

Steel Market Outlook
Federal Reserve Bank
Economic Outlook Symposium
December 4, 2015



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Robert Dicianni
ArcelorMittal USA





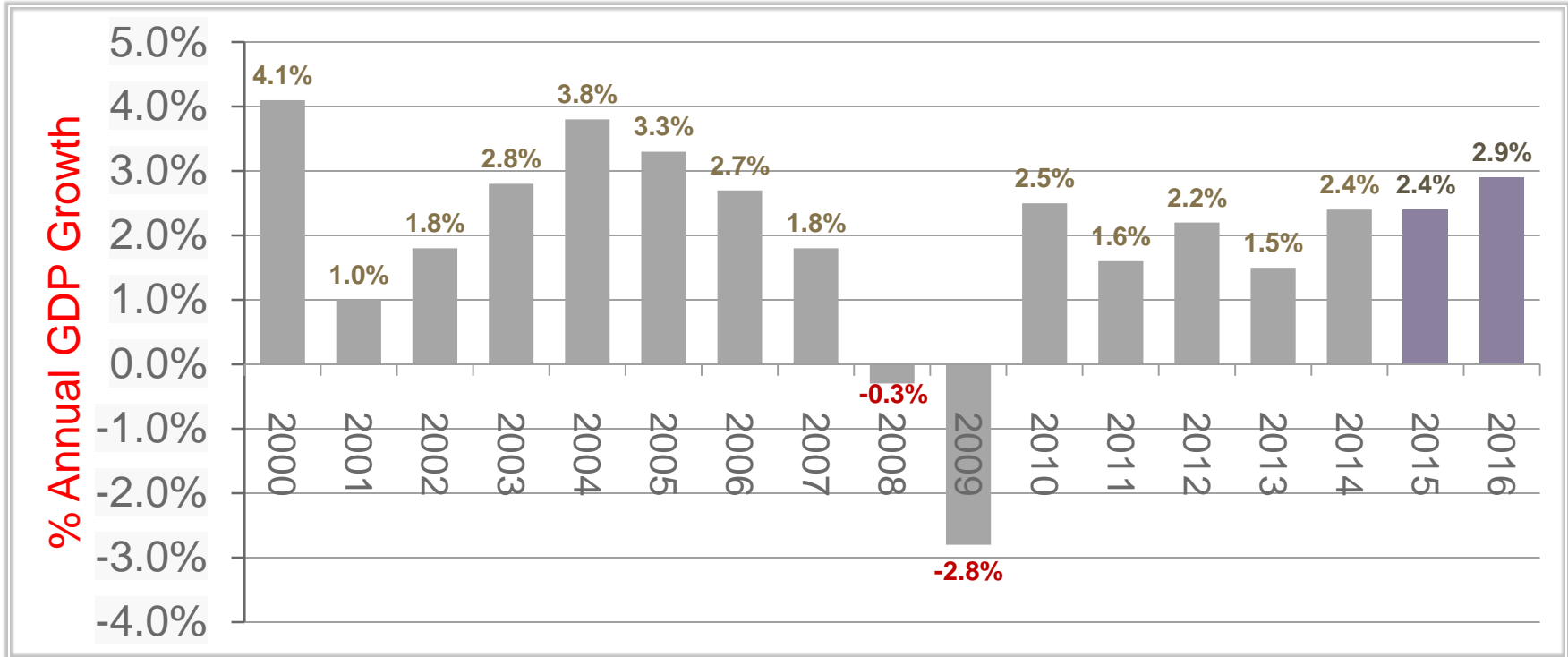
Topics for Discussion

- Key indicators
- Key steel consuming markets
- Steel consumption trends
- Global steel market and raw materials
- Questions

U.S. Gross Domestic Product (GDP)

Real GDP Growth vs. Prior Years 2000-2014, Forecast 2015-2016

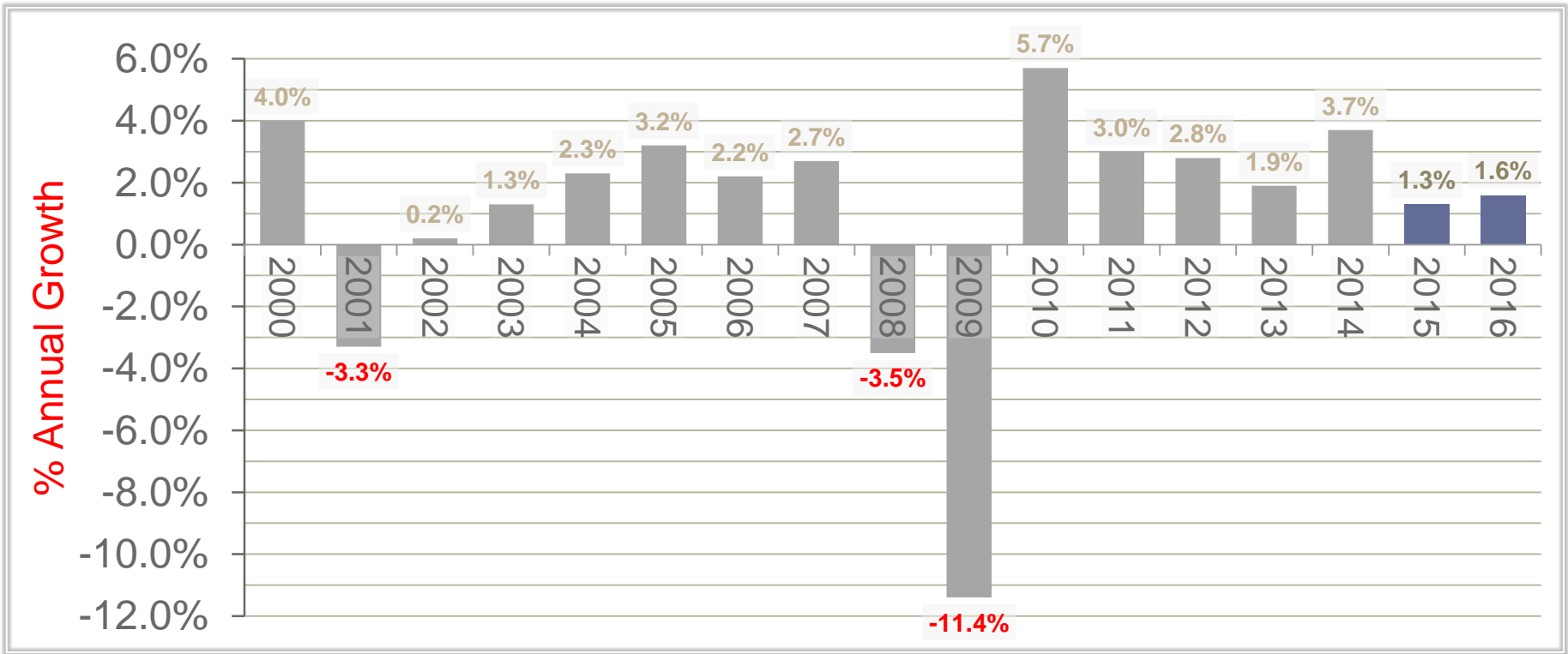
Source: U.S. Department of Commerce; September Blue Chip for 2015-2016 forecasts.



Industrial Production Index (IP)

Percent Change in Index vs. Prior Years 2000-2014, Forecast 2015-2016

Source: U.S. Federal Reserve Board; base year for index 2007: September Blue Chip for 2015-2016 forecasts.

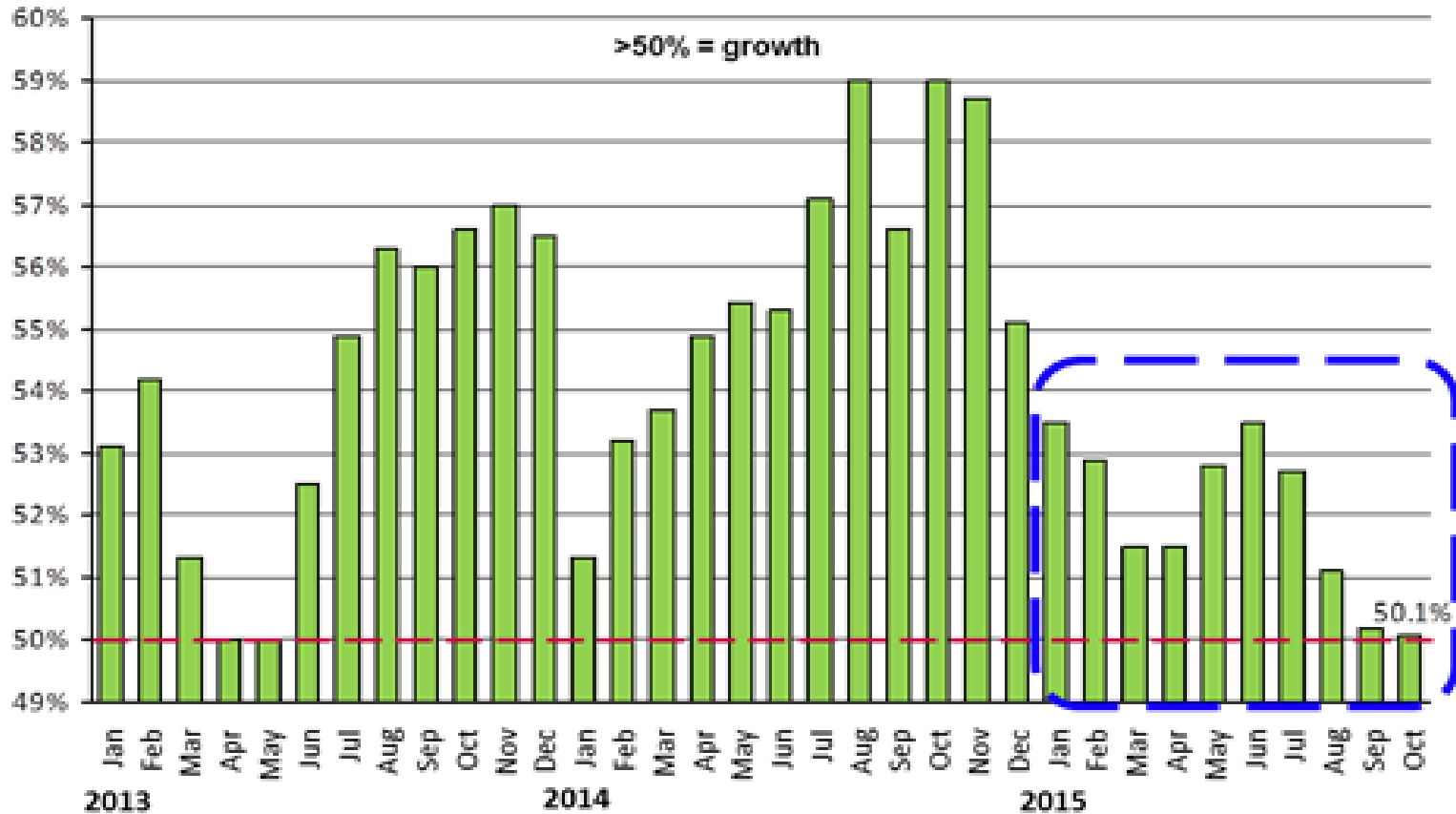


- IP has had stronger growth than the economy as a whole throughout this recovery period. However in 1H15 this trend ended as no growth was recorded in the 1Q15 IP (+0.1%) and the 2Q15 IP index contracted (-1.4%). The causes were bad weather (a factor in 1Q15), a strong dollar and reductions in oil drilling activity.
- After contracting in 1H15 vs. December 2014 index data, IP is forecast to grow in 2H15 and into 2016, Consumer spending should drive growth in 2015 and 2016 while declines in drilling activity are moderating



Manufacturing Index

ISM Manufacturing PMI



Key Steel Consuming Markets



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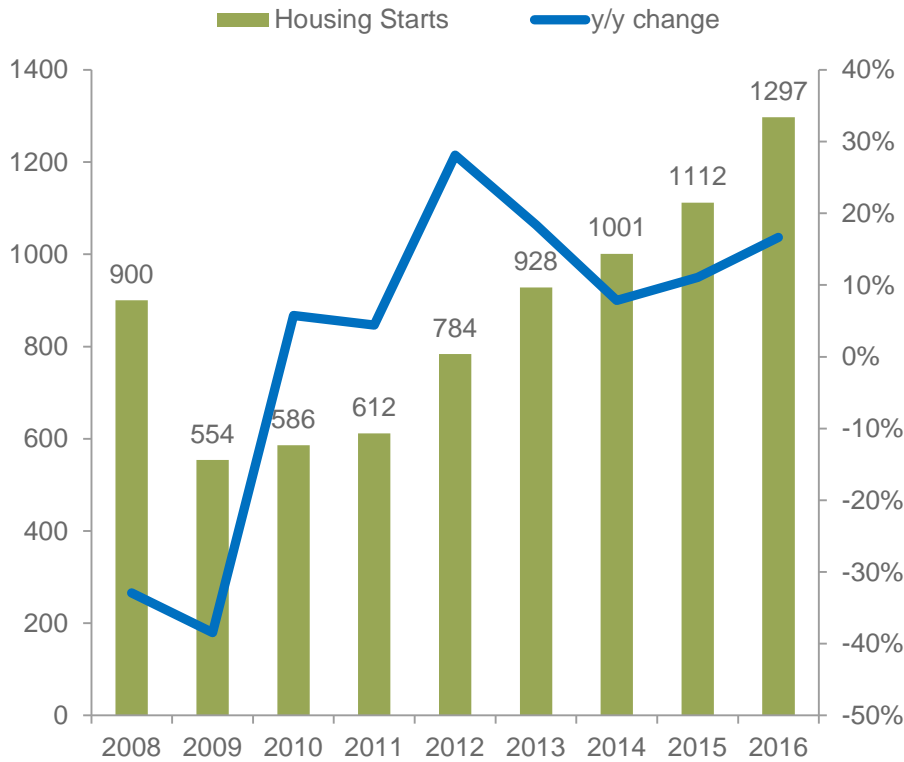




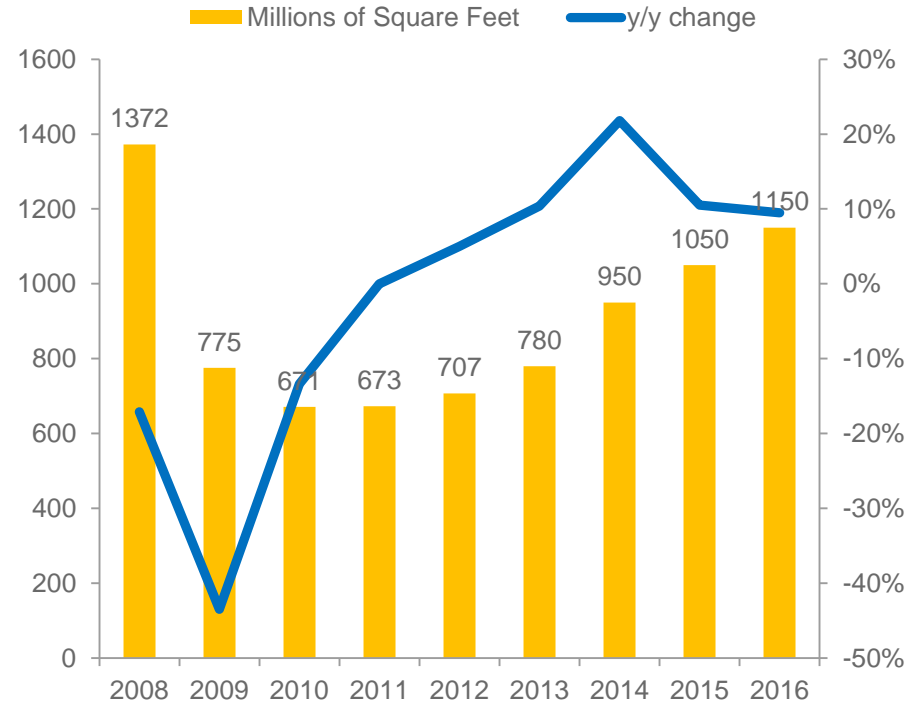
Construction

Housing Starts

'000 units, SAAR

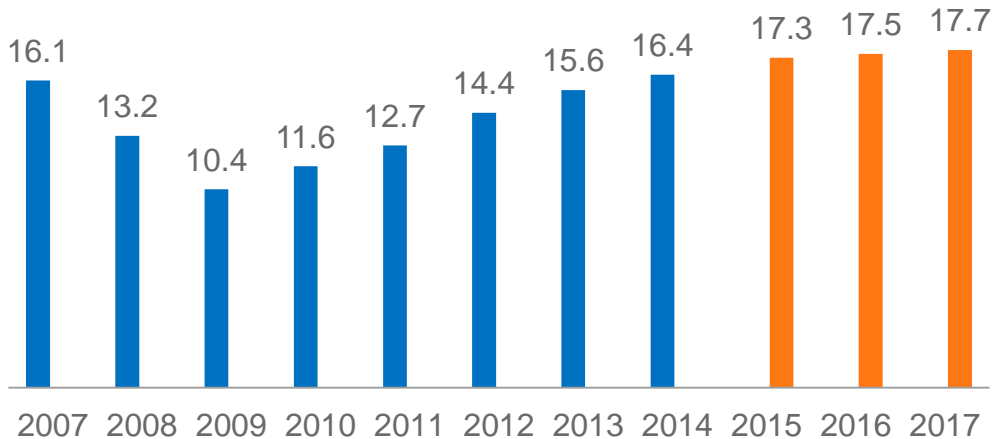


Nonresidential Building Square Feet

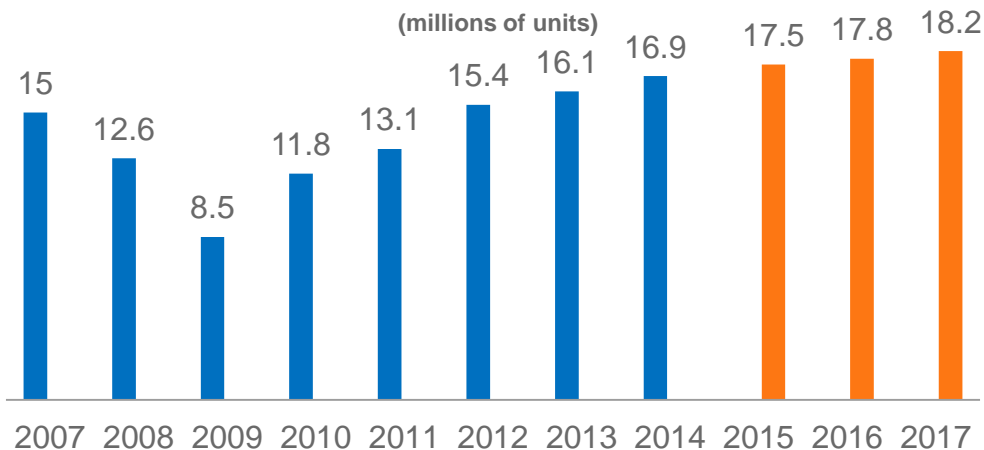


Source: Global Insight, Nov 2015

US Auto Sales (millions of units)



North America Auto Production



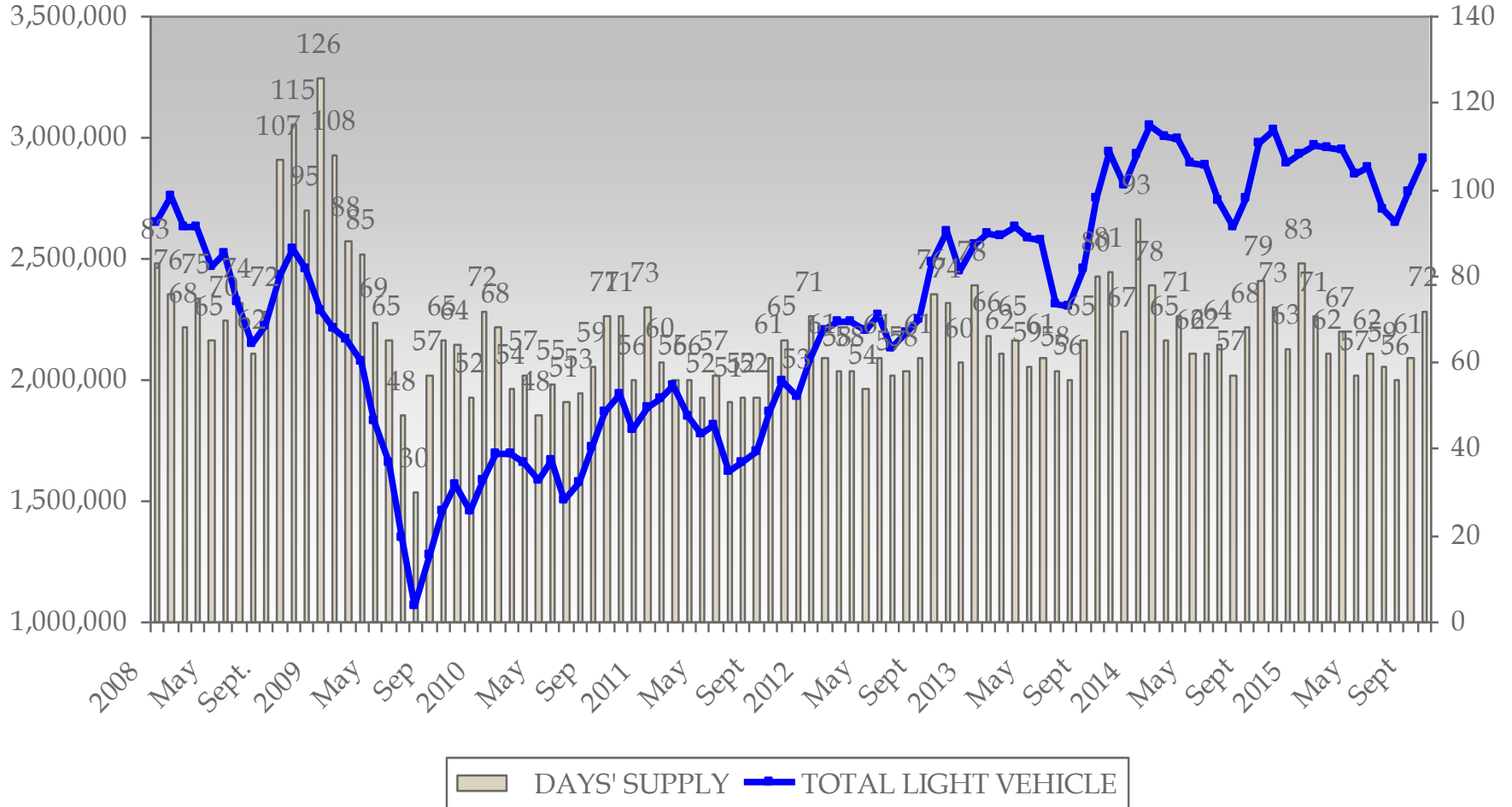
- Pent-up demand from the recession is not expected to be exhausted until 2016/2017.
- The average age of vehicles on the road is now over 11.5 years. The fleet is old and needs to be replaced.
- Fleet sales were low from 2009 through 2012, adding to pent-up demand.
- Auto credit markets are improving, slowly. OEMs will initially absorb the effect of interest rate increases.
- As the housing market improves demand for pickup trucks is improving.
- While gasoline prices are high, improved fuel economy of new vehicles has become a positive for sales. OEMs offer more high mileage vehicles than in the past.
- Although the unemployment rate is not improving significantly as the economy continues to expand the workforce is increasing every month and this adds to demand for new vehicles.
- 2015 will be record production for NAFTA

U.S. Auto Inventories



Light Vehicle Inventory - Units

Light Vehicle Inventory - Days Supply



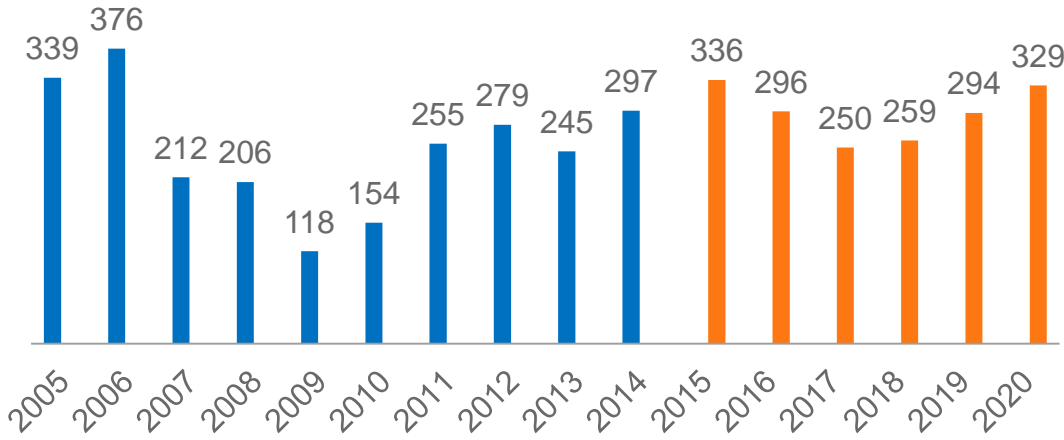
Source: Wards Automotive

Heavy and Medium Duty Truck

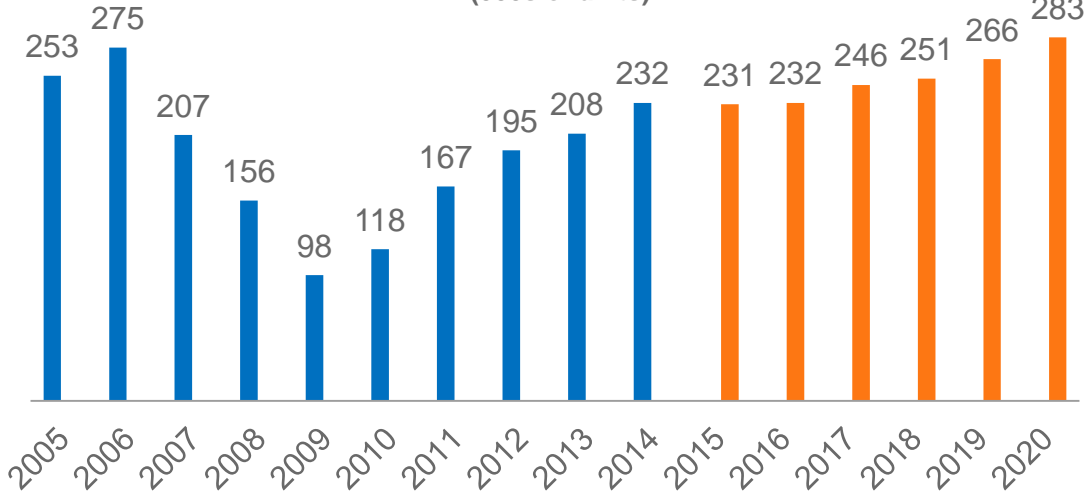


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Class 8 NAFTA Truck Production
(000s of units)



Class 5-7 NAFTA Production
(000s of units)



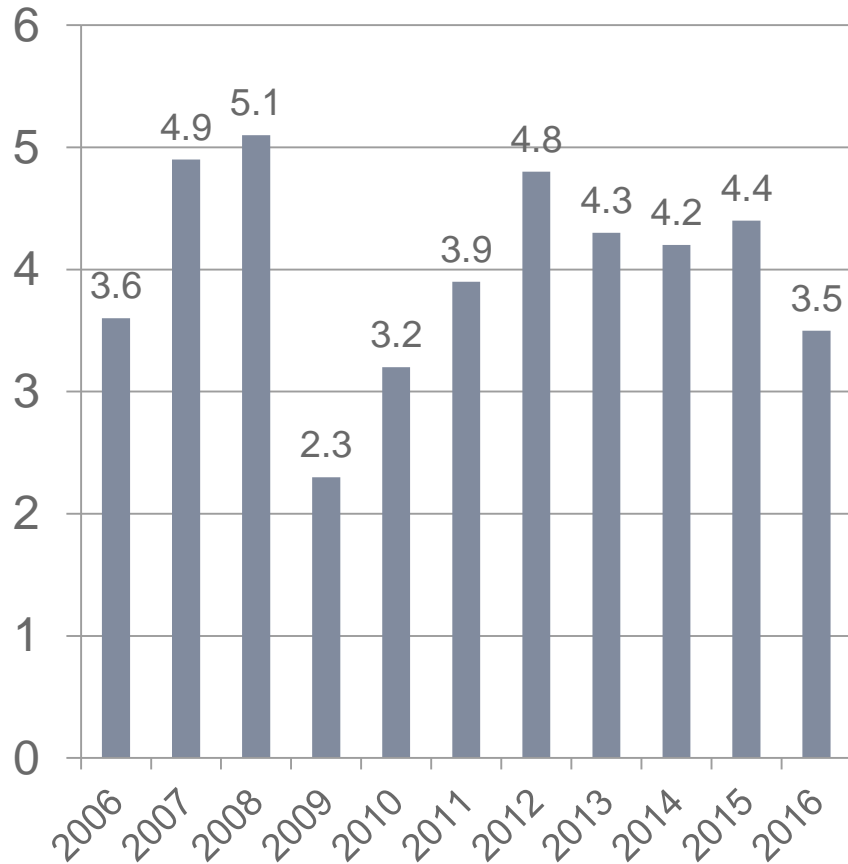
- The driver for class 8 truck demand is GDP growth.
- Truck demand is strong, capacity is limited, and trucker profitability is strong, but we are approaching the peak of the cycle.
- Demand has stopped growing. Cutbacks in energy have been high. Drop in steel shipments have been felt by the truck industry.
- As demand falls profitability will fall.
- High prices for used trucks will help demand for new trucks over the next few years.
- Government regulation continues to reduce capacity and this will offset some of the lost demand from a slowing economy.
- Driver shortages also continue, helping to reduce capacity.
- The next EPA mandate will be in 2020. We expect a few slower year before there is a strong buy forward in 2019 and 2020 to beat the government mandate.
- Another CAFÉ is expected in 2021.

- The driver for medium duty truck demand is consumer spending.
- The forecast is just now approaching the replacement level over the next few years. Growth will continue to be slow and steady.
- Recovery in the housing market will support continued growth over the next few years as the heavy duty market tapers.
- Forecast includes bus and RV

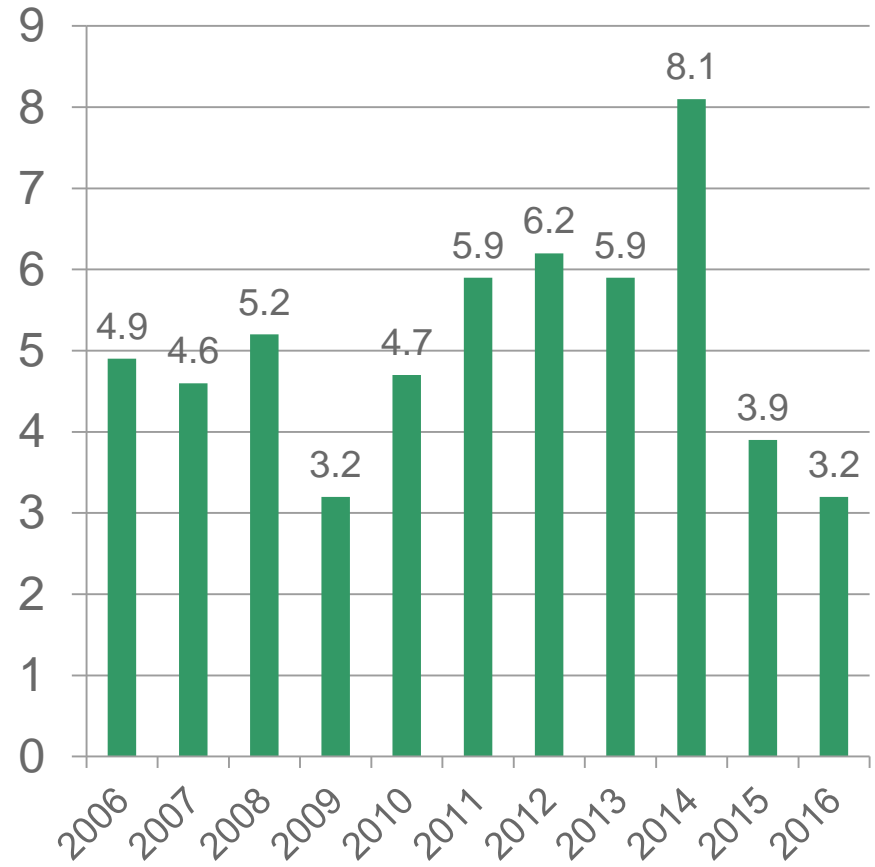
USA Energy Market Steel Demand

(millions of tons)

line pipe



OCTG



Totals:

2014 - 12.3

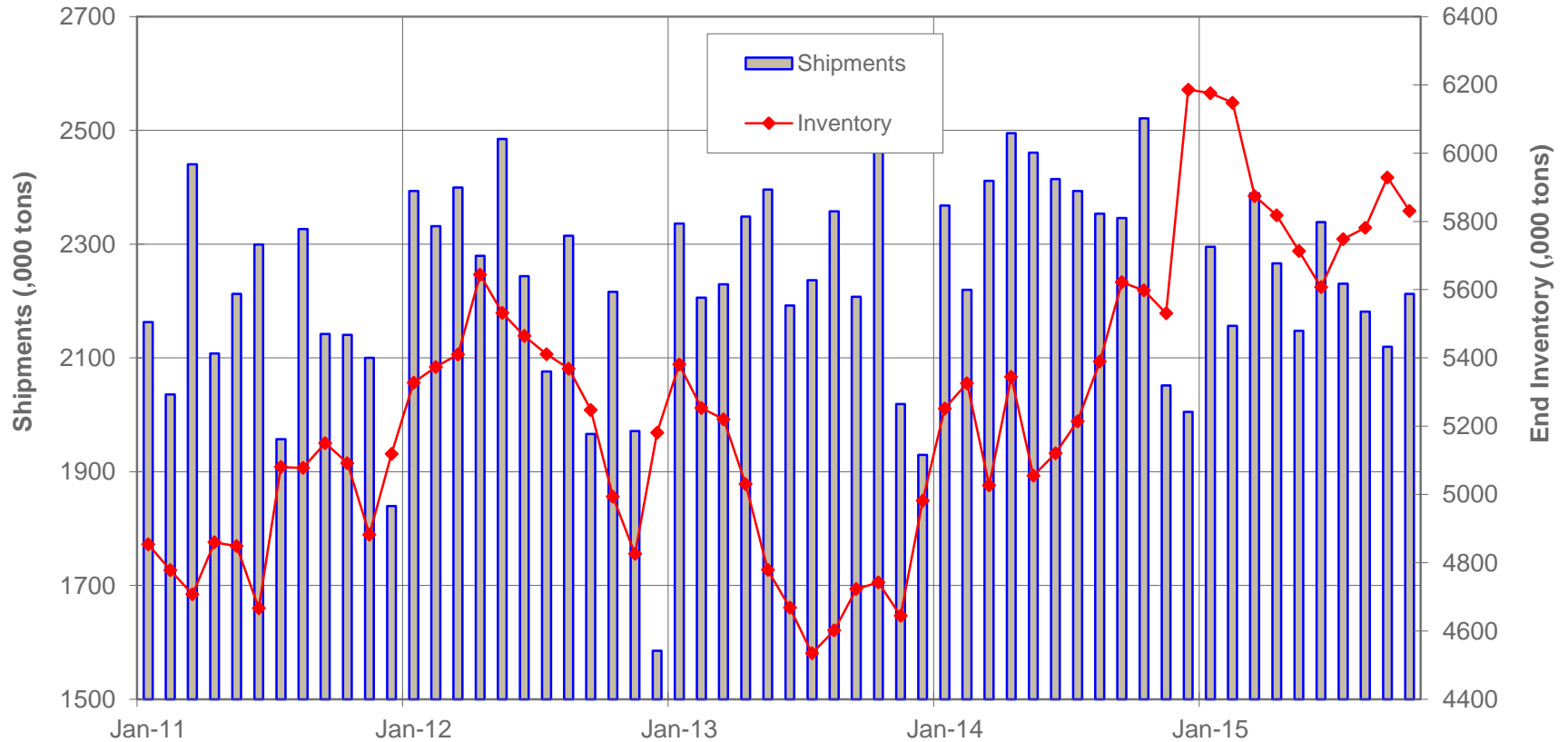
2015 - 8.3

2016 - 6.7



USA Service Center Data: Carbon Flat Roll Shipments & Inventory

Service Center Monthly Shipments and Inventory

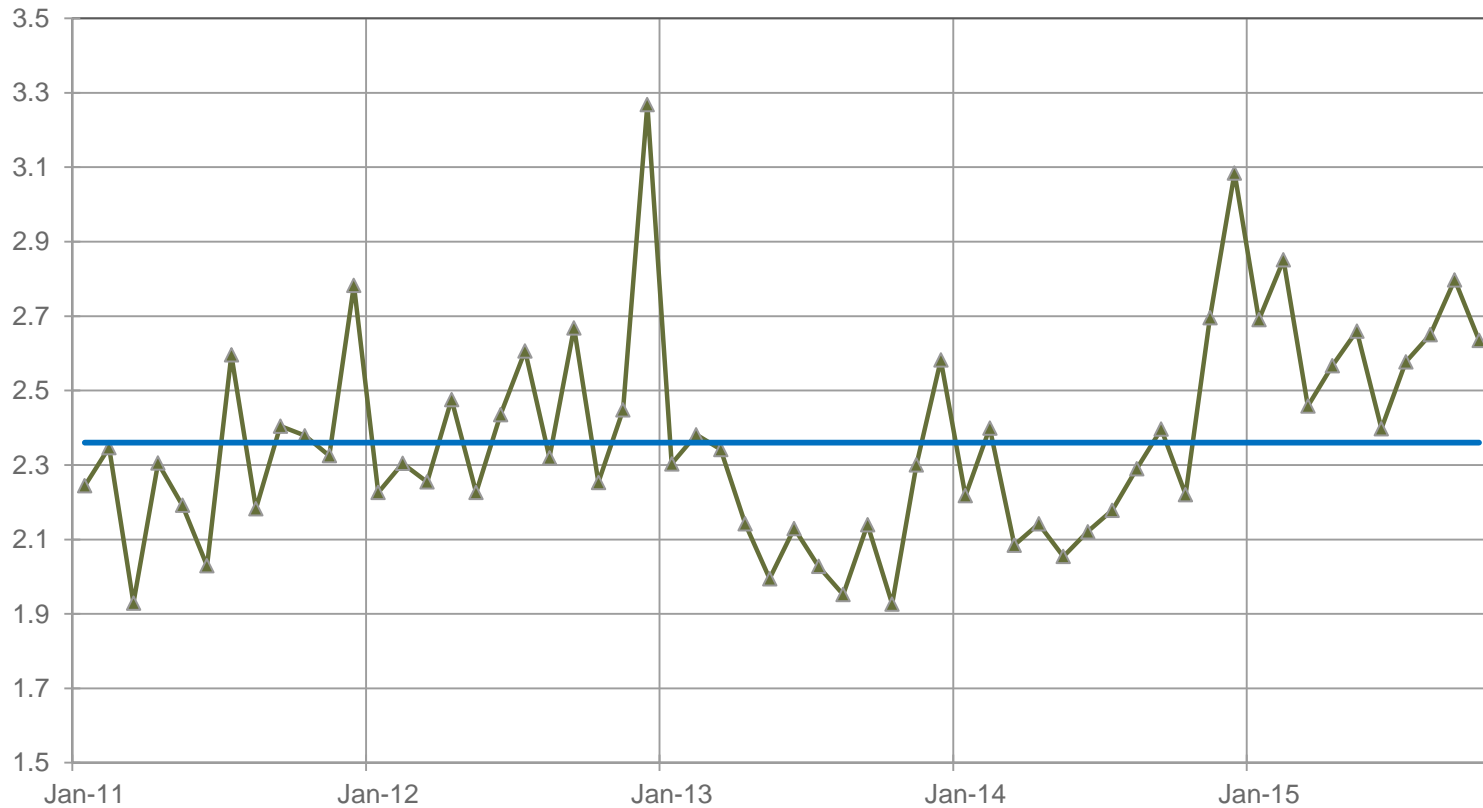


Source: MSCI

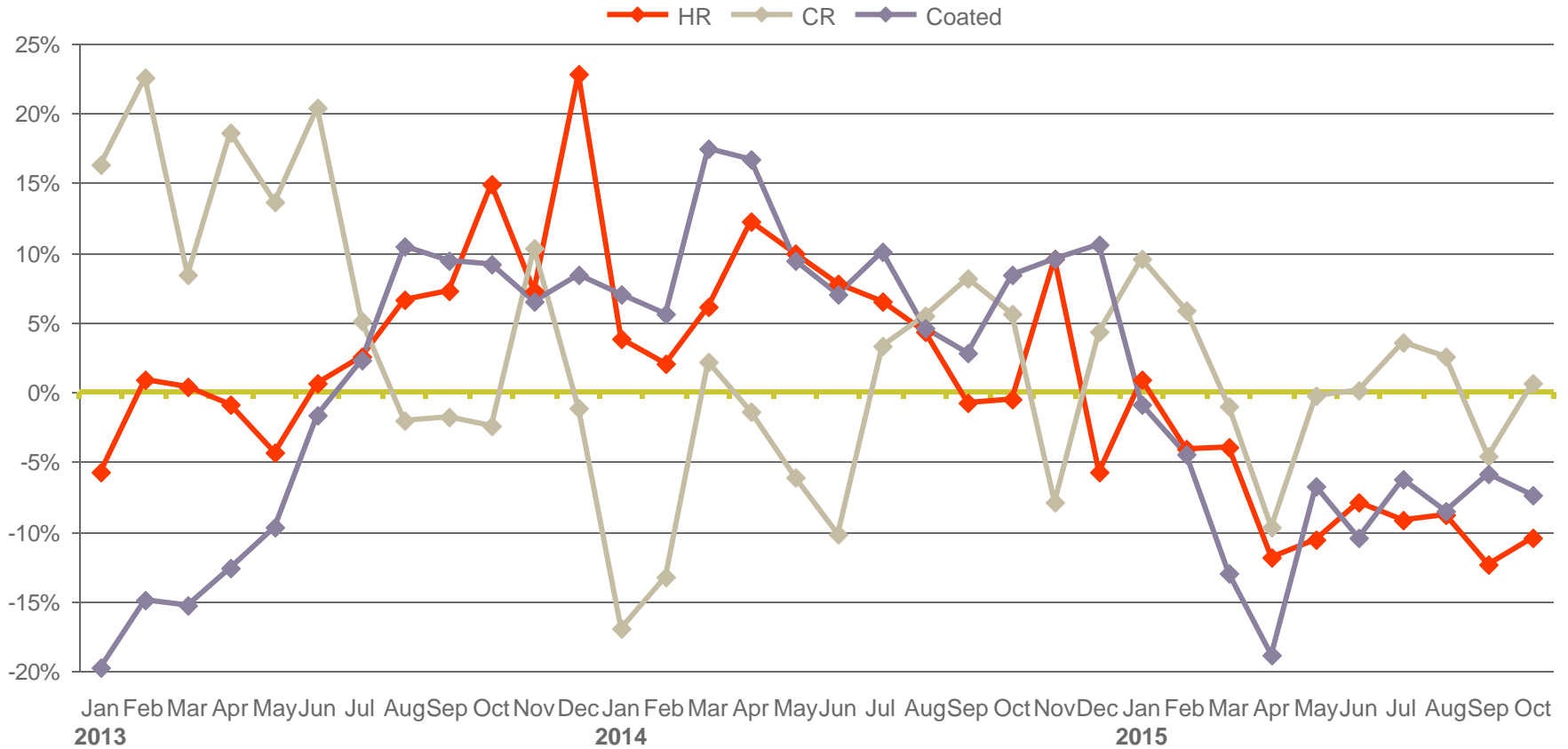


USA Service Center Data: Carbon Flat Roll Months-on-Hand

Months on Hand



Flat Roll by Product - Average Daily Shipment Rate: Y/Y % Change



Shipments	HR	CR	Coated	Total LFR
Jan-Oct 2014	14,931	3,022	6,029	23,983
Jan-Oct 2015	13,753	3,054	5,530	22,337
Diff: Tons	-1,178	31	-499	-1,646
Diff: %	-8%	1%	-8%	-7%

Source: MSCl

Steel Markets Direction in 2016



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Auto	
Residential Construction	
Non-residential Construction	
Machinery	
Appliance	
Electric motors	
Infrastructure	
Energy	
Steel Inventories	

- There is no expectation that we will see robust growth any time soon. Most steel market are still slowly recovering from the recession.
- Auto will increase slightly in 2016 as the offset of the F150 is behind.
- Non-res will add about 2 million tons of demand in 2016.
- Energy activity will continue to drop but not as much as in 2015.
- Steel inventories start the year high, will draw in Q1 and should add to demand as the year progresses.

Source: AMUSA analysis



USA Apparent Steel Consumption

	Millions of short tons	% change
2013	106	1%
2014	118	12%
2015	114	-3%
2016	116	2%

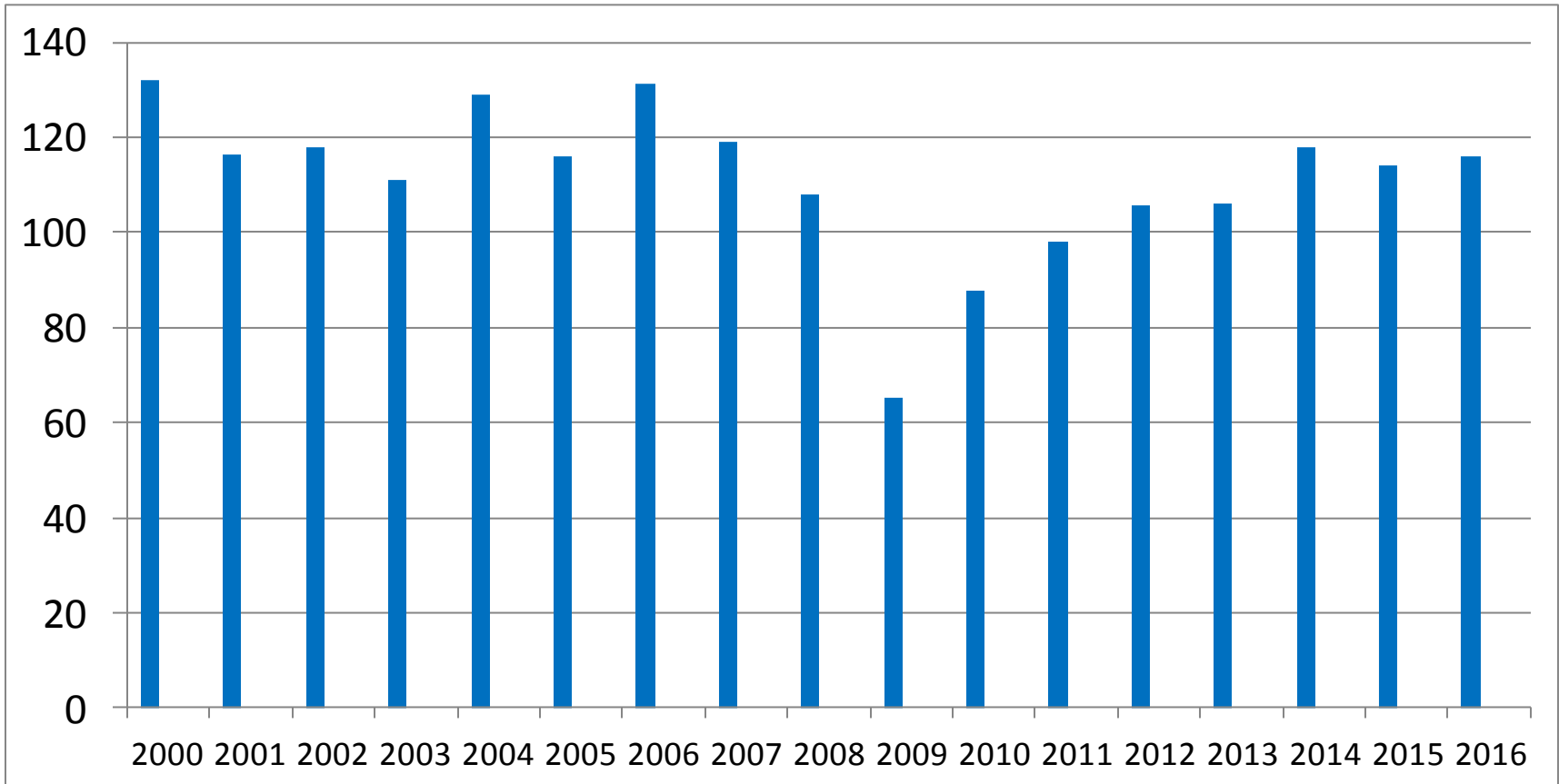
- About 3 million tons of the 2014 increase was an inventory overbuild due to a late year surge in imports.

USA Apparent Steel Consumption

million of short tons



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Drop in ASC in
select recessions

- 1953 – 22%
- 1957 – 22%
- 1973 – 23%
- 1981 – 27%
- 2009 – 41%

Source: AISI, AM Marketing

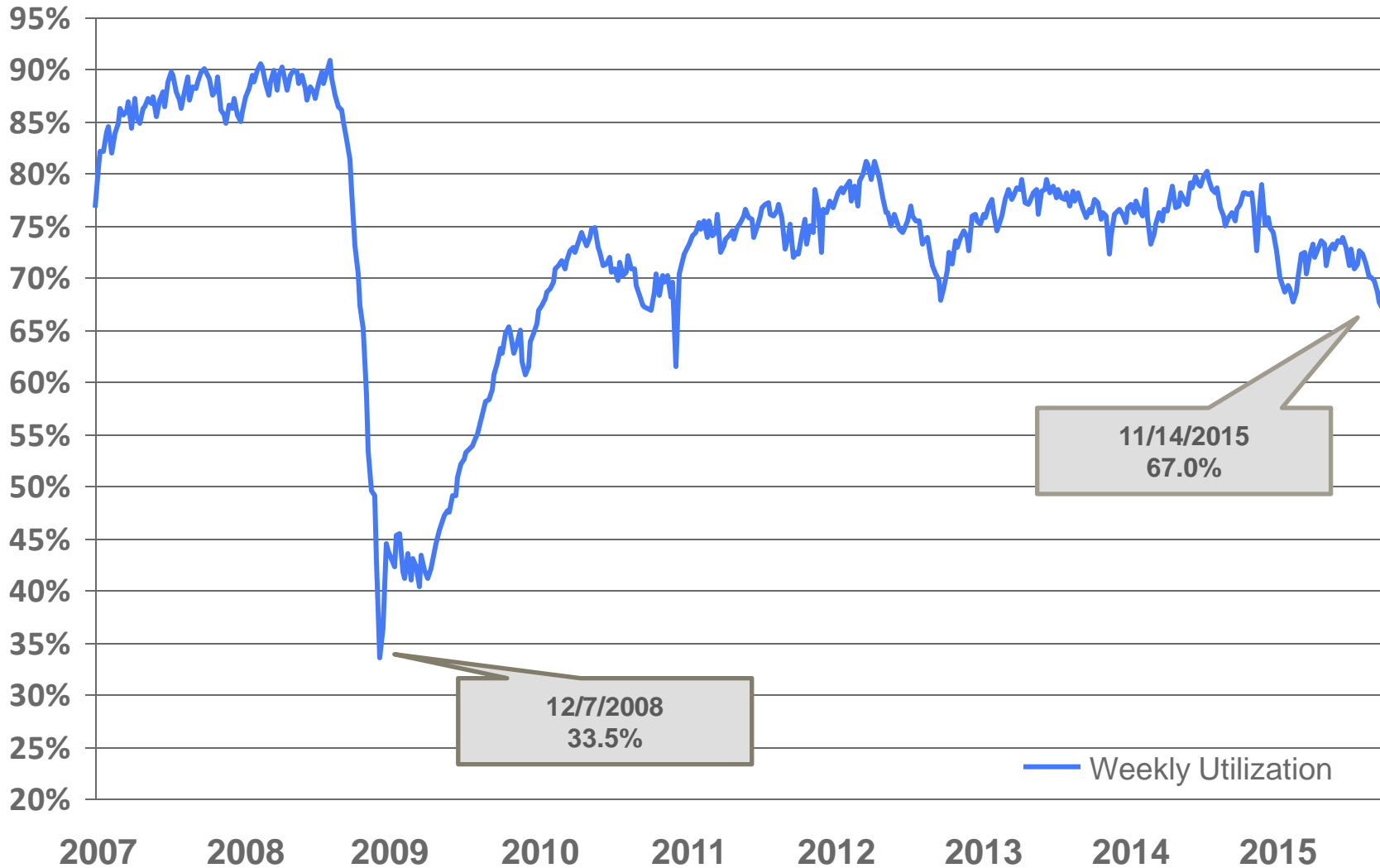
Steel Consumption Trends



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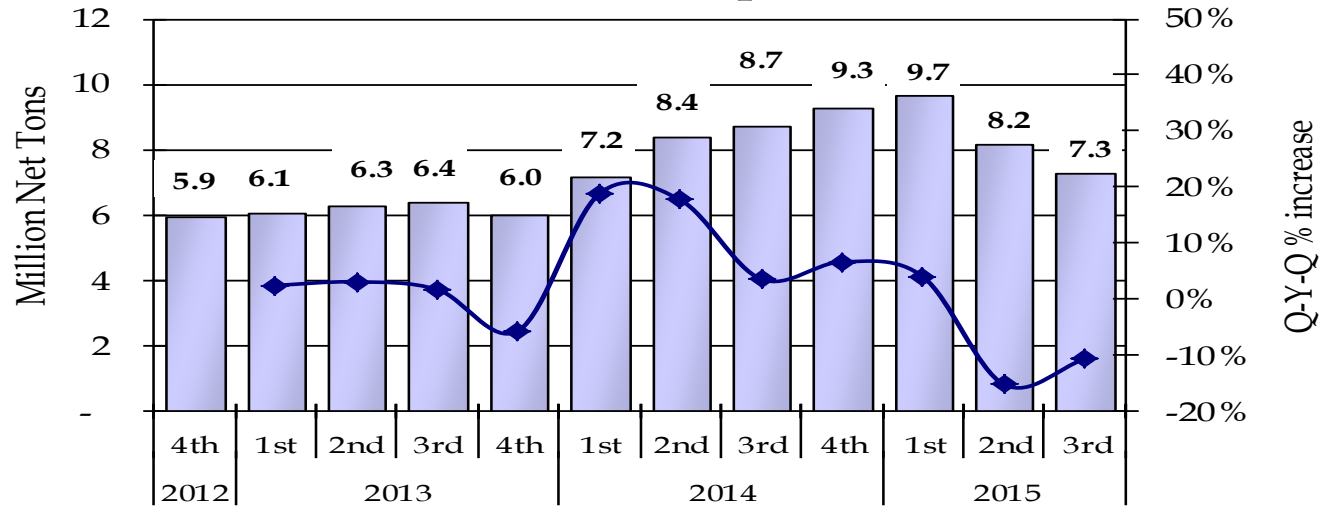


Weekly US Raw Steel Production Capacity Utilization

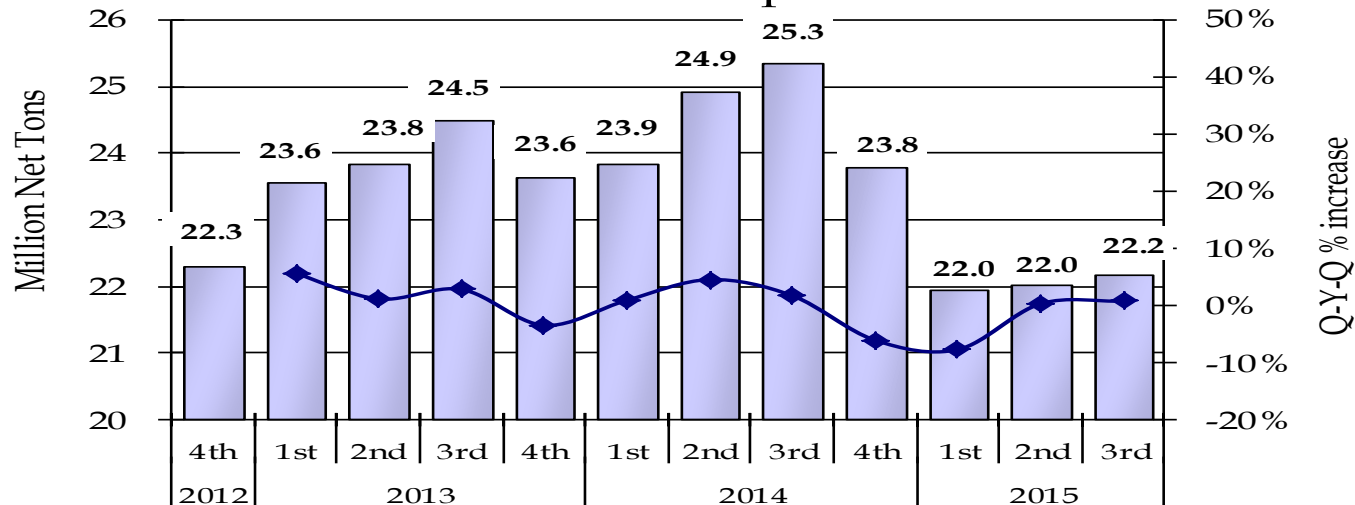


Steel Imports and Shipments

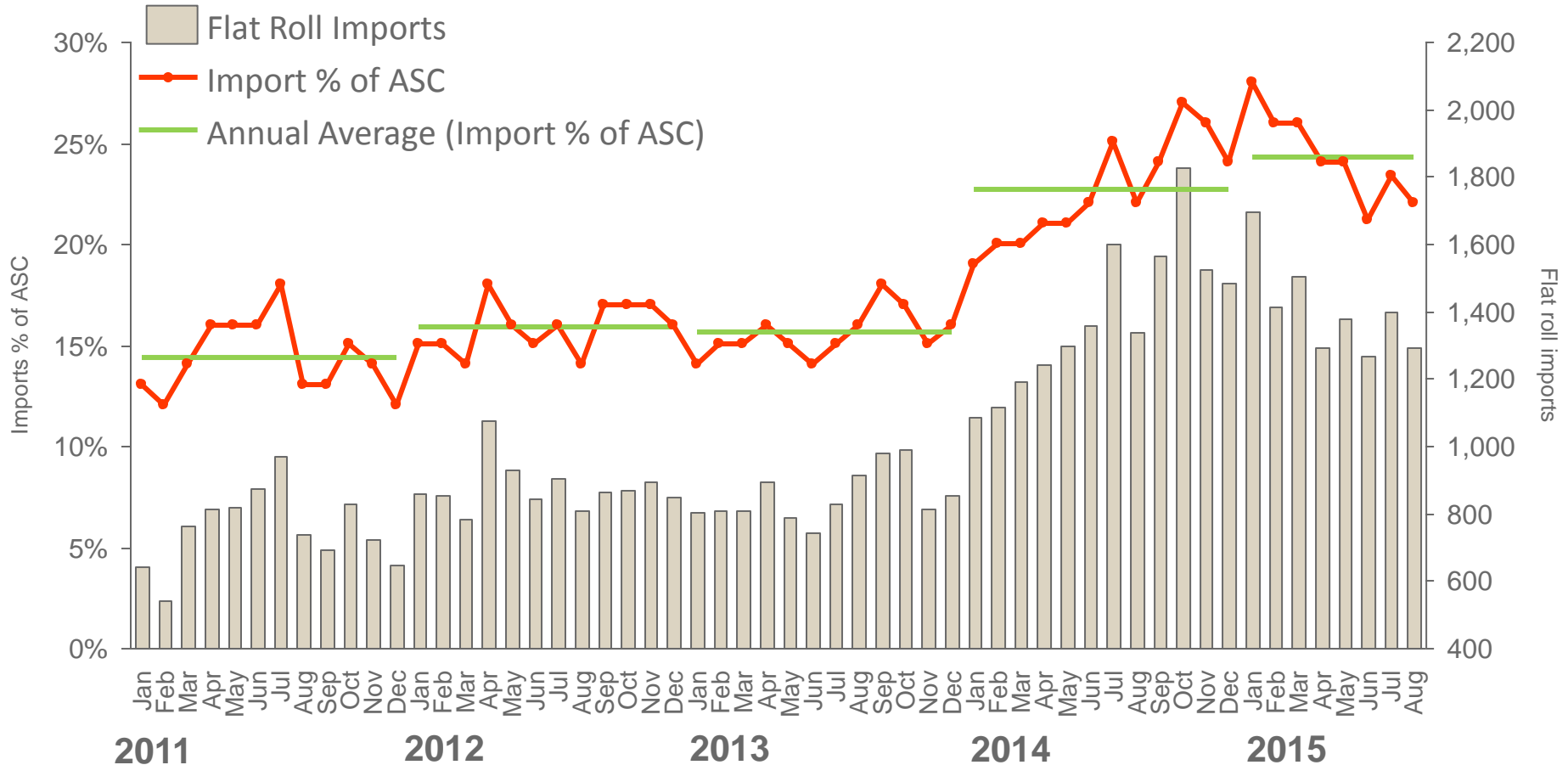
Finished Imports



Domestic Shipments



U.S. Flat Roll Imports and Import % of ASC (Carbon & Alloy)



Year	2011	2012	2013	2014	2015 YTD (Aug)
Avg Imports % of ASC	14.3%	15.9%	15.6%	22.7%	24.3%

Source: AISI.

Trade Cases and Sunset Reviews

Trade Cases:

- Welded API Line Pipe – Filed 10/16/14 – USITC Final Decision in Due Nov 2015
 - Against Korea and Turkey
- Corrosion Resistant Steel – Filed 6/3/15 – DOC Preliminary Determination due Nov 2015
 - Against China, India, Italy, Korea, Taiwan
- Cold rolled Steel – Filed 7/28/15 – DOC Preliminary Determination Due Oct 2015
 - Against Brazil, China, India, Japan, Korea, Russia, UK
- Hot rolled Steel – Filed 8/11/2015 – DOC preliminary Determination Due Nov 2015
 - Australia, Brazil, Japan, S.Korea, the Netherlands, Turkey, UK

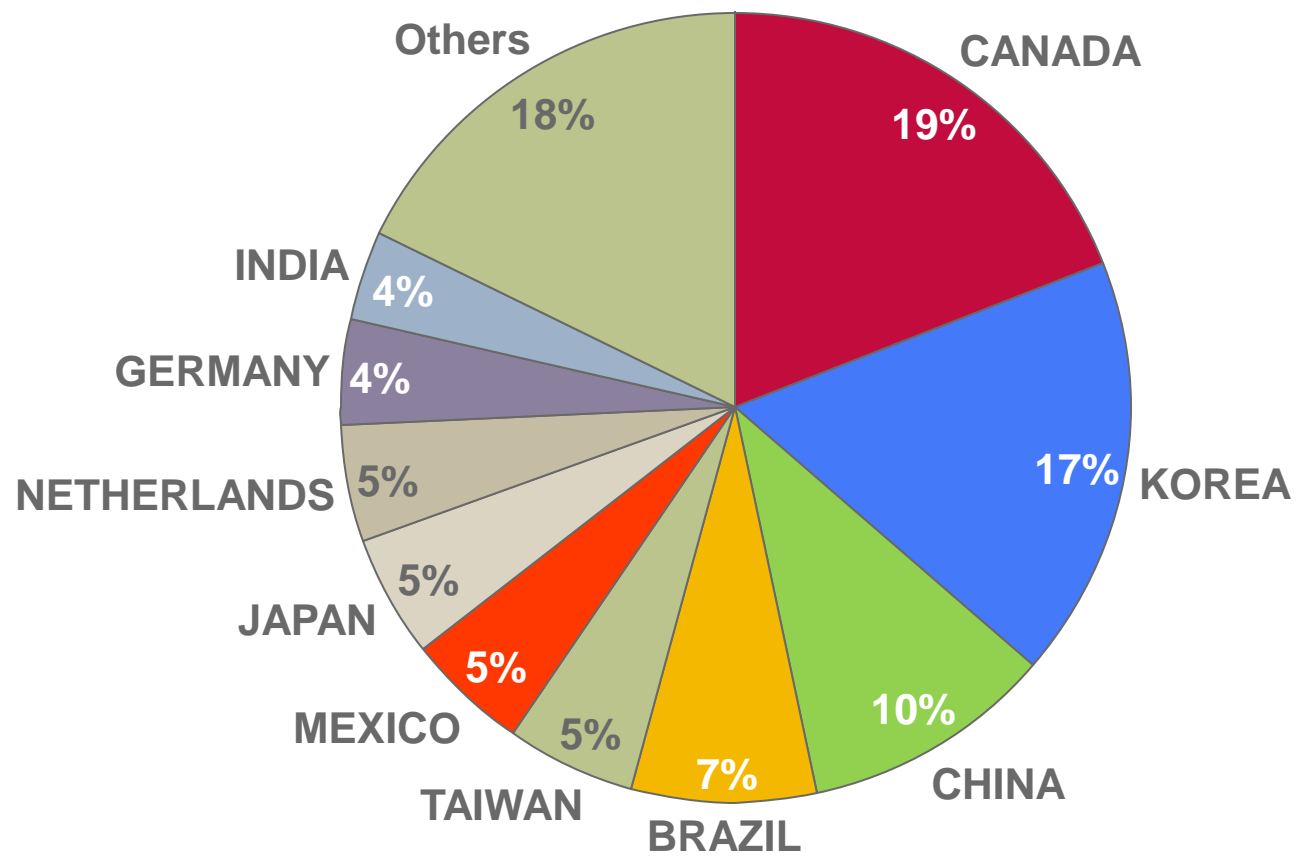
Sunset Review:

- Cut-to-length plate – Hearing in Sep – Decision Due Nov 2015
 - China, Russia, Ukraine

U.S. flat roll imports by country YTD* (Oct) in million metric tons, carbon and alloy



2015 YTD (Oct) Total: 12.33m

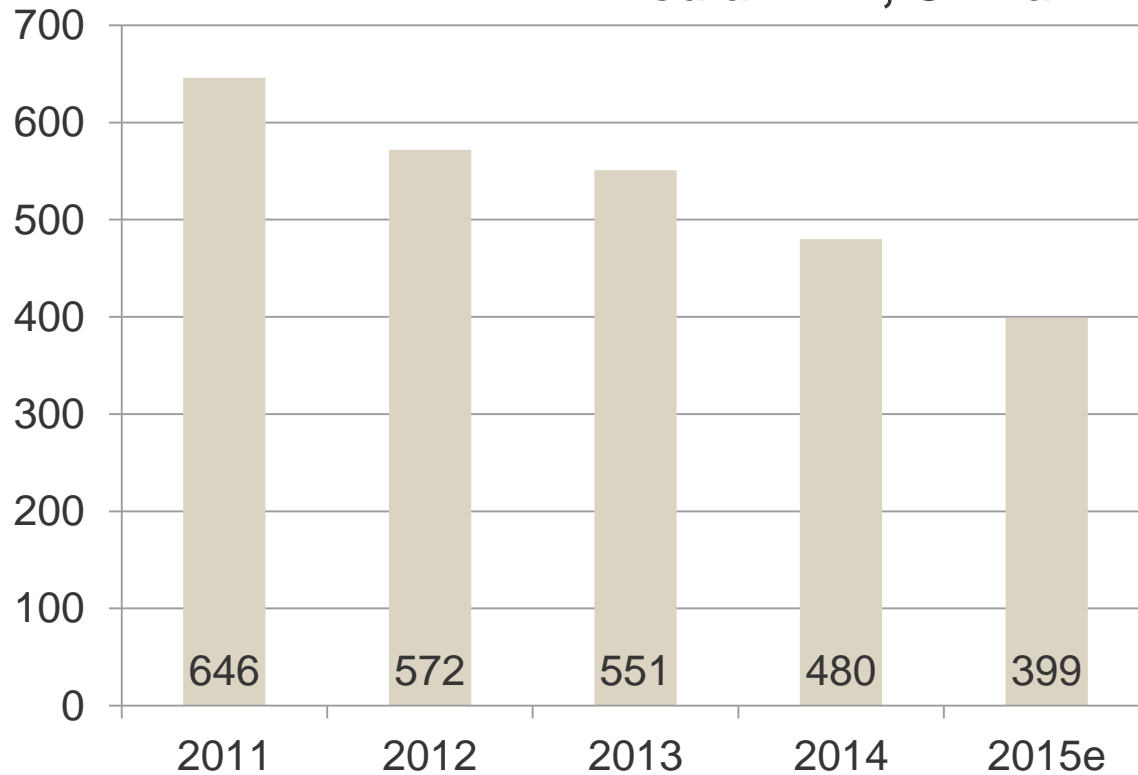


Source: SIMA, Census Bureau
* Jan-Sep actual imports, Oct Import licenses

Steel mills in China are not generating profits

USD/MT

HRB operating cost Median Mill, China



■ HR Band Operating
Cost Median Mill
Chinese

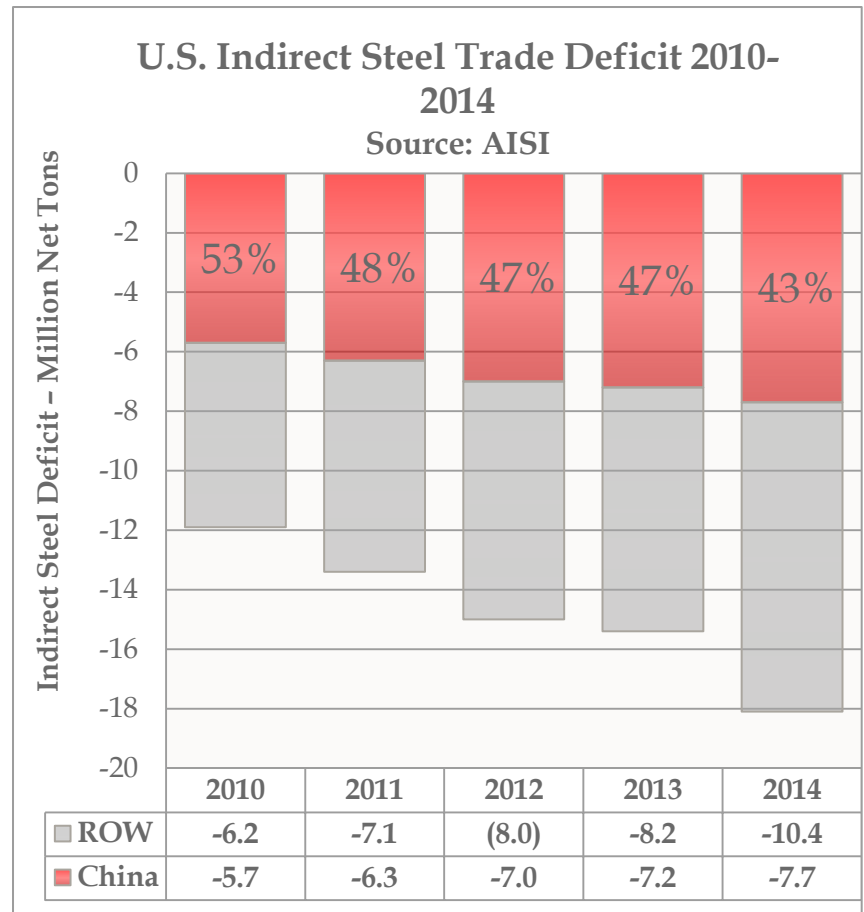
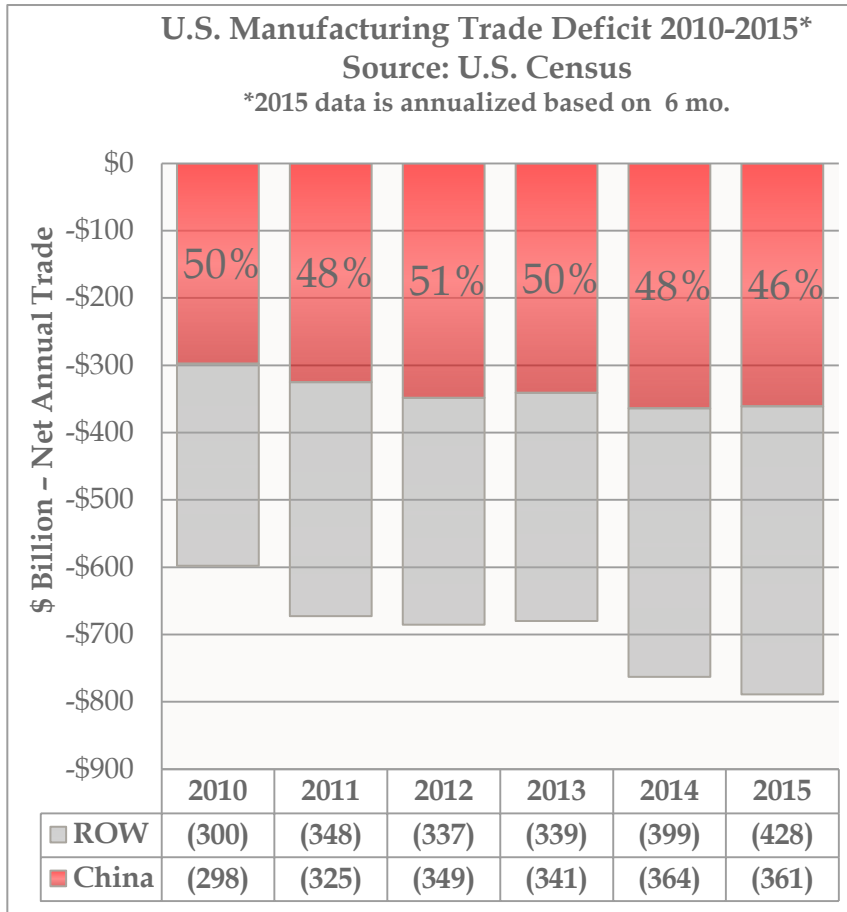
- 70% of the Chinese industry is believed to be unprofitable today
- If Chinese domestic and export prices do remain low for longer than expected, this will provide a clear basis for more trade actions

Source: WSD (operating cost) ; June 9, 2015



U.S. Manufacturing and Indirect Steel Trade Deficits

Source: U.S. Commerce Department, Bureau of the Census and AISI



Total Manufacturing Exports (annualized June YTD) are down 6% with further drops in steel intensive categories or primary metals (down 8% vs. 2014), fabricated metal products (down 3%) machinery (down 6%) and petroleum (down 30%).

Global Markets and Raw Materials



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Steelmaking Raw Material Input Costs

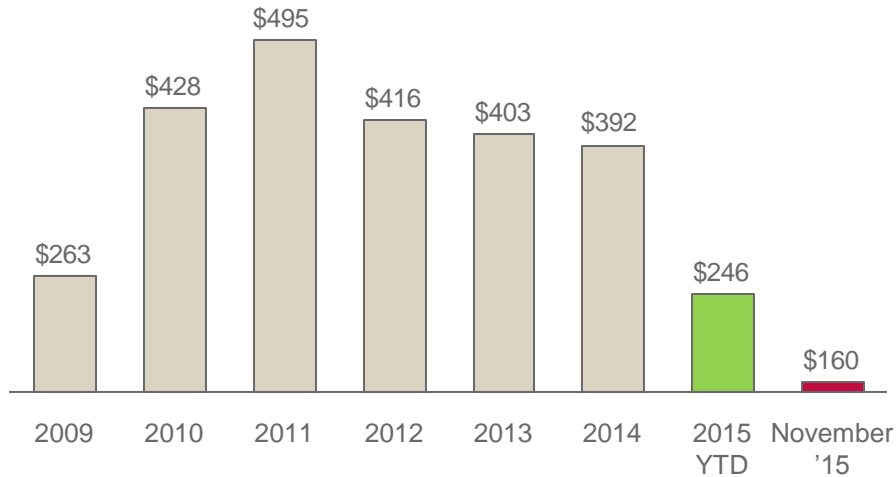
2009-2015 Averages and October/November 2015



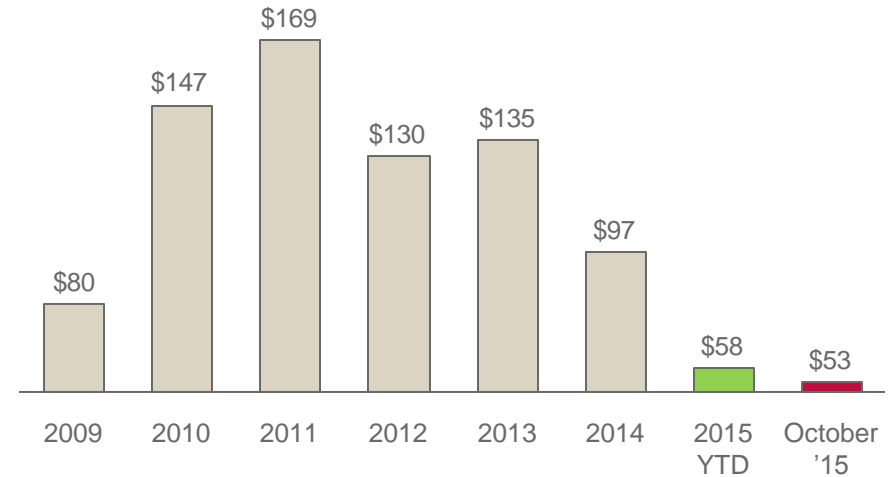
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All charts in \$ per metric ton except for Scrap

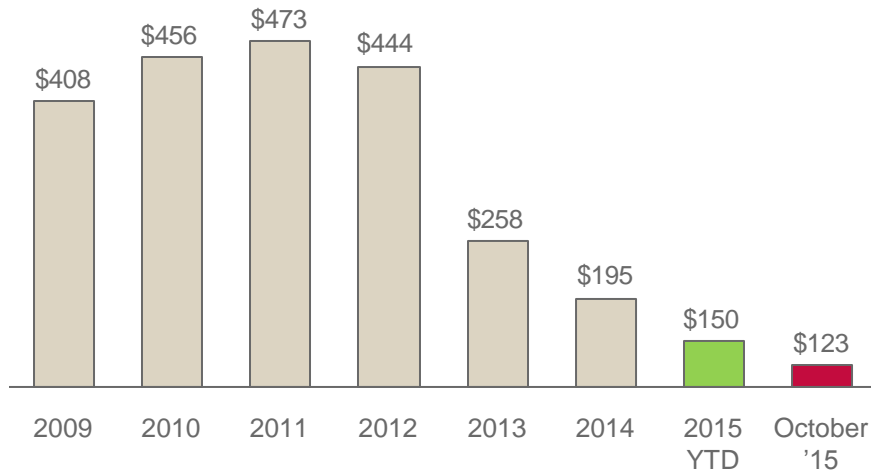
#1 Busheling Chicago Scrap AMM (\$/GT)



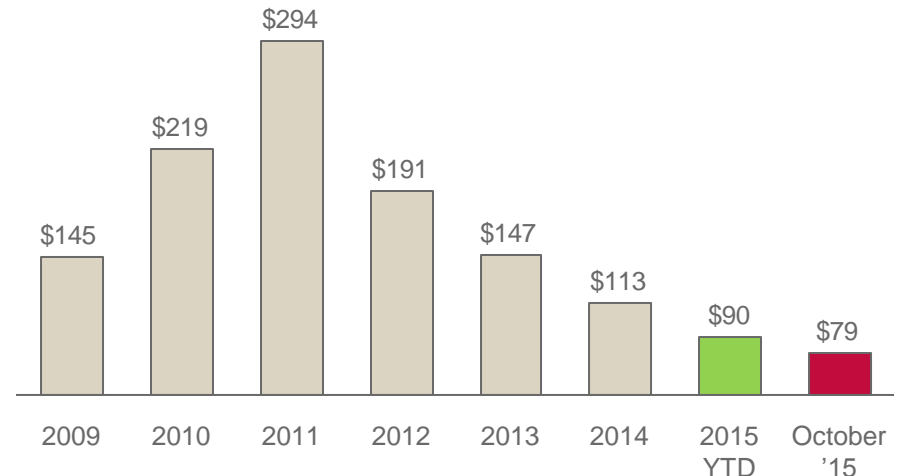
Platts IODEX 62%CFR China



Metallurgical Coke SBB/Platts



Australian Hard Coking Coal CRU/SBB



2009 – June 2012 = SBB, July 2012 - Present = Platts

Steelmaking Raw Material Input Costs

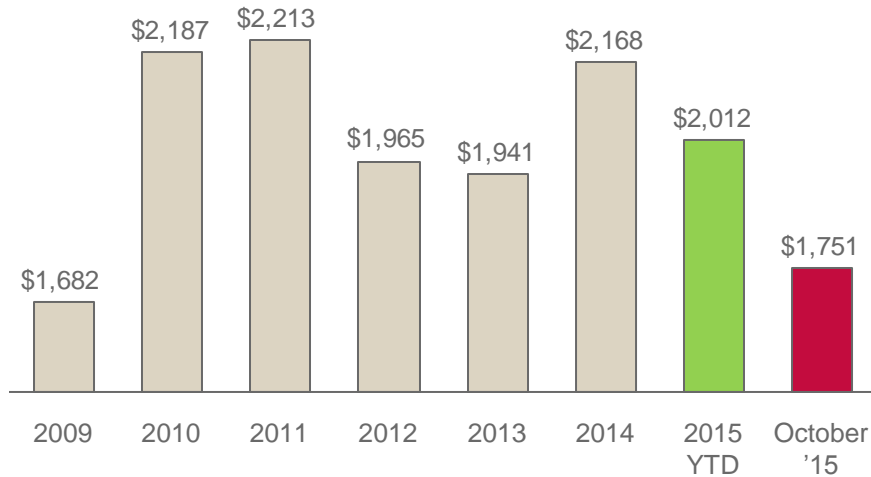
2009-2015 Averages and October 2015



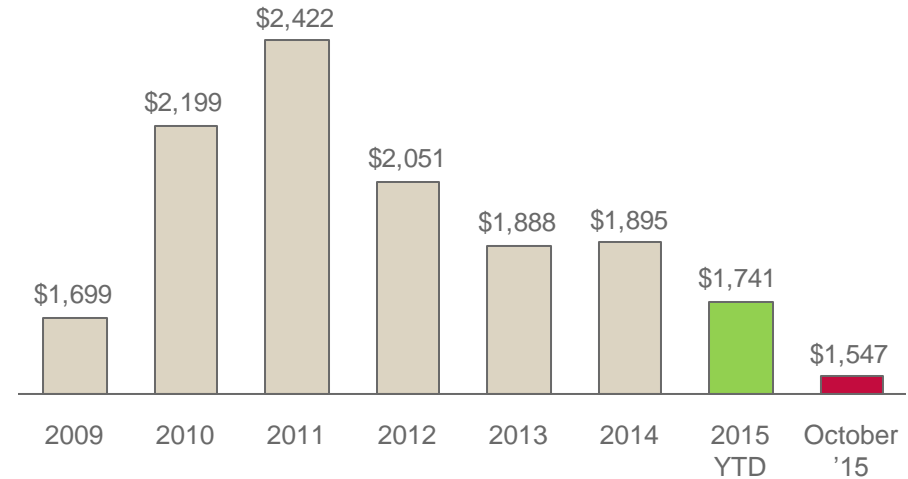
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All charts in \$ per metric ton

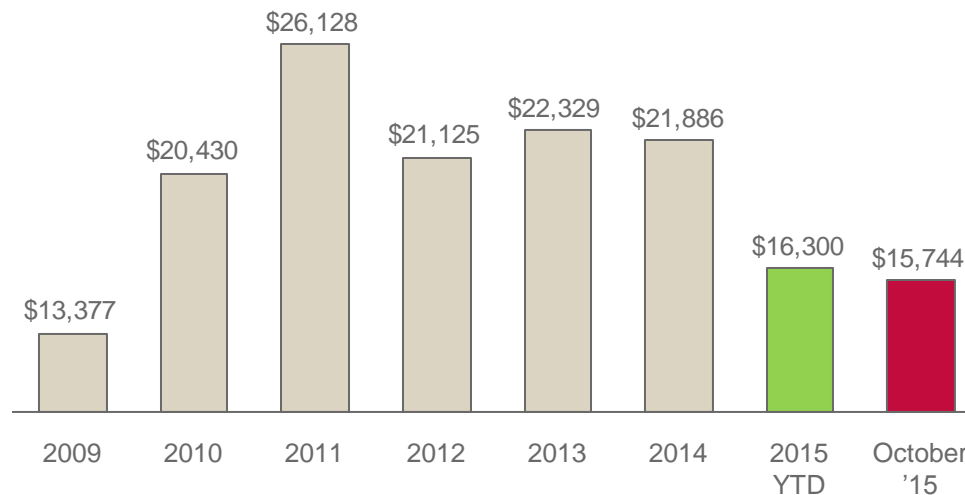
Zinc: LME



Aluminum: LME



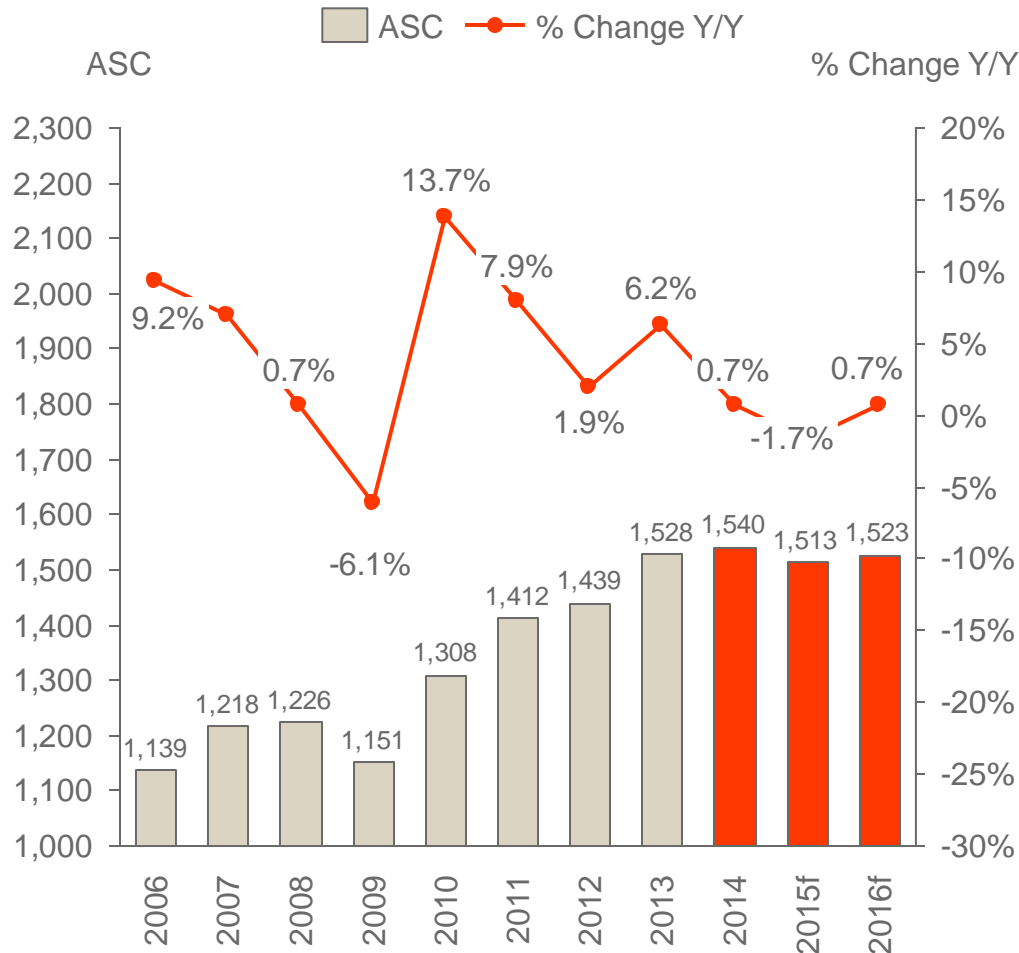
Tin: LME



Raw Materials Cost Drivers

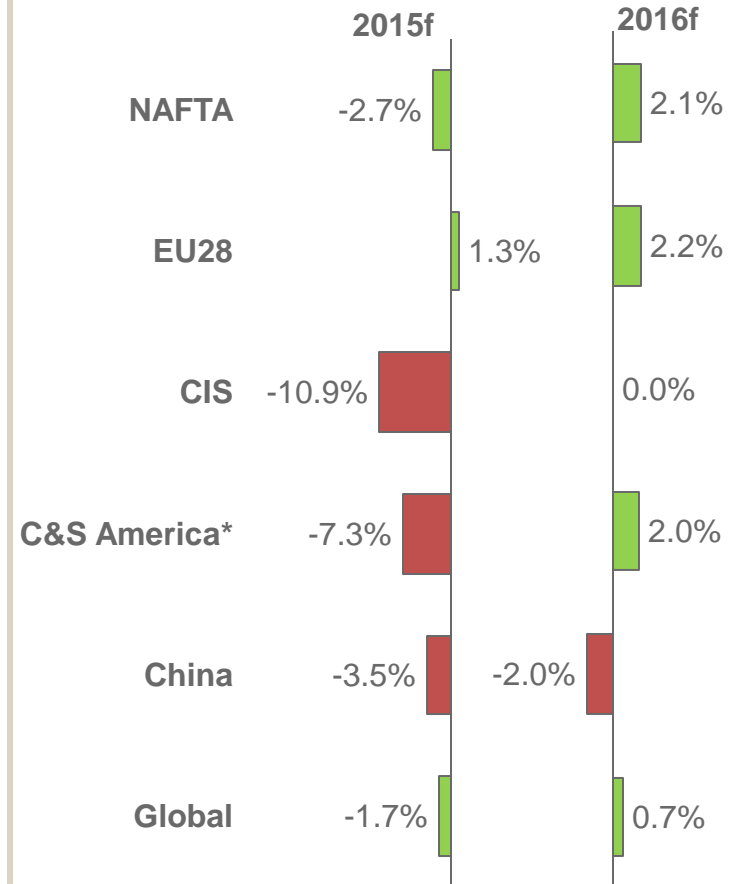
Global Apparent Steel Consumption

(Finished Steel Products) million metric tons



Global ASC Growth Forecast by Region

2015 & 2016 (% Change Y/Y)



* Central and South America



Iron Ore Market Conditions

- Cliffs Natural Resources has shuttered a Canadian mine.
- MMX Sudeste Mineraca SA, in Brazil, filed for bankruptcy production in October and as of Feb has stopped operations.
- “A slide in iron ore prices is turning the screw on China's fragmented mining sector, paving the way for closures and consolidation with three-quarters of the country's mining capacity at a loss (Yahoo Reuters March 27, 2015)
- More than 60% of China’s iron ore miners will be eliminated this year (2015), said Lei Pingxi, deputy chairman of Metallurgical Mines Associates of China (MMAC),
- Chinese iron ore production capacity; estimated average cost per ton (mmt) (source: WSD)
 - Cost: \$150/ton & up 70m tons
 - Cost: \$110 - \$125/ton 140m tons
 - Cost: \$95 - \$110/ton 140m tons
 - Cost: \$85 - \$95/ton 100m tons
 - Cost: less than \$80/ton 155m tons
 - Total 605m tons



Summary

- U.S. growth is still slow in several markets
- Auto is outstanding; how long will it last
- Global growth is slow in several markets
 - China soft landing
 - Europe political risk & instability
- Longer term impact on raw materials will still need to shake out
 - Adjustments in market fundamentals should be expected
- Questions