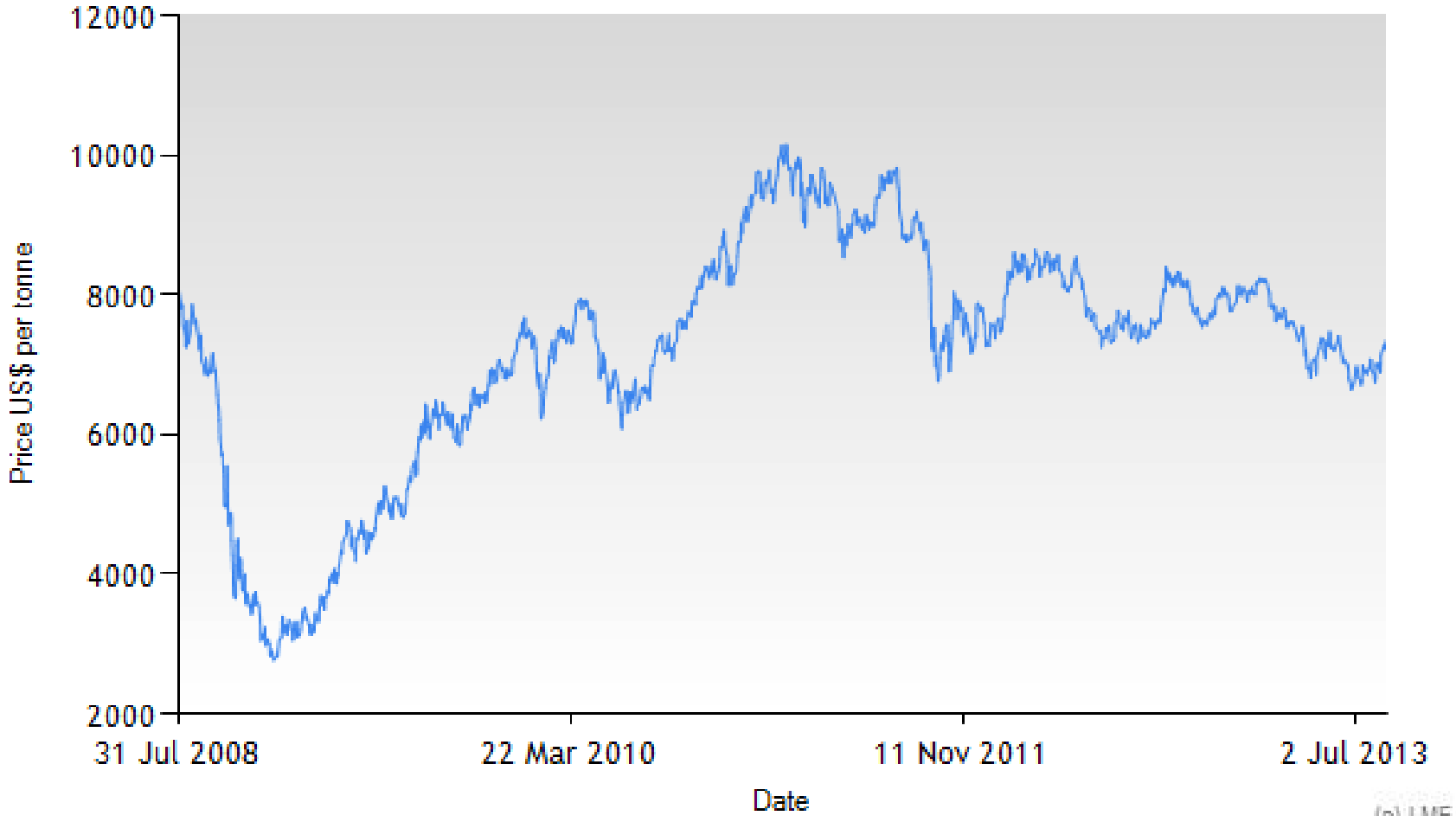
☞ **Steel price has been on the upturn since 2001,**
But Shipbuilding price has been on a downtrend.
☞ **Shipyards are suffering from double torture.**

Source: Koshipa

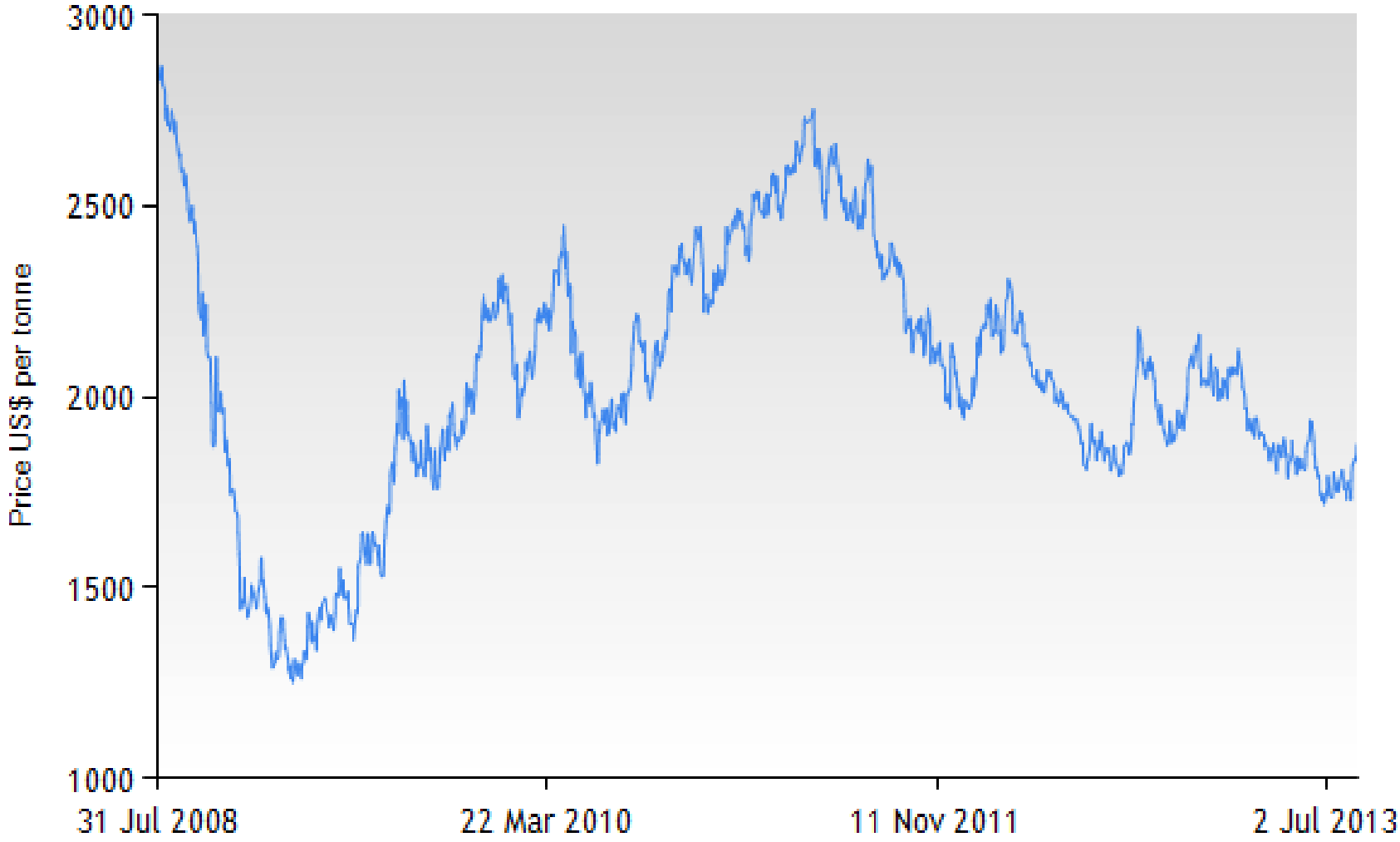
Other Raw Materials

- **LME Copper Price (2008– 2012)**
- **LME Aluminum Price (2008 – 2012)**
- **LME Nickel Price (2008 – 2012)**
- **LME Zinc Price (2008 – 2012)**

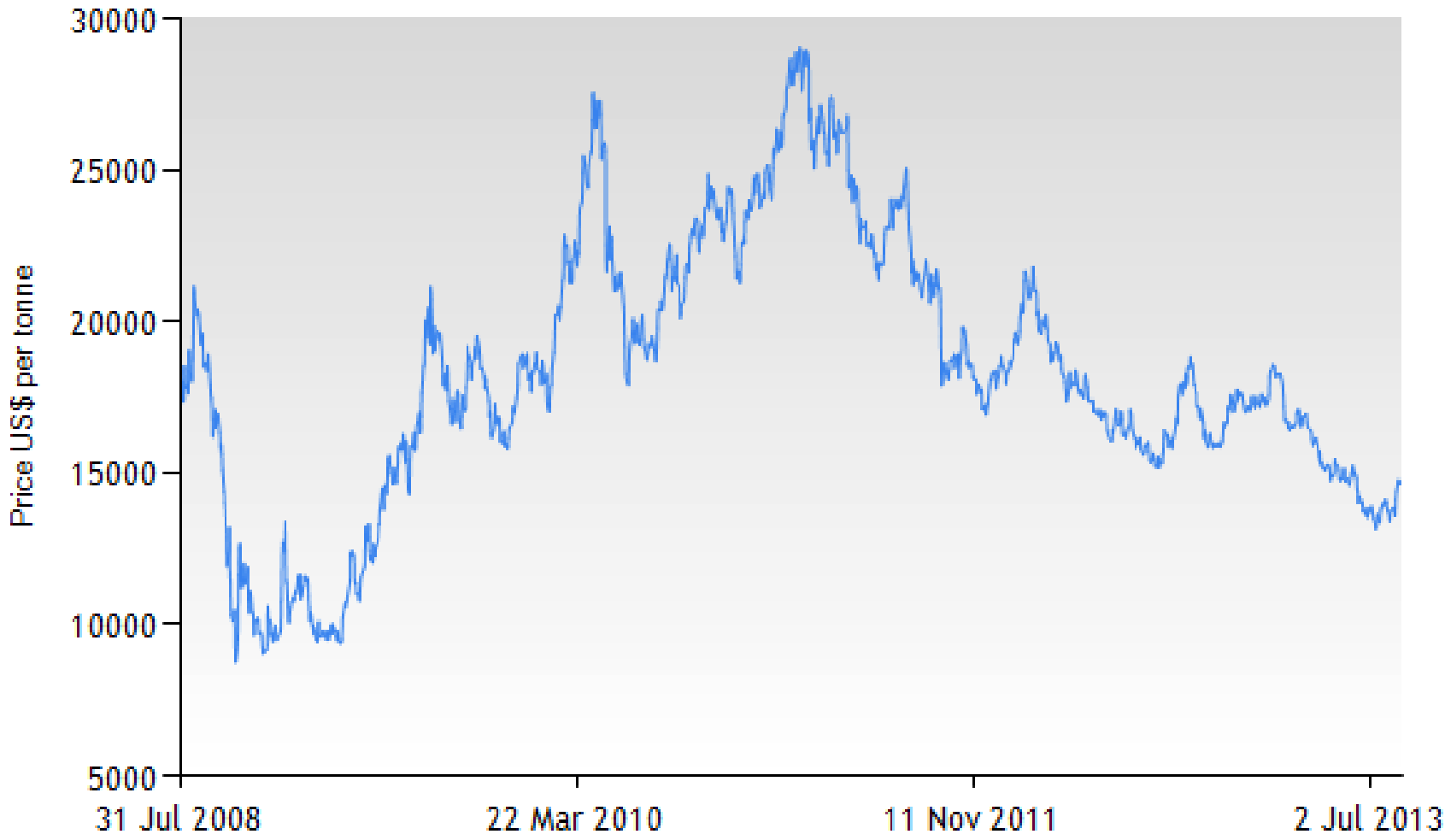
LME Copper Price (2008 – 2013)



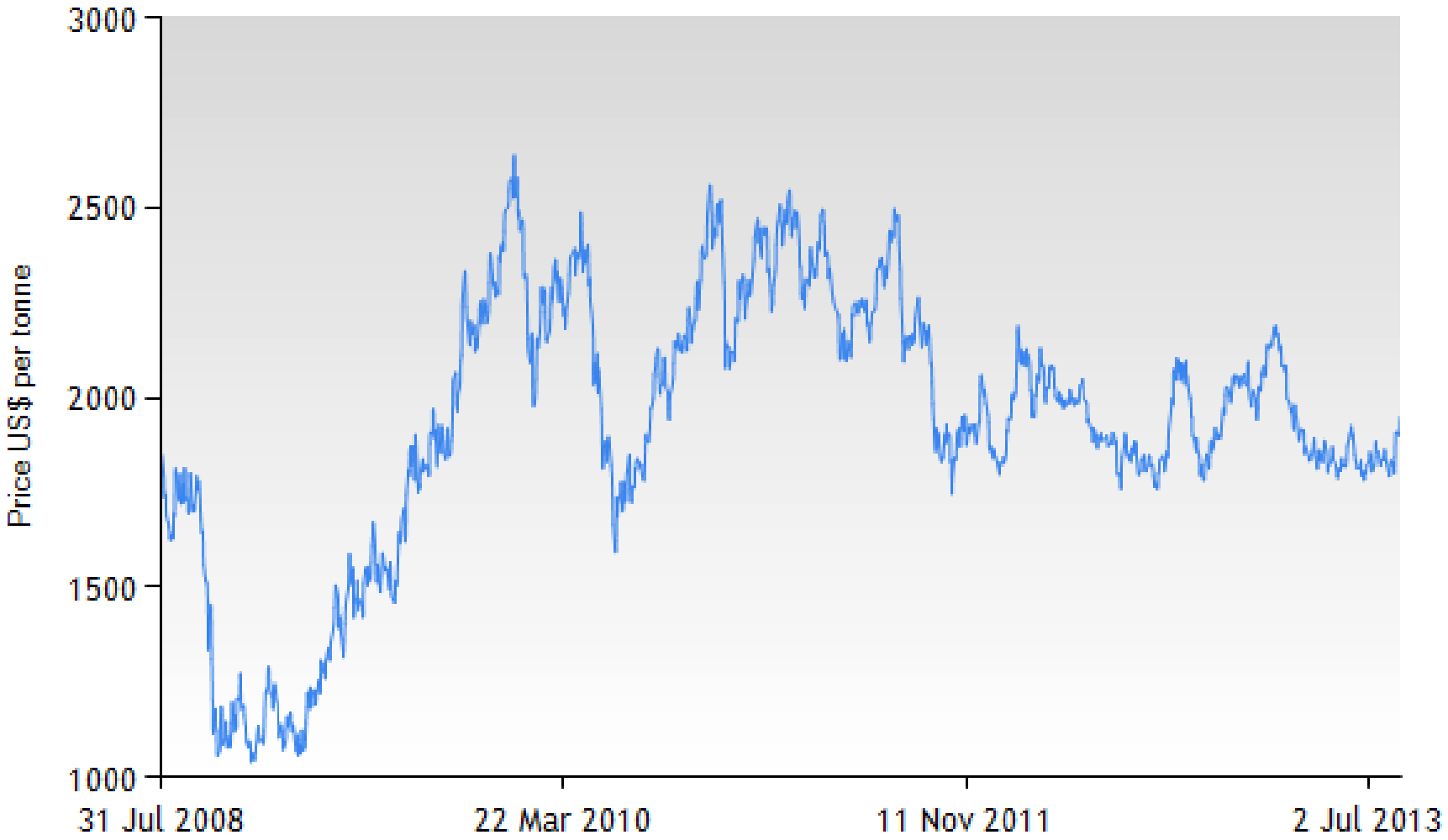
LME Aluminum Price (2008 – 2013)



LME Nickel Price (2008– 2013)

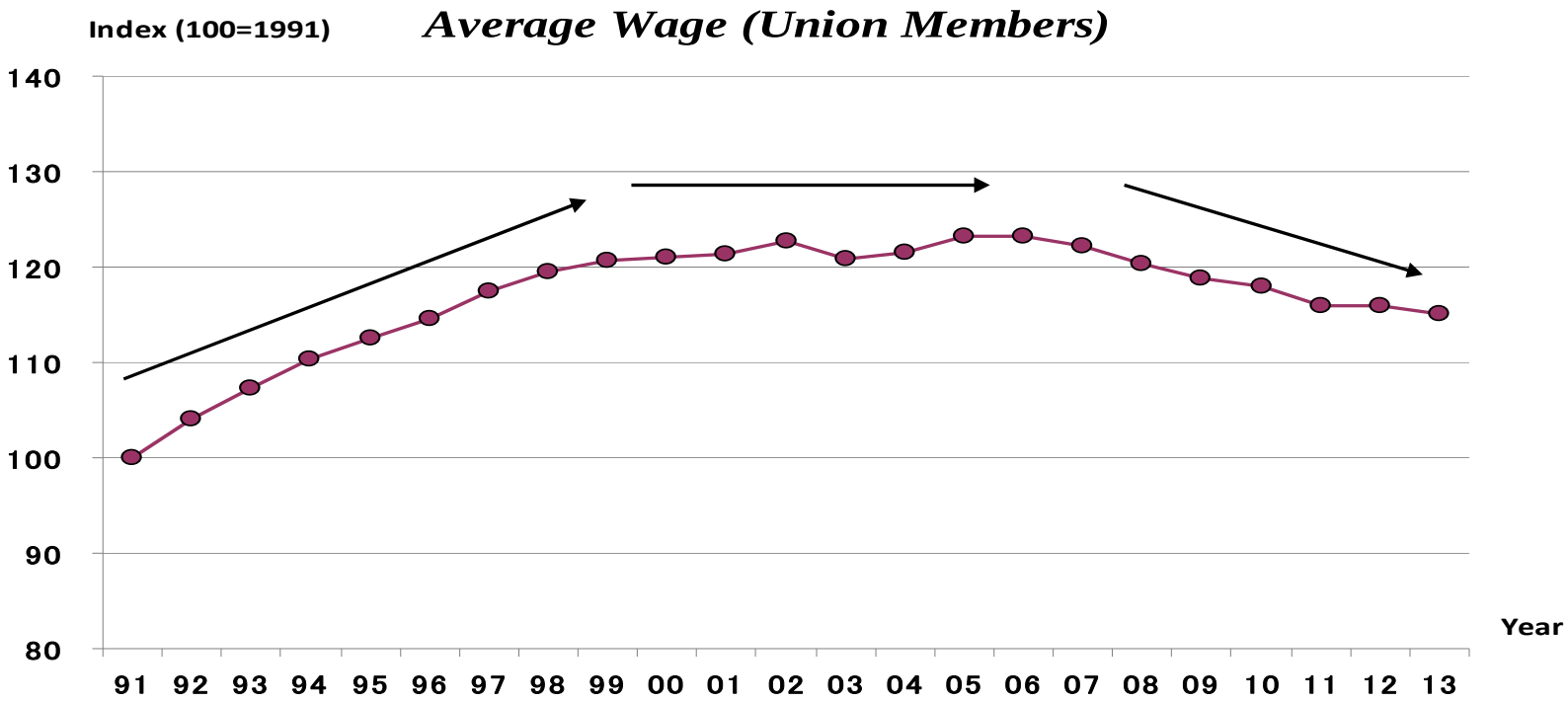


LME Zinc Price (2008– 2013)



Labor

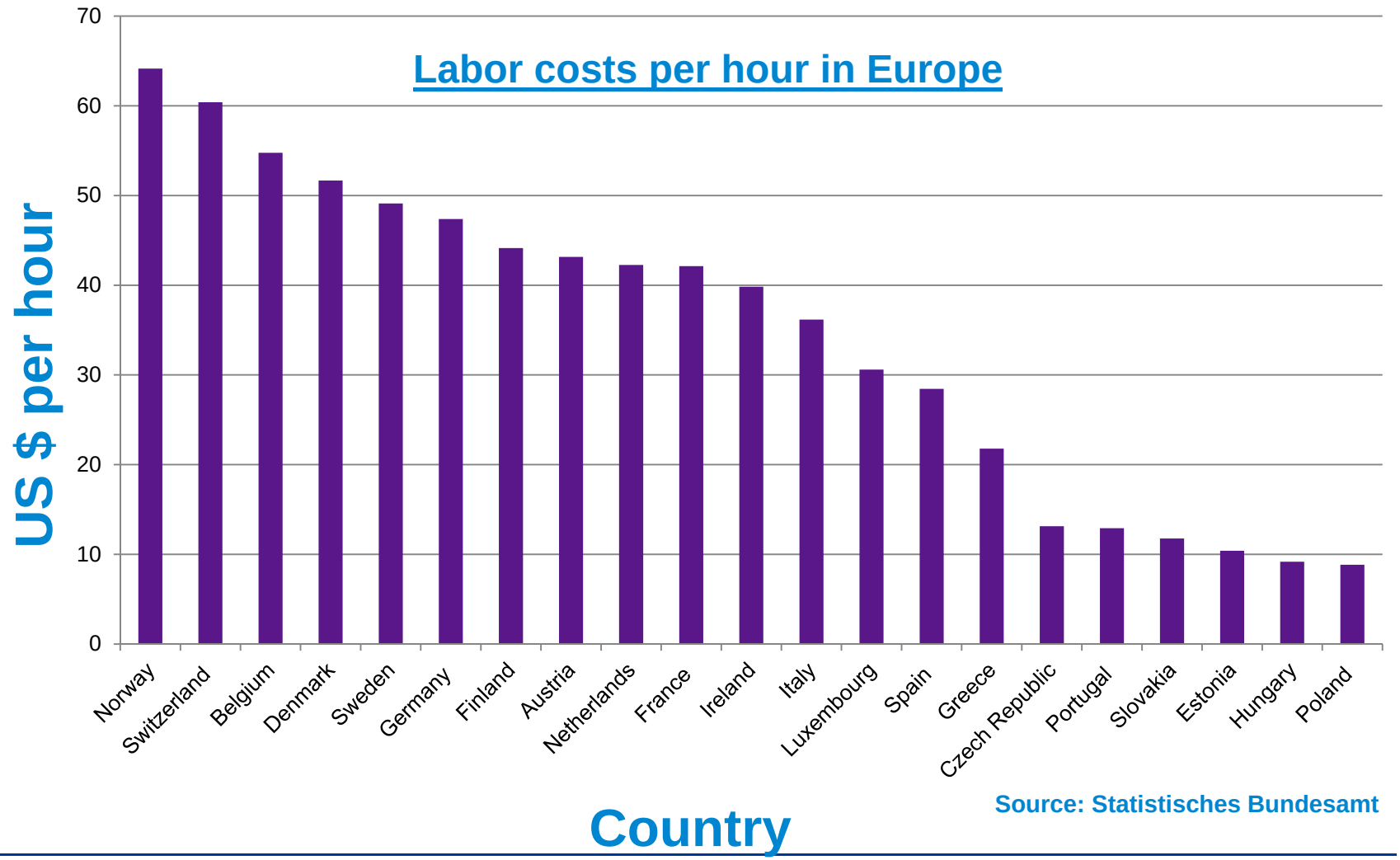
Wage of Shipbuilding Workers in Japan



The labor cost in Japan has been showing the down trend for the last few years mainly due to the replacement of senior workers with the younger one.

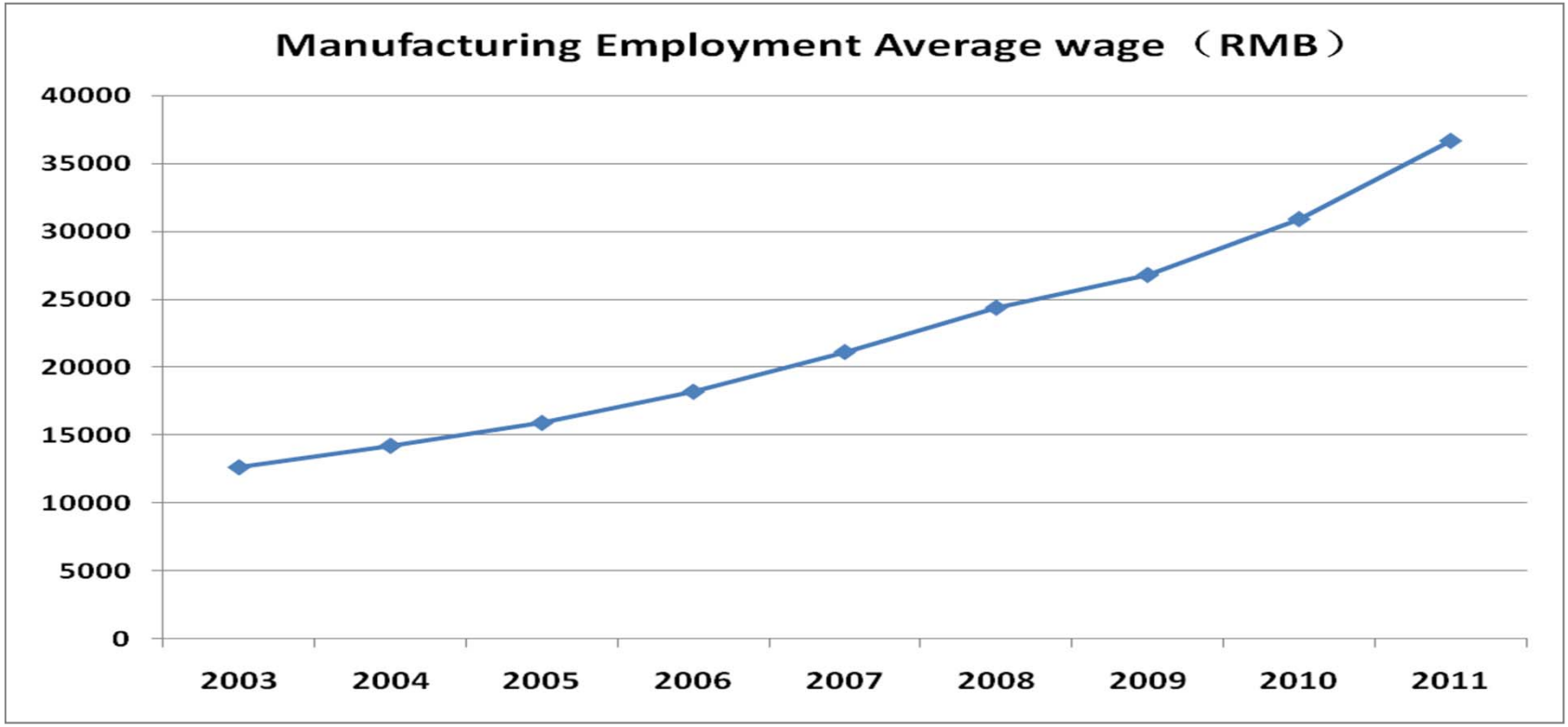
Source: Japan Federation of Basic Industry Workers' Unions

Labor Costs in EU



Source: Statistisches Bundesamt

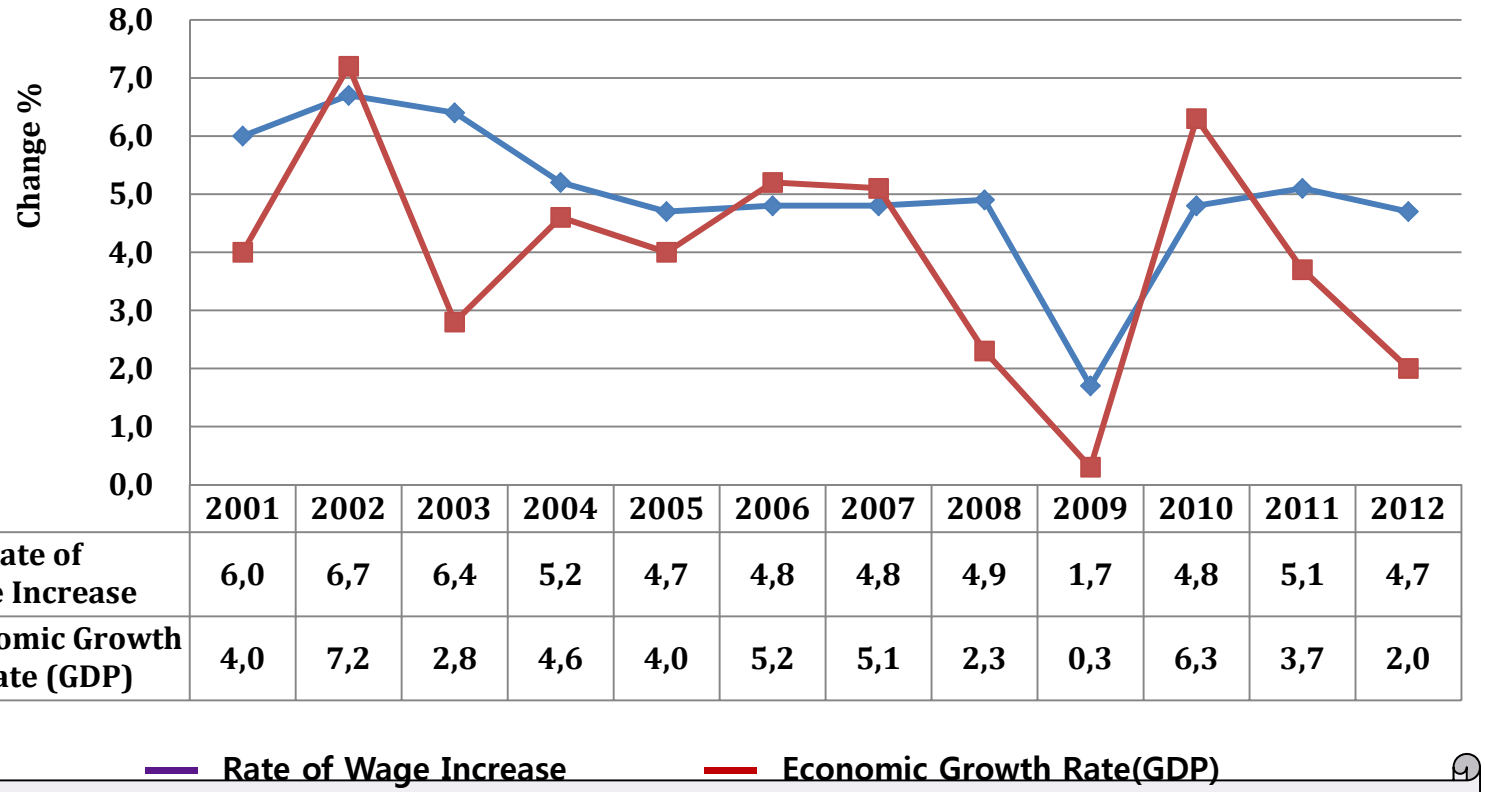
Labor Cost in China



Although the average wage of shipbuilding worker increased dramatically in the past several years, the total labor cost of Chinese shipyards kept stable since financial crisis due to improvement in productivity

Source: National Bureau of Statistics of China

Wage Increase vs. Economic Growth in Korea



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Rate of Wage Increase	6,0	6,7	6,4	5,2	4,7	4,8	4,8	4,9	1,7	4,8	5,1	4,7
Economic Growth Rate (GDP)	4,0	7,2	2,8	4,6	4,0	5,2	5,1	2,3	0,3	6,3	3,7	2,0

☞ Rate of Wage Increase is higher than Economic Growth Rate

☞ It is a big burden for shipyards to tide over the current crisis

Source : Statistics Korea

U.S. Unemployment Rate

(2003 - 2013, 16 years and older)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	5.8	5.9	5.9	6.0	6.1	6.3	6.2	6.1	6.1	6.0	5.8	5.7
2004	5.7	5.6	5.8	5.6	5.6	5.6	5.5	5.4	5.4	5.5	5.4	5.4
2005	5.3	5.4	5.2	5.2	5.1	5.0	5.0	4.9	5.0	5.0	5.0	4.9
2006	4.7	4.8	4.7	4.7	4.6	4.6	4.7	4.7	4.5	4.4	4.5	4.4
2007	4.6	4.5	4.4	4.5	4.4	4.6	4.7	4.6	4.7	4.7	4.7	5.0
2008	5.0	4.9	5.1	5.0	5.4	5.6	5.8	6.1	6.1	6.5	6.8	7.3
2009	7.8	8.3	8.7	9.0	9.4	9.5	9.5	9.6	9.8	10.0	9.9	9.9
2010	9.8	9.8	9.9	9.9	9.6	9.4	9.5	9.5	9.5	9.5	9.8	9.3
2011	9.1	9.0	8.9	9.0	9.0	9.1	9.0	9.0	9.0	8.9	8.6	8.5
2012	8.3	8.3	8.2	8.1	8.2	8.2	8.2	8.1	7.8	7.9	7.8	7.8
2013	7.9	7.7	7.6	7.5	7.6	7.6	7.4					

Source: BLS

Index of Average Hourly Earnings for Shipyards
(2003 - 2013)

- **Average Straight Time labor Rate for Shipyard increased (September 1980 = 100)**
  - 42% in the past 10 years
  - 2% in past year, lower than the average 10 years

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
January	209.4	219.6	226.7	236.0	246.1	255.7	268.7	278.8	291.1	295.6	297.5
February	210.4	219.9	227.4	237.8	246.6	258.0	268.5	279.7	289.0	298.9	300.7
March	213.4	220.5	228.0	240.0	250.0	261.2	272.8	282.2	286.5	300.7	306.0
April	215.4	220.2	228.0	239.6	252.9	261.3	270.1	279.9	287.7	300.7	306.6
May	215.6	219.0	228.0	240.0	252.2	261.3	272.3	282.6	288.8	303.2	308.7
June	214.5	220.0	228.4	240.4	252.3	261.0	272.0	282.7	290.7	300.3	305.8
July	215.4	222.1	230.8	239.7	252.4	261.0	273.5	283.8	289.6	300.4	
August	216.7	221.4	230.9	242.3	253.6	261.6	272.9	283.1	289.1	298.1	
September	216.0	223.3	231.9	243.8	254.7	263.4	273.4	282.0	288.0	301.1	
October	218.7	224.3	233.3	244.2	257.3	263.3	272.9	282.8	290.4	300.5	
November	218.0	224.8	235.3	244.9	258.6	267.7	275.4	285.2	291.8	304.4	
December	218.5	224.9	236.3	245.0	258.1	267.5	277.8	284.4	292.3	300.8	

Source: BLS

Exchange Rate

USD	100
United States Dollars USD	100.00
Euros EUR	74.82
British Pounds GBP	66.74
Japanese Yen JPY	9,912.50
Chinese Yuan Renminbi CNY	682.45
Mexican Pesos MXN	1,330.92
Canadian Dollars CAD	117.81
Australian Dollars	135.36

Update Last Update: 4 May 2009 08:00

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Source: World Steel in Figures

Exchange Rate (2008 – 2013)

1 US Dollar equals

97.58 Japanese Yen

1 US Dollar equals

0.75 Euro

1 US Dollar equals

6.12 Chinese Yuan

1 US Dollar equals

1113.49 South Korean Won

Source: Yahoo Finance

Conclusion

- Projections on the future of steel remain inconsistent
  - Sluggish demand growth and range-bound steel prices are predicted in 2013
  - China remains to be the drive of world steel prices as they are responsible for half of global production and consumption:
    - The anticipated recovery in China is questionable, but hopeful
    - Over capacity remains to be an issue in China with new mills emerging, mill utilization falling to 75%.
    - Intense competition in the steel industry in China constrains domestic steel price
    - Increase in export of Chinese steel further depresses world price
  - Steel demand in EU is expected to contract further by -0.5% in 2013, but will return to growth of 3.3% in 2014.
  - Economic recovery continues in U.S. due to automotive, energy sectors

Conclusion

- **Other Raw Material**:
  - Copper, Aluminum, Nickel and Zinc prices shows slight decrease same time last year
- **Dollar has been strengthening on signs that the U.S. economy is improving**
- **In summary, expectations are elevating that the long-stagnant shipbuilding industry may enjoy an upturn amid an increasing amount of commercial vessel orders and the rise of freight charges**

どうもありがとうございました