



Applied Value Quarterly Steel Report

Q4 2019 Report

October, 2019

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Applied Value is a management consulting & investment firm founded on the principles of lean growth and entrepreneurship.

1997

Background as an internal consultancy and change agent within the Swedish **Stenbeck Group...**



2019


...today, a hands-on consultancy supporting clients **across industries**

Industries of Expertise


- Telecom & Media
- Chemicals & Process
- Industrials & Engineering
- Consumer Goods
- Automotive




Lean Growth Principles



Investments











Management Consulting






Social Responsibility


Selected portfolio companies






APPLIED VALUE







ROI driven




Fact-based



Practical over theoretical



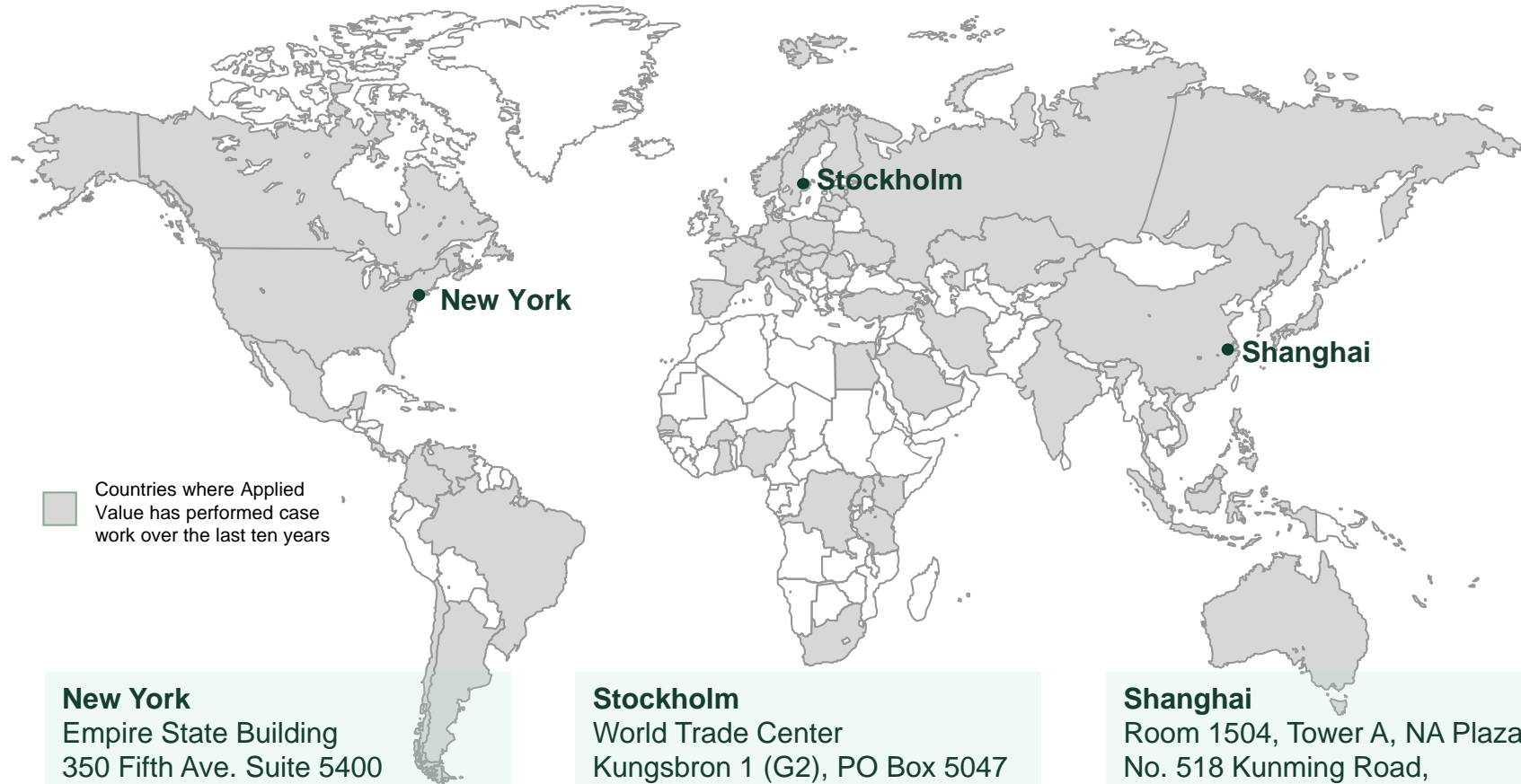
Hands-On



Global perspectives



Applied Value challenges and supports repeat global clients across industries from three offices.



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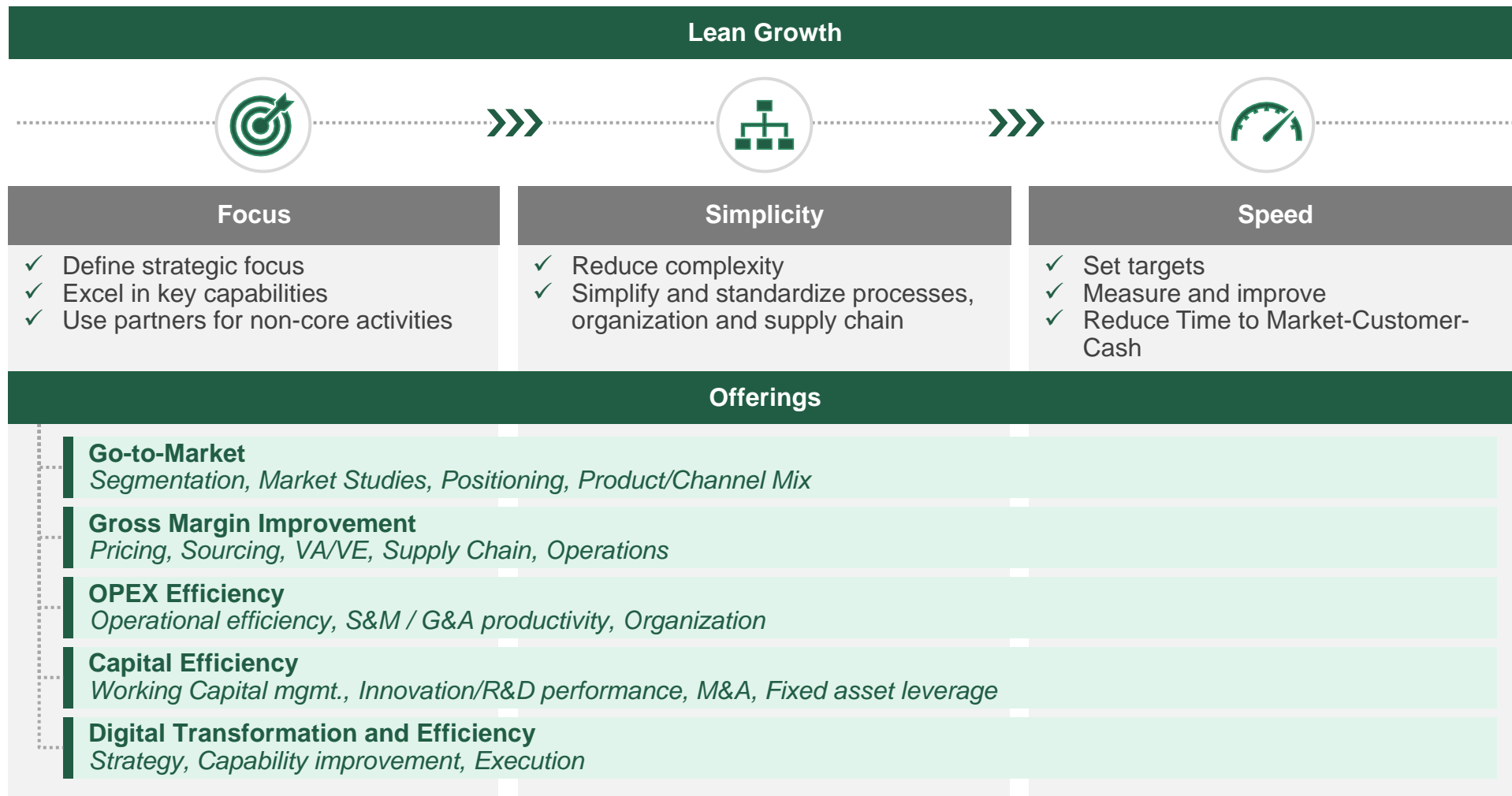
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Our Lean Growth framework is based on Focus, Simplicity, Speed – guiding principles to raise client performance.

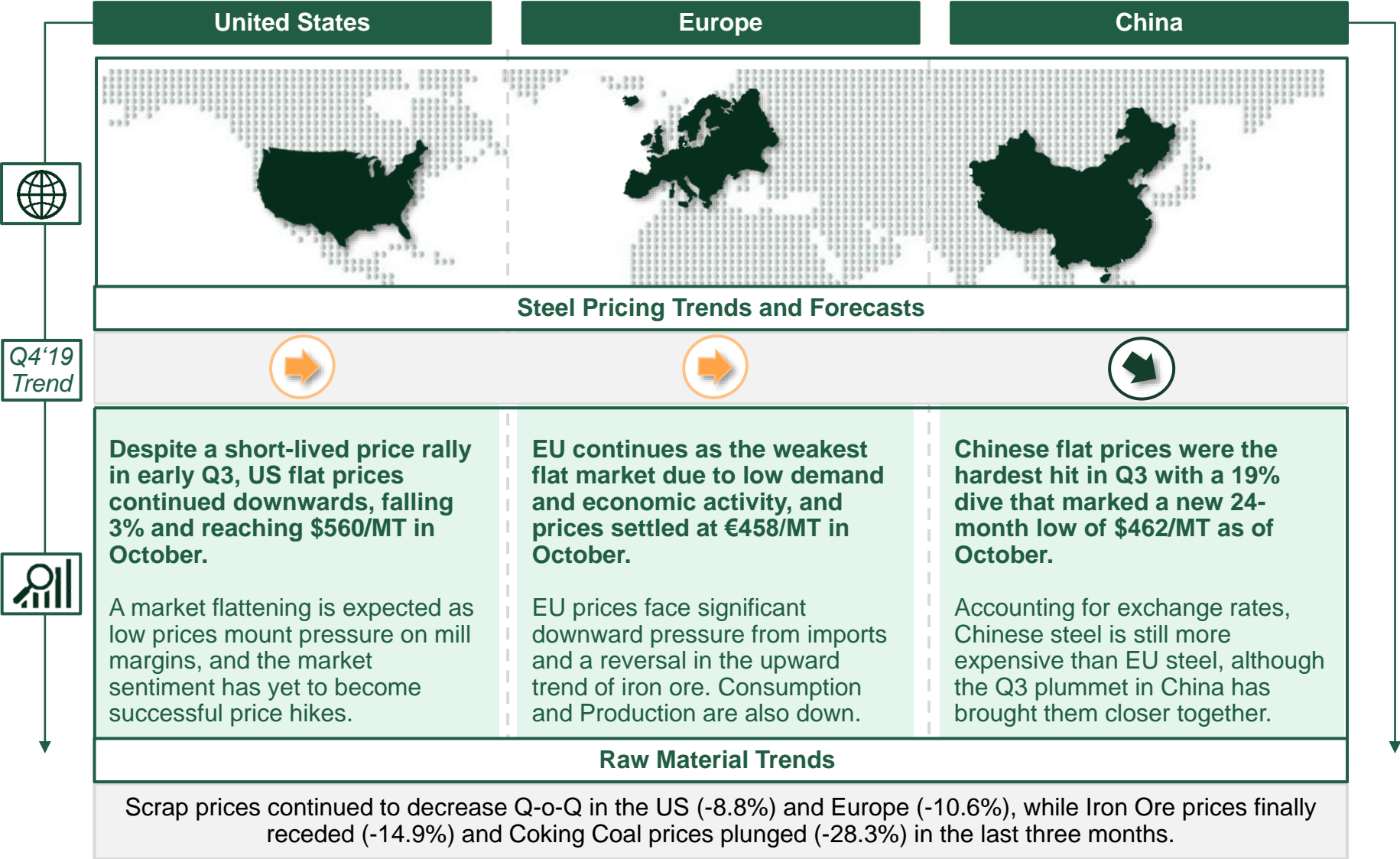


Applied Value has 15+ years of experience working with clients in numerous industries involved in various facets of steel purchasing.

















Client Annual Consumption, tons		Data Control	Fact-based Negotiations	Leverage Creation	Manage Steel Component Costs	Risk Management	Macroeconomic Factors on Global Steel Trade	Game Changers
10M	Automotive OEM	✓	✓	✓	✓	✓	✓	✓
	White Goods OEM	✓	✓	✓		✓		✓
	Automotive OEM		✓	✓		✓		
	Global Engineering		✓	✓				
1M	Global Construction	✓				✓		✓
	Industrial Products		✓			✓		
	4 Food Producers		✓				✓	✓
	Heavy Truck OEM		✓	✓	✓			
	Defense/Heavy Truck	✓	✓	✓	✓			
	Security Solutions	✓	✓	✓			✓	
	Heavy Truck OEM	✓	✓	✓	✓	✓		
	Truck Tier 1	✓	✓	✓		✓		
0.1M	Lifting OEM	✓	✓	✓	✓	✓		✓
	Global Engineering	✓	✓	✓		✓		
	Consumer Goods OEM		✓	✓				✓
	EU Turbine Manufacturer	✓	✓	✓	✓	✓		
0.01M	Automotive Tier 1	✓	✓		✓	✓		
	Scand. Engineering	✓	✓	✓			✓	
	Scand. Construction	✓	✓	✓				



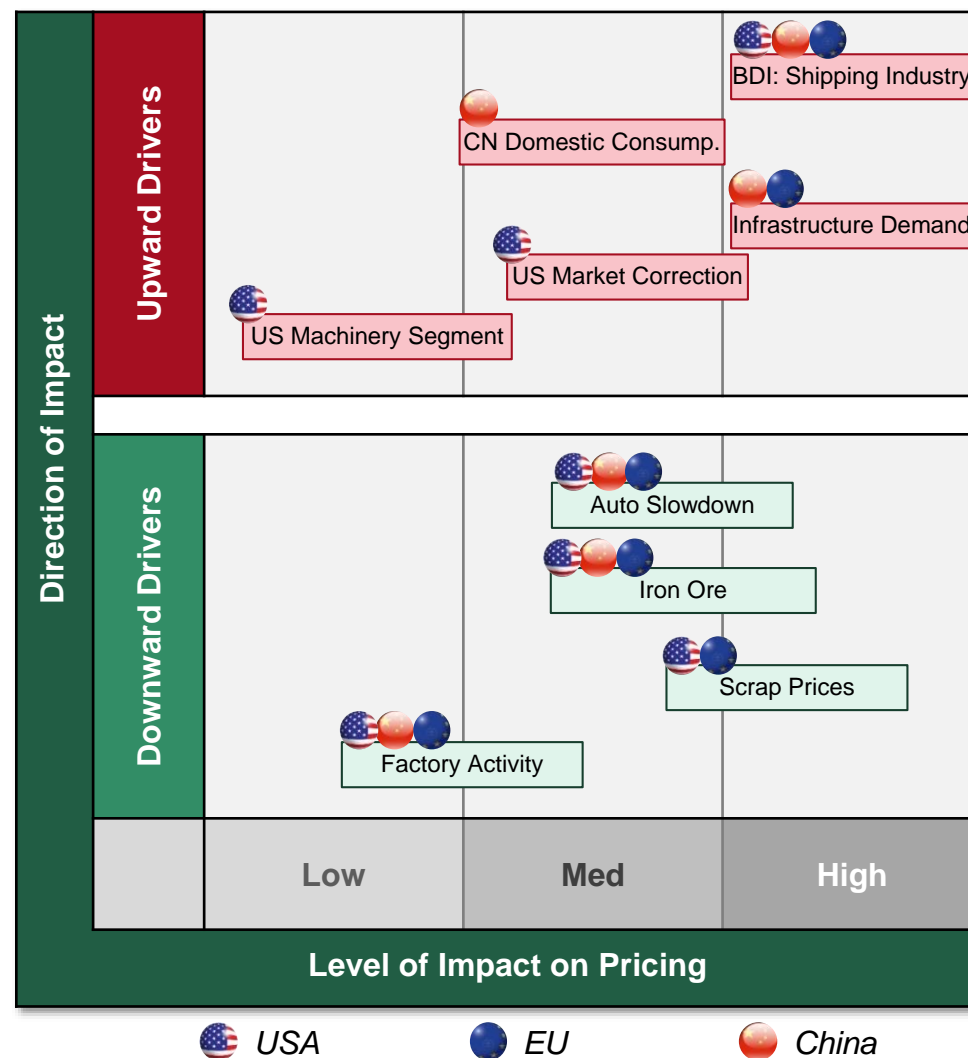
Hot-Rolled steel prices tended downwards globally in Q3 along with iron ore prices, which have finally reversed trend following a 12-month price rally.



Global Steel Price & Trend Summary.

Commodity		Latest Price (Sep)	Last 3 Months	Trend (Forward)	
	Flat ¹	US	\$560/MT	-3%	
		EU	€458/MT	-6%	
		CN	\$462/MT	-19%	
	SS	US	\$2,310/MT	7%	
		EU	\$2,630/MT	16%	
		CN	\$2,260/MT	10%	
	Plate	US	\$763/MT	-12%	
		EU	\$640/MT	-3%	
		CN	\$565/MT	-3%	
	Bar	US	\$742/MT	-6%	
		EU	\$542/MT	-7%	
		CN	\$467/MT	-17%	

Major Market Drivers



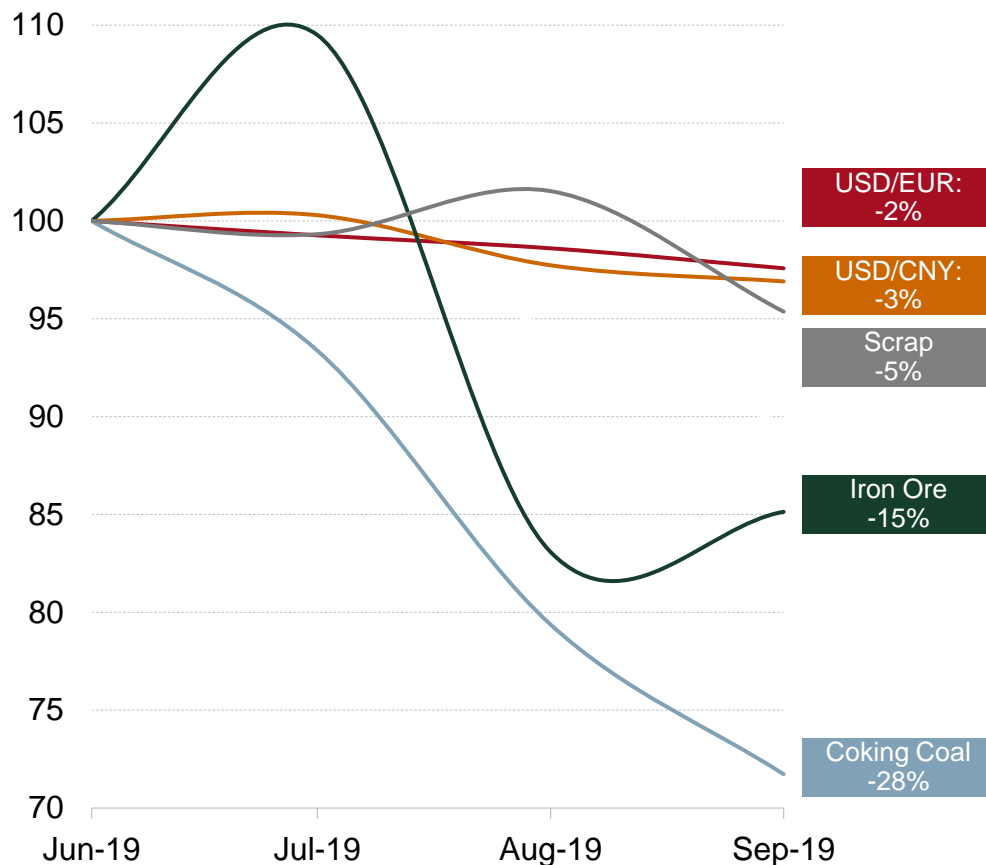
Notes

1: Flat latest prices are from October 2019, and 3 month trend compares July to October

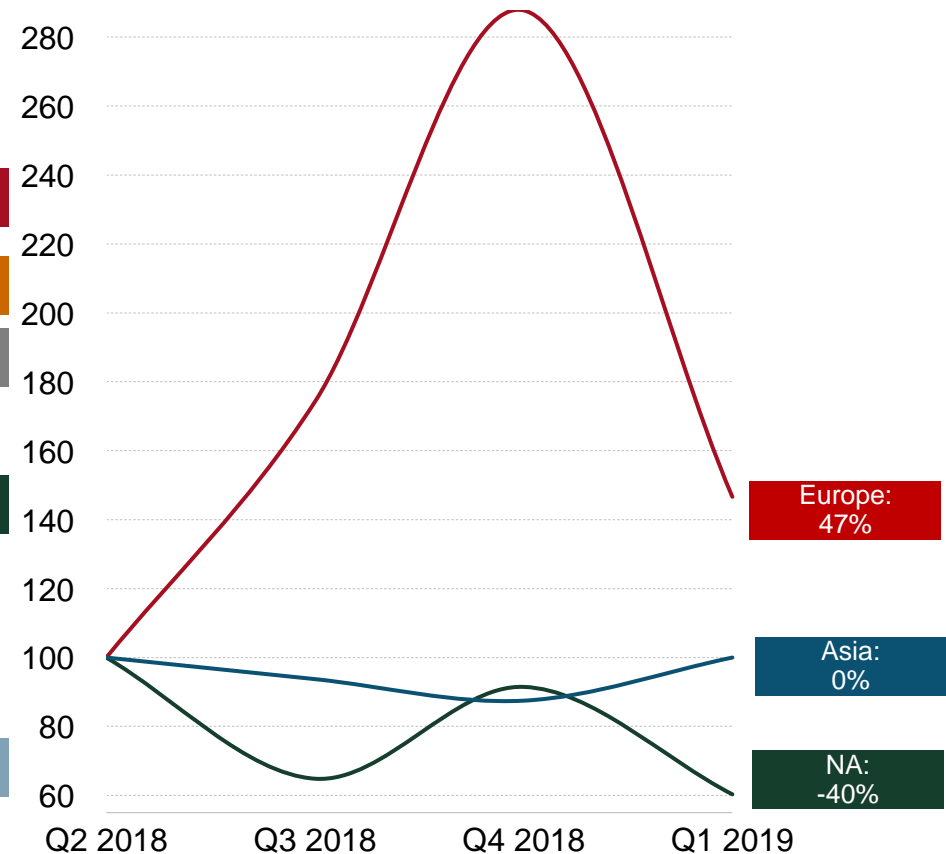


Steel input costs all declined over Q3 2019, led by the Iron Ore and Coking Coal prices drop of 15% and 28%, respectively.

Indexed Input Costs
June 2019 – September 2019



Indexed GDP Growth Rate
April 2018 – March 2019



Applied Value Quarterly Steel Report

Q4 2019

Market Conditions by Region

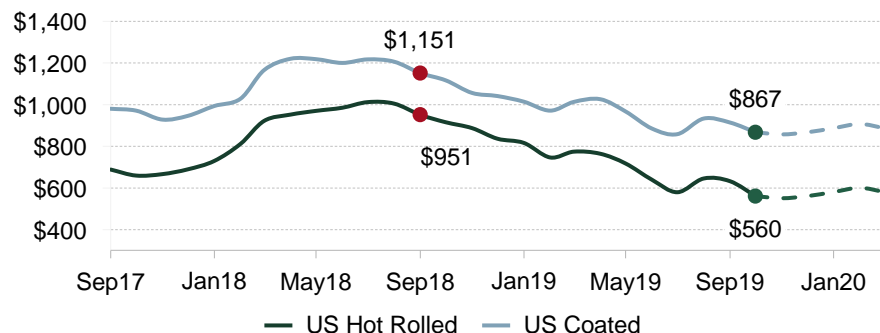
Steel Production Costs

Stock Price Development of Major Steel
Companies



Despite a short-lived price rally in early Q3, US flat prices continued downwards, falling 3% and reaching \$560/MT in October.

US Flat Prices (USD/MT)

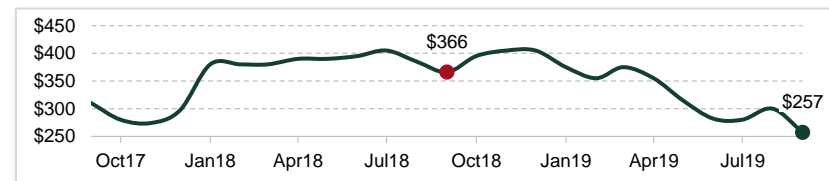


- Hot-Roll prices continued to decline in Q3, falling 3% over the last three months, adding to the 39% drop in prices year-over-year, and offsetting a spike of prices in August. The Q3 drop in prices defied market expectations, including the futures market and comes amid an increase in overall consumption attributed to the machinery and fabricated metal products industries (up 2% and 1% in August, respectively).
- Scrap prices fell by 9% in Q3, pushed down by delayed orders from mills, which have seen declining utilization over the same period. Y-o-Y scrap prices are down 30%, with September prices at a 2-year low of \$257/MT.
- Production & Consumption both remained at elevated levels in Q3 2019, after reaching the peak over the last 24 months in Q2.
- US Mill Capacity Utilization ended the quarter at 78%, and appears to be returning to levels common prior to 232. It is not expected to recover, particularly as Canada and Mexico exemption from Section 232 will reintroduce import volumes to the market.
- The dramatic tumble in Chinese prices over Q3 has extended the gap between US and Chinese prices to \$103/MT in Q3, up from the \$15/MT bottom in Q2.

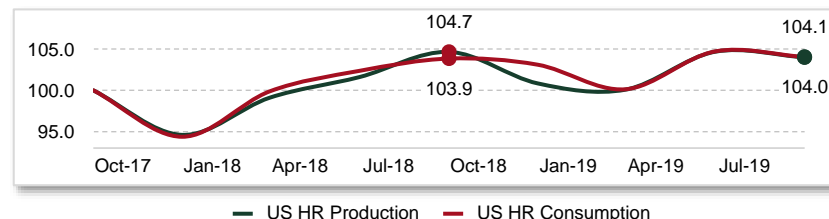
Source: AV Analysis

US Scrap Steel Price

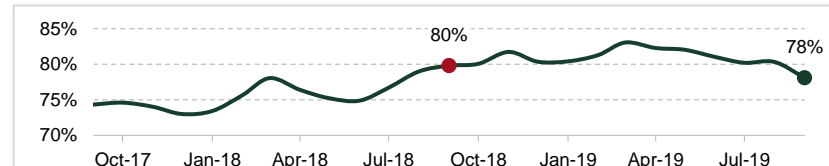
USD/MT



Indexed Production & Consumption Volume

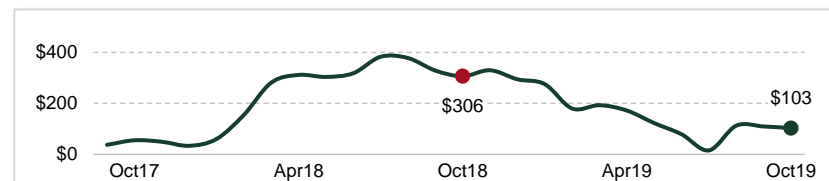


US Mill Capacity Utilization



US vs China Price

USD/MT

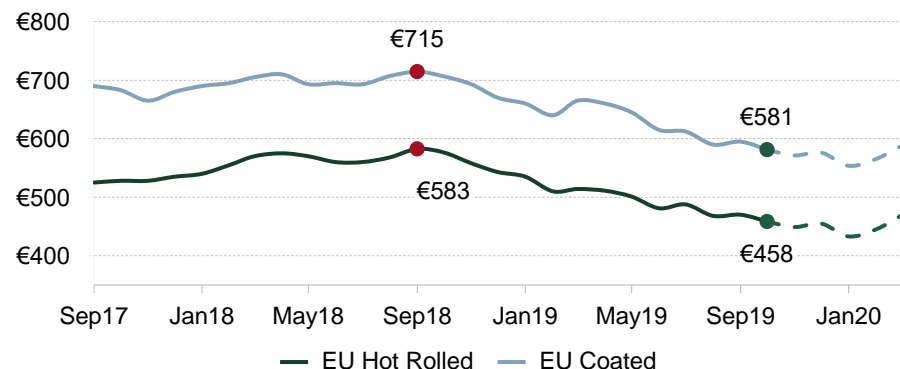


● Previous Year's Data ● Latest Data + - Correlation to Market Price



EU continues to be the weakest flat market globally, settling at €458/MT in October, as economic indices indicate an output slowdown in the economy.

European Flat Prices (EUR/MT)

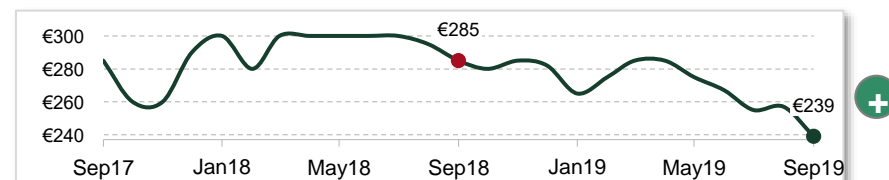


- European HR prices fell 6% in Q3, extending their slide and pushing the overall decline in the last twelve months to 21%. Demand remains constrained, characterized by declining consumption and activity ramp down at big mills, such as ArcelorMittal, which carried out layoffs and production stops in the Italian and Spanish markets in Q3.
- EU Scrap prices dropped to the lowest level in 24 months at 239 EUR/MT in September, as European scrap import/export contract prices declined. Italy notably struggled the most with price declining and scrap demand falling.
- EU consumption and production levels declined significantly in Q3 compared to Q2, down 10% and 12%, respectively. They have both reached their lowest point since Oct 2017.
- German sheet inventory continues on a downward trend but remains at an average level relative to the last twelve months. August inventory level was 1,287 kMT.
- EU flat steel remains at a lower price point relative to China despite the massive tumble in Chinese steel prices over the quarter. After exchange rates are considered, EU flat steel is 4 EUR/MT cheaper than in China.

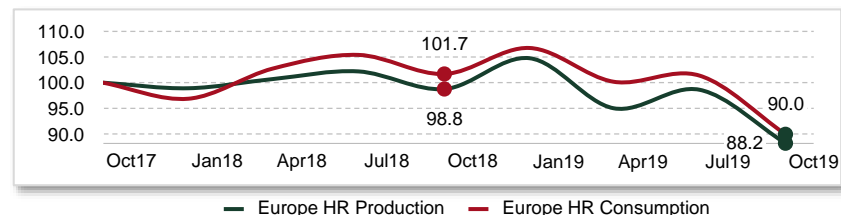
Source: AV Analysis

European Scrap Prices

USD/MT

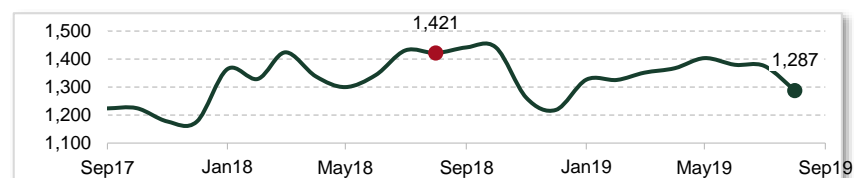


German Indexed Production & Consumption



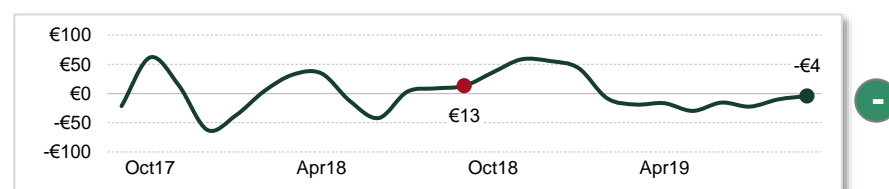
German Sheet Inventory

kMT



EU vs. China Price

EUR/MT

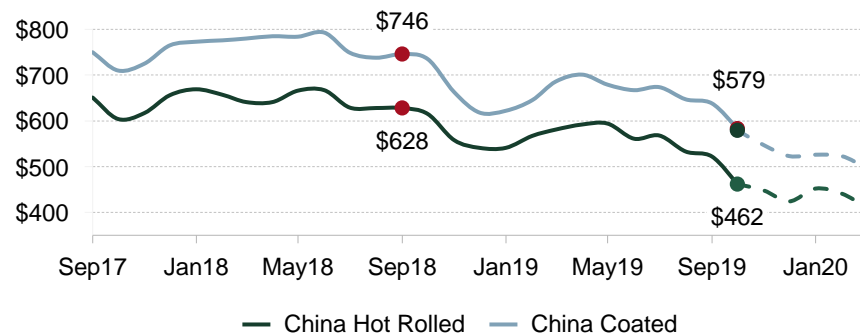


● Previous Year's Data ● Latest Data + - Correlation to Market Price



Chinese flat prices were the hardest hit in Q3 with a 19% dive that marked a new 24-month low of \$462/MT as of October.

China Flat Prices (USD/MT)

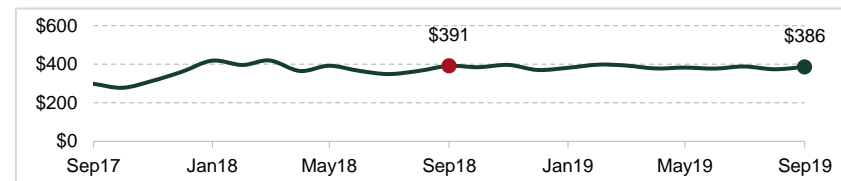


- Chinese HRC prices declined by 19% since July while Chinese coated prices declined by 13% over the same period mainly due to inventory growth, raw material iron ore price dropped by ~30%, and low expectation on demand growth.
- Chinese scrap prices have increased by 2% in last 3 months, driven by China's ongoing effort to reduce dependence on iron ore and switch to the cleaner alternative of electric arc furnaces, which consume scrap in the steel production process.
- China's steel exports have steadily declined since April due to trade conflicts between China and US, as well as additional tariff imposed by EU.
- Consumption levels in China remain elevated compared to last two years, despite low industrial activity and reportedly weak end-user demand.
- The spread between US-China and Europe-China prices has narrowed significantly in last two years, bringing global steel prices closer together. In 2019 Q3, Europe-China spread stayed below zero, while the difference in the US rose came to \$51/MT in September.

Source: AV Analysis

China Scrap Steel Price

USD/MT



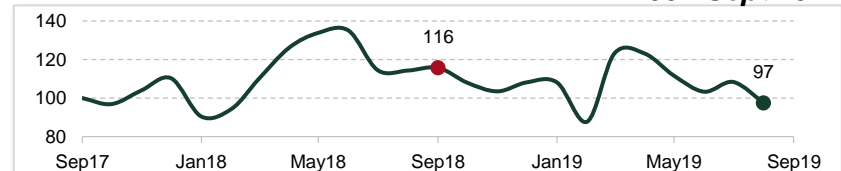
Indexed Production and Consumption

100= Sept 2017



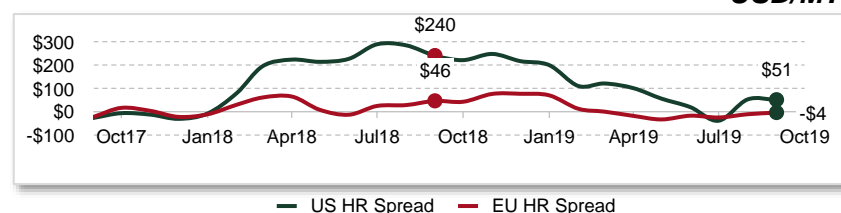
China Exports

100= Sept 2017



Spread between US & EU

USD/MT



● Previous Year's Data ● Latest Data + - Correlation to Market Price



With the dust settling from redrawn trade policies, global steel prices are resistant to what few upward drivers remain relevant in the market.

Upward Market Drivers



Infrastructure Demand

- › EU: According to Tata Steel Europe, Construction in the EU is expected to grow 2.2% in 2019, owed to increased demand across the continent; construction is currently the market's stronghold. Engineering is also predicted to grow 0.9%.
- › EC recently invested 4BEUR in infrastructure across 10 member states. Funds will go to projects including transport links, affordable energy, drinking water improvements and healthcare. The current EC infrastructure budget is 32 Billion Euros across 258 projects.
- › CN: The State Council has issued a special debt amount for next year in advance, and it is expected to incite a trillion yuan of construction funds. These funds are mainly used for infrastructure projects such as transportation, power grids, gas pipeline networks, water conservancy, and environmental protection.



Market Correction

- › US: At \$561/MT, steel prices in the US are close to a natural inflection point in the market that has created a historical floor between \$530/MT to \$570/MT. This price level represents an approaching minimum margin movement for steel mills and is usually accompanied by a series of price hikes that are aimed at correcting the market and shifting the momentum upwards.



Economic Improvements

- › CN: China's manufacturing purchasing managers' index (PMI) stood at 49.8% in 2019 September, up 0.3% from the previous month. The expected index of production and business activity of manufacturing enterprises rose 1.1% to 54.4%, the highest level in 2019 Q3, indicating that business confidence has increased. Chinese demand has remained strong in 2019, as consumption has been 10% to 20% higher than two years ago
- › US: Manufacturing output was up in select industries in the United States, such as the machinery and fabricated metal products segments, which have rebounded in August. Output increased by 1.6% and 0.9%, respectively, helping to sustain consumption in Q3.



Baltic Dry Index

- › The Baltic Dry Index, a global economic indicator for shipping rates, has increased drastically in Q3 at 109.7% Q-o-Q growth to 2,317, the highest level since November 2010.



Iron ore and scrap prices are applying incremental downward pressure on a global marketplace reporting weakened demand.

Downward Market Drivers



Iron Ore Price Decreases

- › Global: Iron ore prices have reversed trend off a 12-month price rally kicked off by the Brumadinho dam (operated by Vale) earlier this year. In the effort to recover from the incident, which created an abrupt 90million ton deficit in global iron ore supply, Vale increased production output at two other mines by 42million tons. With the additional supply back in the market, Iron Ore prices are expected to continue falling.



Scrap Price Decreases

- › EU: European scrap prices have dropped to 239 EUR/MT, the lowest in over 24 months
- › US: Scrap prices decreased by 8.8% in Q3 as weakening end-user demand and coil prices continue to fall. Turkey's scrap buyers are playing the market as it has become very attractive to purchase from Europe as markets softened.



Automotive Industry Slowdown

- › US: Auto demand has continued to decline on a rolling twelve-month average basis. Vehicle production has shown slight, albeit insignificant improvement in the first quarter this year, at 0.2% growth, however the numbers for Q4 are likely to deteriorate due to strikes and operations halt at GM facilities in the United States and Mexico.
- › CN: The automotive industry has rebounded in 2019 Q3 due to seasonal factor but still worse than last year. 2019 August sales were down 6.9% YoY. New Electric Vehicle sales has continuously decreased due to cancelling on some of the incentive policies.
- › EU: European car sales plunged by 8.4% in August, the steepest monthly recorded decline in 2019. This due to the slowing demand in key markets and the challenge of rolling out electrical vehicles. The structural changes in the automotive industry are forecasted to hit Germany, following a trend that indicates a recession for the export-reliant country's industry.



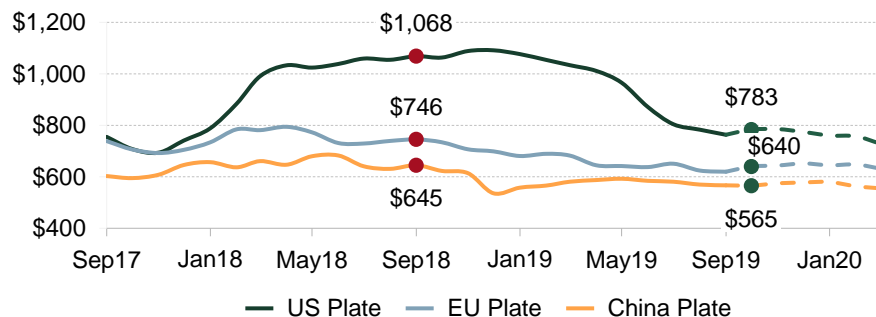
Purchasing Managers' Index

- › US: Factory growth rate continued to decline in Q3, reaching a PMI of 47.8 in September. The last time manufacturing activity increased in the US was in November 2018, and since then the trend has been negative, with no signs of slowing down.
- › EU : Activities in European factories shrinks at a rapid pace. The Eurozone PMI fell to 45.7 in September, the lowest reading since October 2012. During this period Germany saw PMI fall to 41.7, which was the lowest reading since 2009. September became the eighth consecutive month that the eurozone displayed a PMI below 50, adding to the notion that the European manufacturing sector is suffering.



Plate Prices in the US dropped significantly in spite of positive demand signals from the market, while the decline in EU and CN were more mild.

Plate Prices – US / Europe / China (USD/MT)

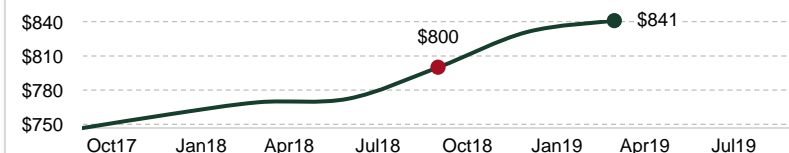


- US plate prices have continued its decreasing trajectory in Q3, falling 12.3% in comparison to June 2019—they dropped cumulatively 28.5% Y-o-Y, even as ship building and repair increased along with defense spending over the same period.
- Though EU Plate prices have dropped 16.8% Y-o-Y, the negative trend has slowed down as prices only fell 2.8% in Q3 2019. Buyers are taking a careful approach amidst declining raw material and imported slab prices.
- After reaching the highest point of the year in May, Chinese Plate prices have been cooling down with a 2.4% drop in Q3. This trend is largely attributed to tariffs on exports and oversupply in domestic market.
- Market signals are still demand in the US remain positive. US Defense Spending and Ship Building and Repairs, which are up 1.2% and 1.0% Q-o-Q, respectively, in Q3.
- US Crude Oil production growth has outpaced OPEC's in Q3 (up 3.7% vs 0.3%), and further increasing yearly growth trajectory (up 8.4% Y-o-Y vs. down 10.0% in OPEC).
- BDI has skyrocketed in Q3 2019, more than doubling in comparison to June this year. The growth was fueled by the capsize shipping index.

Source: AV Analysis

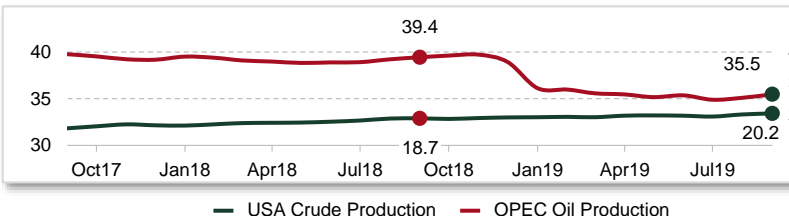
US Defense Spending

BUSD



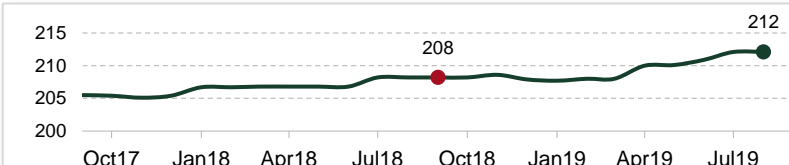
Crude Oil Production

MBPD

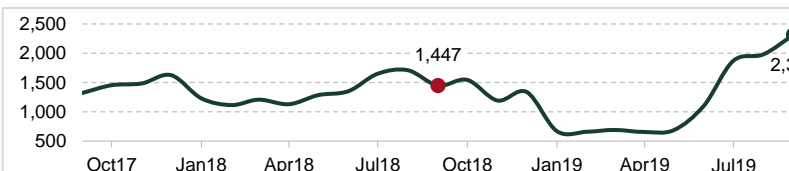


US Ship Building and Repairs

Index: 1985 = 100



Baltic Dry Index

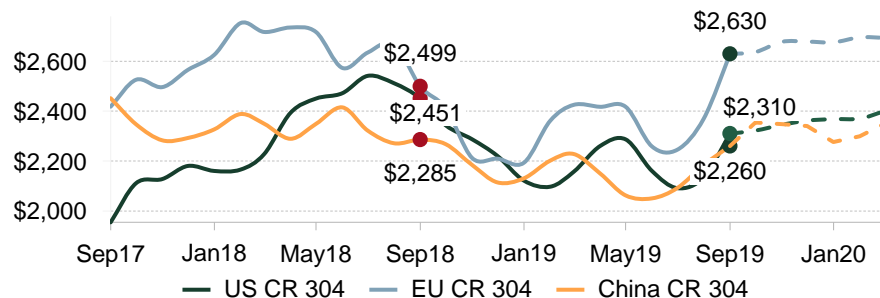


● Previous Year's Data ● Latest Data + - Correlation to Market Price



Stainless Steel was the only product with an upward trend in Q3, rising globally on a swift jump in Nickel prices.

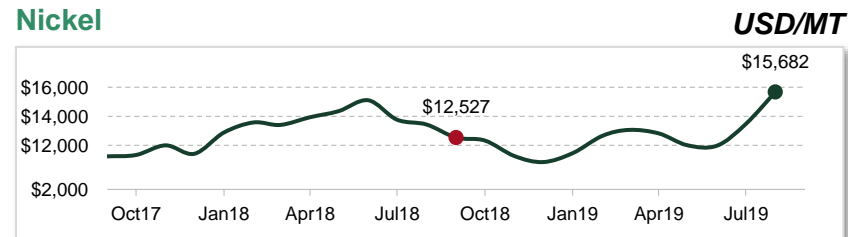
Stainless Steel Prices – US / Europe / China (USD/MT)



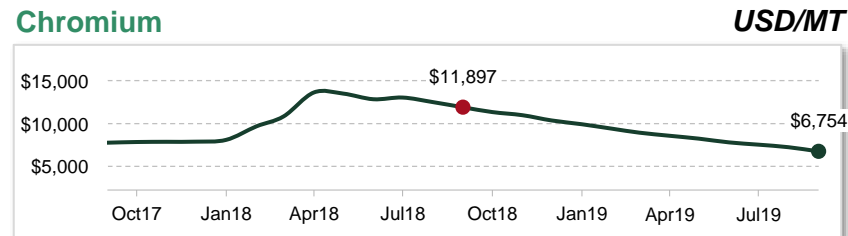
- US stainless prices rose by 6.9% in the last three months to \$2,310/MT, the highest price YTD. Despite this recent spike, US prices are still down 5.7% y-o-y.
- EU stainless prices have recouped after a slow Q2 2019, rising 16.4% over the last three months, additionally supported by higher trading price of stainless scrap.
- In the last three months, Chinese stainless prices have increased 10.2%, which is nearly double the size of increase in the US market.
- Nickel prices had the most aggressive movement of the quarter across all raw material and inputs, spiking 30.7% in Q3 2019 due to a tightened supply associated with a major plant (35kMT annual volume) shutdown in Papua New Guinea. The Ramu operation of the Metallurgical Corp of China (MCC) was suspended after a spill caused pollution concerns in the region.
- Chromium prices continued to decline over Q3 2019, reaching the lowest level over the last 24 months, at \$6,754/MT. The raw material has decreased 13.4% q-o-q and 43.2% y-o-y. Iron Ore has also decreased in Q3, recovering from the price surge seen on H1 2019, dropping 14.9% Q-o-Q to \$93/MT.

Source: AV Analysis

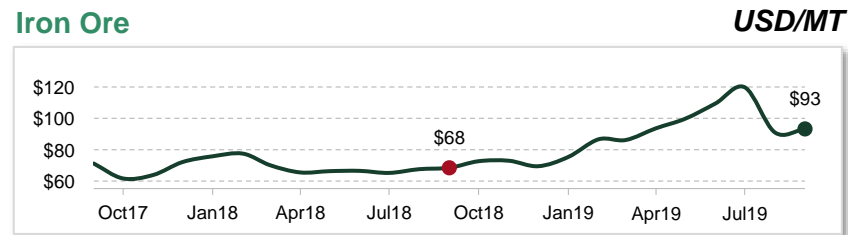
Nickel



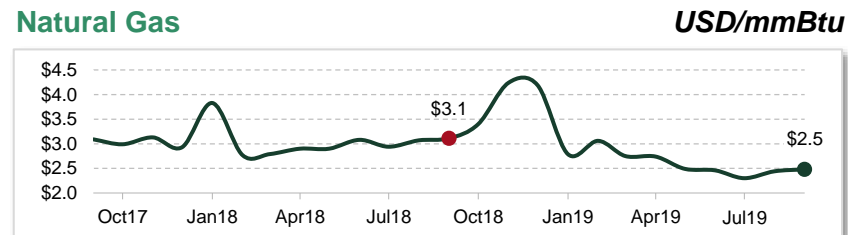
Chromium



Iron Ore



Natural Gas

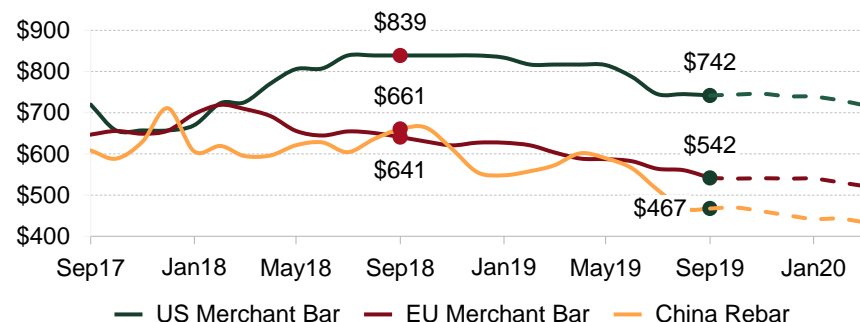


● Previous Year's Data ● Latest Data + - Correlation to Market Price



Bar prices fell across all three markets, reaching the lowest level in the last 24 months in both EU and China, where the decline was the sharpest in Q3.

Long Steel Prices (USD/MT)

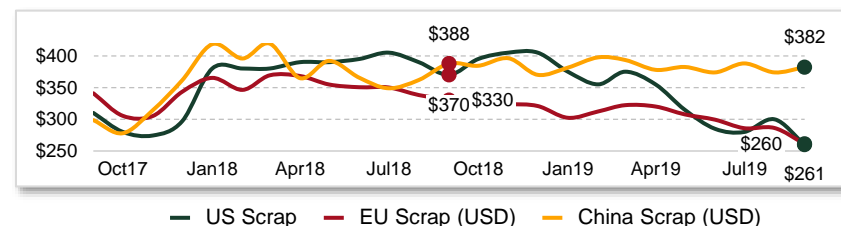


- US merchant bar prices have dropped 6% in the last three months, extending this year's price decline. Prices are expected to continue downwards in the near term as the scrap market continues to plunge.
- EU merchant bar prices have continued to decline in Q3 2019, dropping 7% and reaching the lowest point in the last 24 months. Low prices are supported by the decreasing scrap prices in EU and ferrochrome costs globally, as well as soft demand reported by buyers in Italy and in Spain.
- China Rebar prices plummeted 17% in the last three months extending their Y-o-Y decline to 30%. Despite a brief 3% recovery in Q1, Chinese rebar prices now sit at \$467/MT, the lowest point in the last two years. This slow and progressive decline is driven by weak demand from the Chinese construction segment, despite the stable Chinese scrap market.
- Nickel prices soared in August and September, primarily due to tightened supply caused by the shutdown of nickel producer Metallurgical Corp of China's operations in Papua New Guinea. There is no set date for the company to resume operations that affect 35kMT of global yearly nickel supply.

Source: AV Analysis

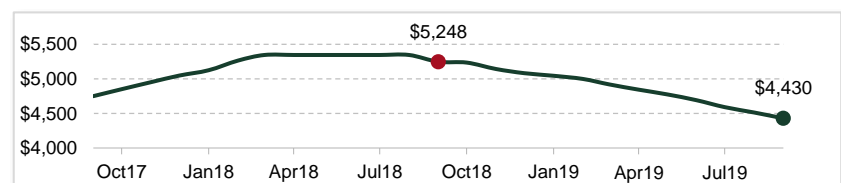
Scrap Steel Price

USD/MT



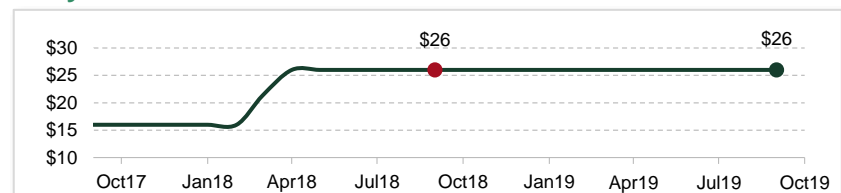
Ferrochrome

USD/MT



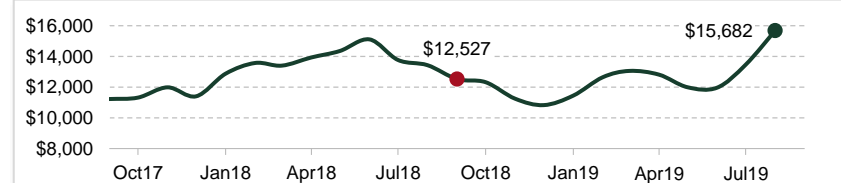
Molybdenum

KUSD/MT



Nickel

USD/MT

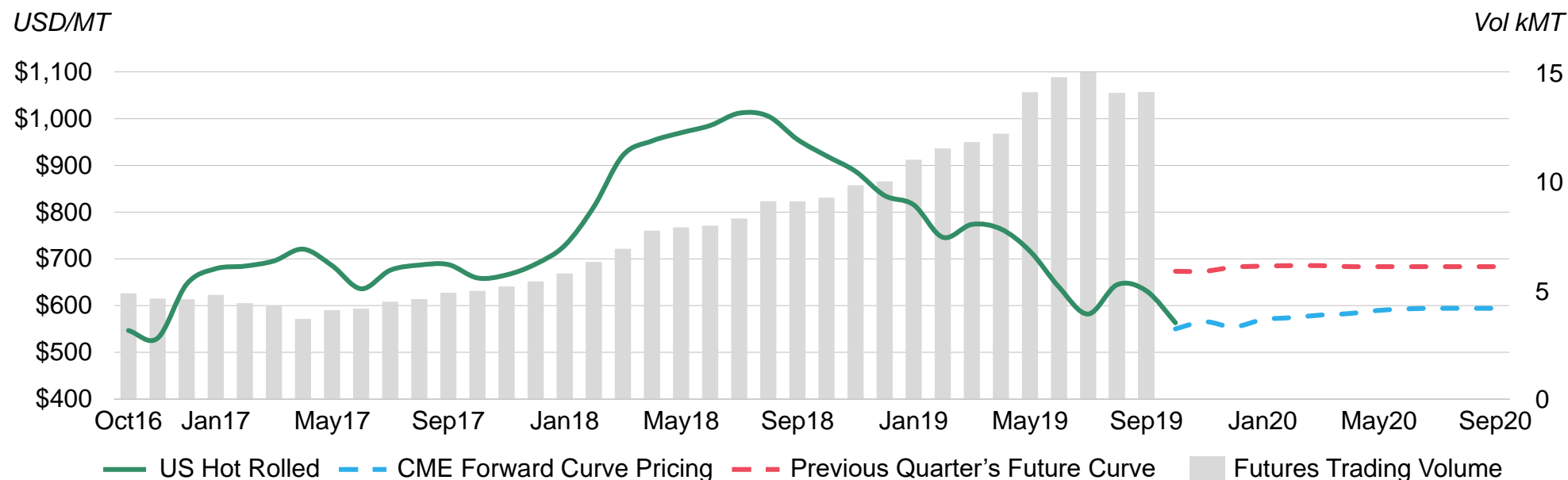


● Previous Year's Data ● Latest Data + - Correlation to Market Price



US Hot Rolled steel futures currently indicate a drastic shift in the market sentiment vs. last quarter, with current contracts about \$100/MT lower.

Hot Rolled Historical Pricing and Contract Volume & Futures CME Pricing



- › The CME HRC Futures Curve implies that HR prices will not gain as much upward traction in 2020 as last quarter's projections indicated. The near-term contracts for October and November were slower to correct, but December contracts and onwards are priced about \$100/MT lower vs. last quarter. The current curve suggest that prices will rise, albeit at a much lower level than previously forecasted, reaching September 2020 slightly below \$600/MT.
- › Participation in the exchange market has taken it's first significant decline since May 2017 as contracts have risen above current spot prices and the outlook on price recovery is increasingly bearish; CME-traded volume dropped 61% from August to July.

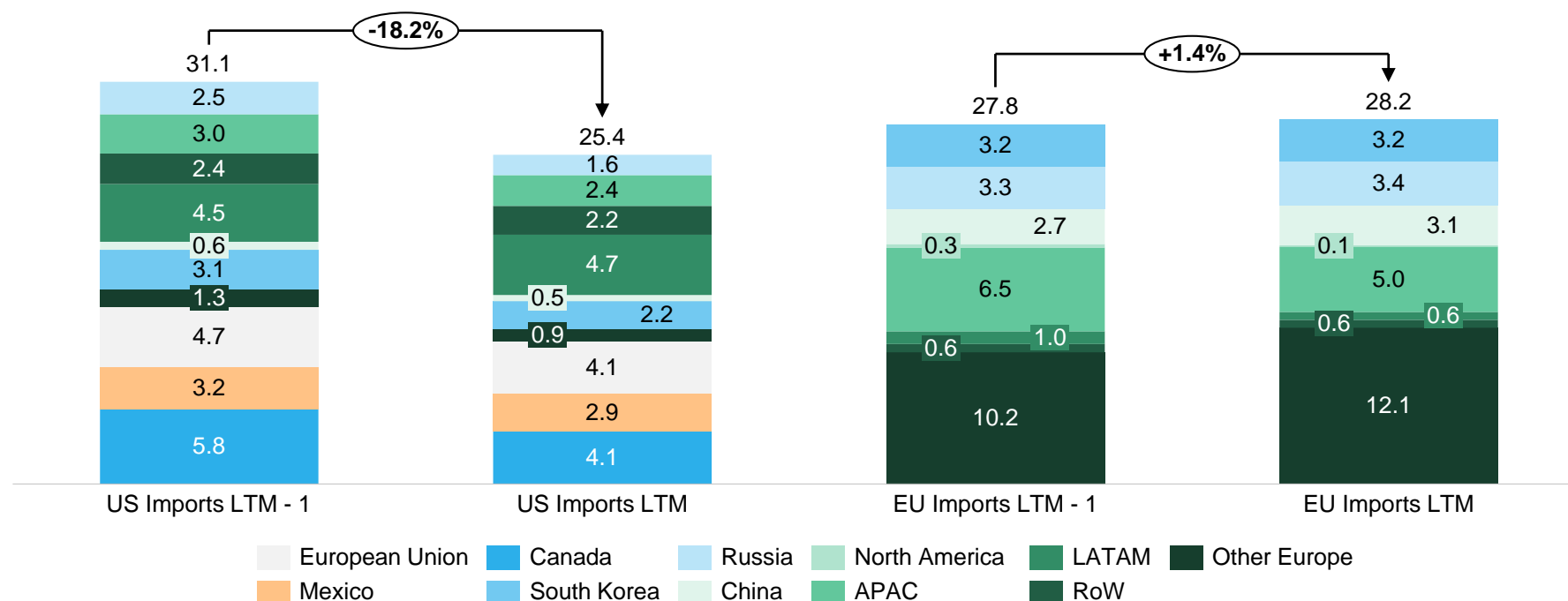
Note: Volumes are traded volumes cleared by CME, i.e. they exclude the "off exchange" OTC (over-the-counter) volumes not cleared by CME Prices pulled for CME futures Oct 29th, 2019



US imports are expected to recover as Canada and Mexico were recently exempted from 232 tariffs.

US and EU Imports – All Steel Products MMT

LTM: Aug 18 – Jul 19¹



- › US imports still indicate a declining figure in YoY, as the market imported 18.2% less than the previous year. However volumes from Canada and Mexico have started to recover as the 232 tariffs were lifted. The most affected countries now are non-EU European countries and Asian nations.
- › Growth in EU imports has somewhat stabilized at 1.4% YoY, primarily attributed to a sharp downturn in imports from APAC. The effectiveness of the EU's safeguard tariffs has been widely questioned and although the picture painted by LTM imports offers a more positive view overall, imports from Other (Non-EU) countries remains significantly elevated.



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Q4 2019

Market Conditions by Region

Steel Production Costs

Stock Price Development of Major Steel Companies



Scrap, Iron ore and Slab costs have had significant drops across all markets in Q3 2019, with EU Scrap and Iron ore leading with double-digit declines.

Current Market Update

Q4 Forecast

• Scrap

- **US Scrap** prices further declined in Q3, dropping 8.8% Q-o-Q, despite a small recovery in August. The drop was largely driven due to a competitive export market pressuring prices lower and slow demand from local mills, which are experiencing drops in their utilization. In addition, Turkish mills, the largest importers of US scrap, are waiting for lower prices before they ramp up their buying activity again, indicating prices should not rise sharply in the near future.
- **EU Scrap** prices declined at a similar pace as the US market, dropping 10.6% Q-o-Q. Slow demand from mills in Italy, Spain, Turkey, and Benelux have pushed prices to the lowest in the last 24 months. The consensus among European scrap suppliers is that prices will rebound slightly at best. Demand is much below supply level in Turkey, for example, as most galvanizers, cold rollers and other processors are with high inventory and weary of entering the market, as they think a potential correction is likely to happen in the coming months.



• Iron Ore

- **Iron Ore** prices plummeted 14.9% in Q3, the first significant Q-o-Q drop in prices YTD, as Vale managed to ramp up their production following the Brumadinho dam accident, which took 93MMT out of the market nine months ago in late January. The increase in Chinese steel production also contributed to the rise of iron ore's price in 2019, but as more Chinese mills convert to Electric Arc Furnace production, this demand is expected to decline, putting downward pressure on pricing.



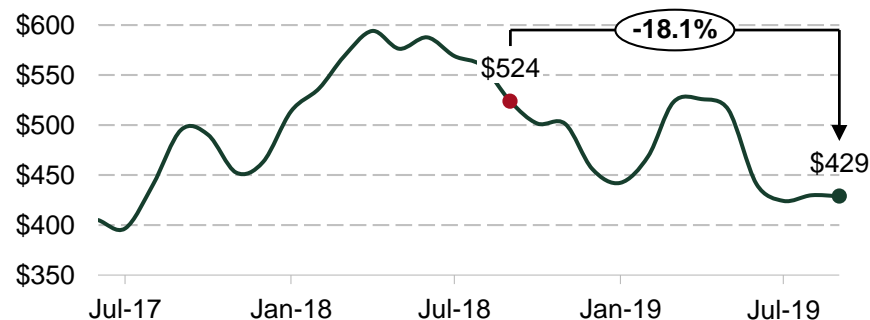
• Slab

- **Slab** prices had a moderate drop in Q3, decreasing only 2.8% Q-o-Q amidst weak demand for hot-rolled coil and plates across all major markets. Prices are expected to further decline in Q4, despite already tight margins reported by semi-finished products suppliers. Prices for hot-rolled coils and plates have dropped at a much quicker rate in Q3 relative to other metal commodities, thus justifying the lower price expectation from buyers and suppliers in the slab market.

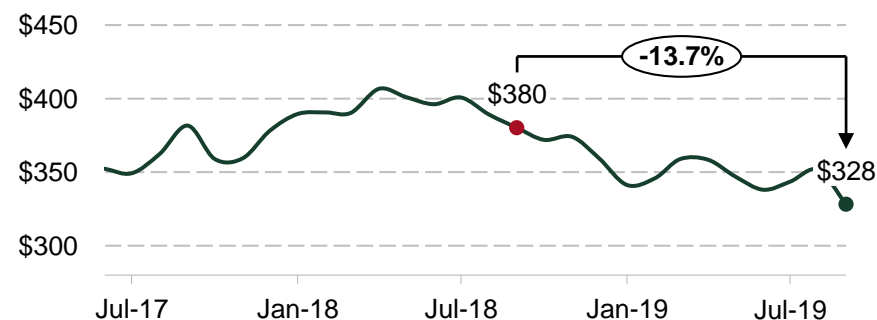


Major global input costs continued declining with no early indications of recovery and pushing YoY changes between -14% and -30%.

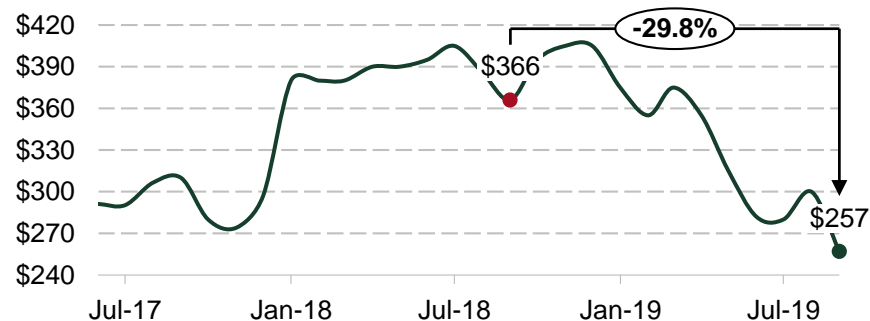
Slabs
USD/MT



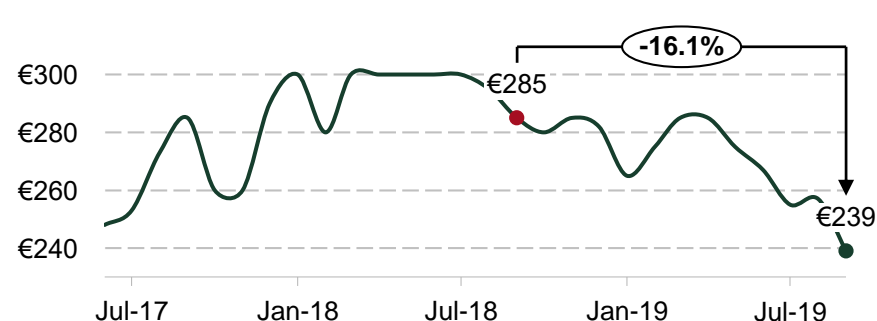
Pig Iron
USD/MT



Ferrous Scrap US
USD/GT



Ferrous Scrap Europe
EUR/MT

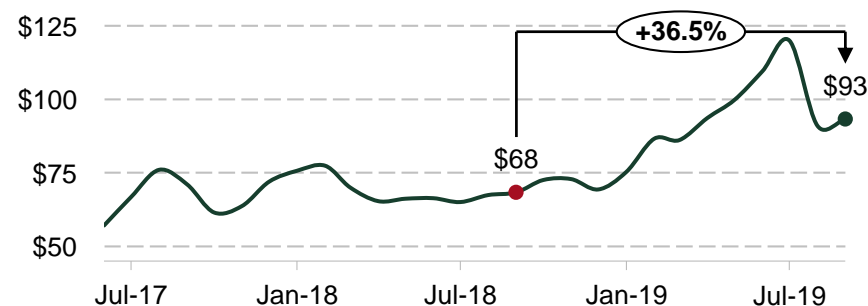


● Previous Year's Data
● Latest Data

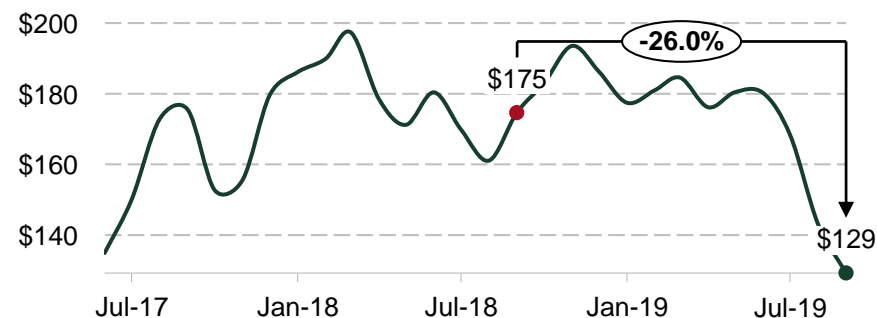


Iron Ore declined 14.9% in Q3 2019 but it still trades 36.5% higher Y-o-Y, while coking coal prices dropped 28.3% over the quarter.

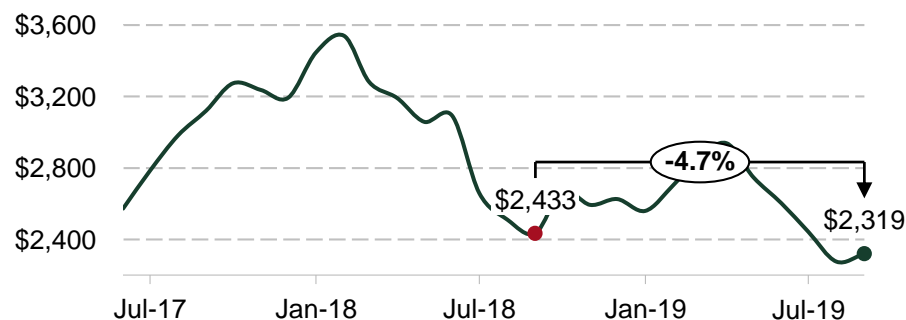
Iron Ore
USD/MT



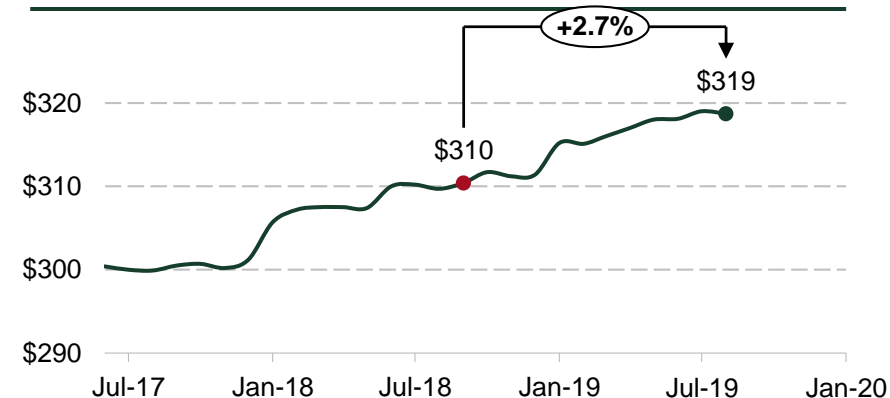
Coking Coal
USD/MT



Zinc
USD/MT



Limestone – Producer Price Index

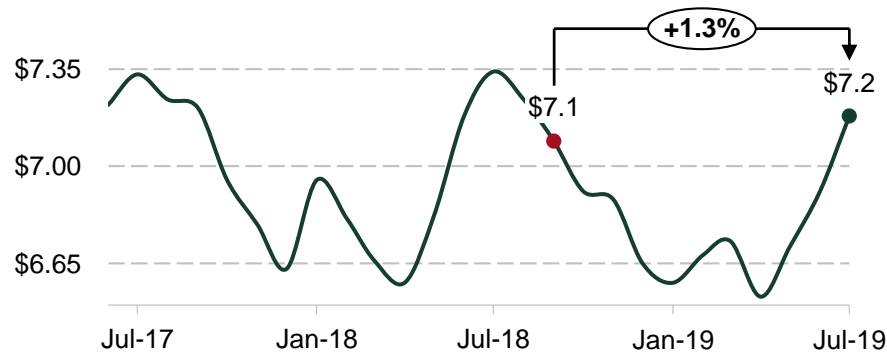


● Previous Year's Data
● Latest Data

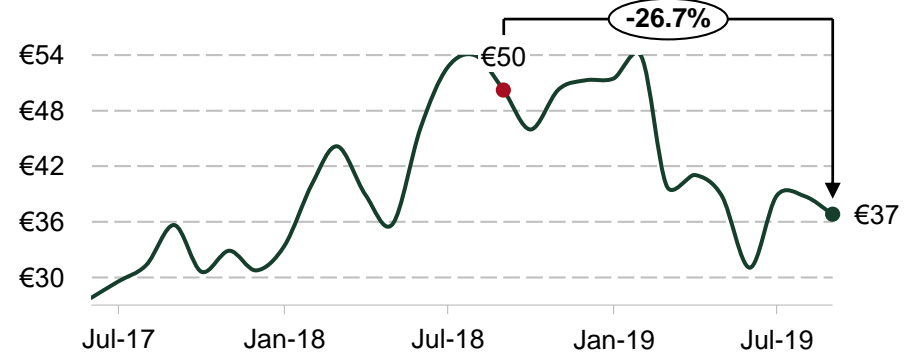


Electricity in Europe and Natural Gas prices have decreased significantly, while electricity prices in the US rose slightly Y-o-Y.

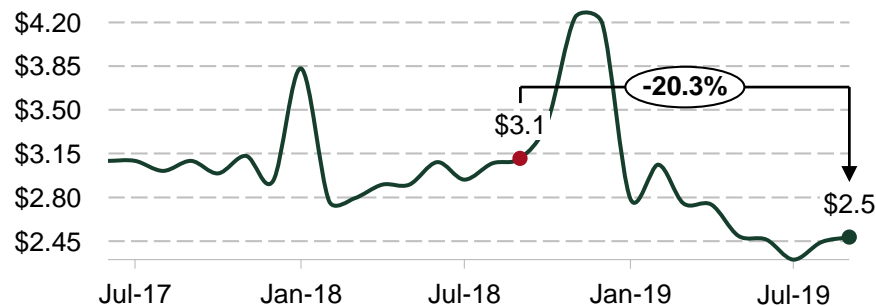
Electricity US
US cents/KWH



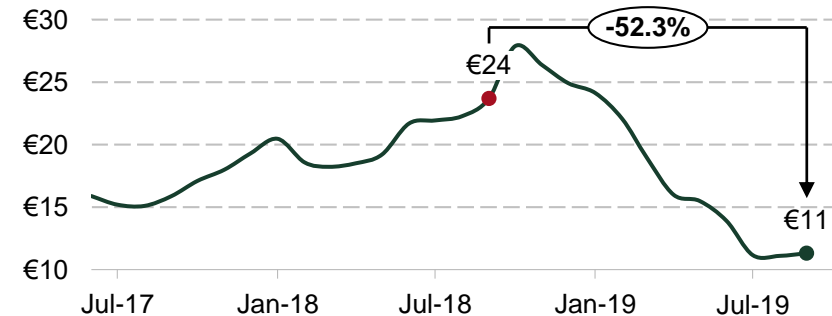
Electricity Europe
EUR/MWH



Natural Gas US
USD/mmBtu



Natural Gas Germany
EUR/MWH



● Previous Year's Data
● Latest Data



Applied Value Quarterly Steel Report

Q4 2019









Market Conditions by Region

Steel Production Costs

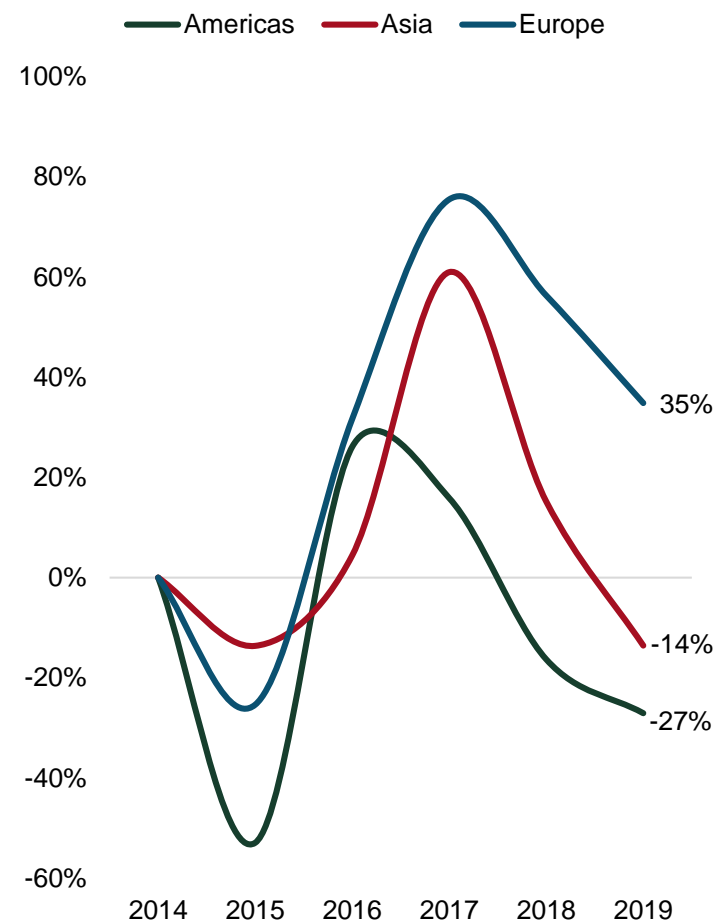
Stock Price Development of Major Steel Companies











If Jan '15 is set as base year, EVRAZ and Severstal have seen the largest stock price growth while USS has seen the largest decline.

Regions	Mills	Indexed Stock Movement				
		2015	2016	2017	2018	2019
Americas	 AKSteel	-63.56	75.79	8.50	-63.24	-64.71
	 GERDAU	-56.09	-3.45	12.55	34.73	18.45
	NUCOR	-16.61	22.19	32.64	7.19	2.81
	(USS)	-75.48	9.92	9.80	-43.96	-64.82
APAC	 ANSTEEL	-37.45	-7.77	40.44	7.57	-28.53
	 BAOSTEEL	29.77	44.19	100.93	49.53	37.44
	JFE	-3.52	-6.00	38.63	-12.83	-35.67
	TATA STEEL	-43.32	-12.74	63.91	16.43	-27.53
Europe	 ArcelorMittal	-59.60	-26.74	0.89	-37.32	-59.09
	 EVRAZ	-37.92	85.59	214.49	307.20	257.80
	 Severstal	-13.14	52.44	55.91	39.00	38.09
	 ThyssenKrupp	-13.32	24.28	31.67	-16.42	-29.64
	voestalpine	-2.94	22.79	74.63	-10.84	-32.90

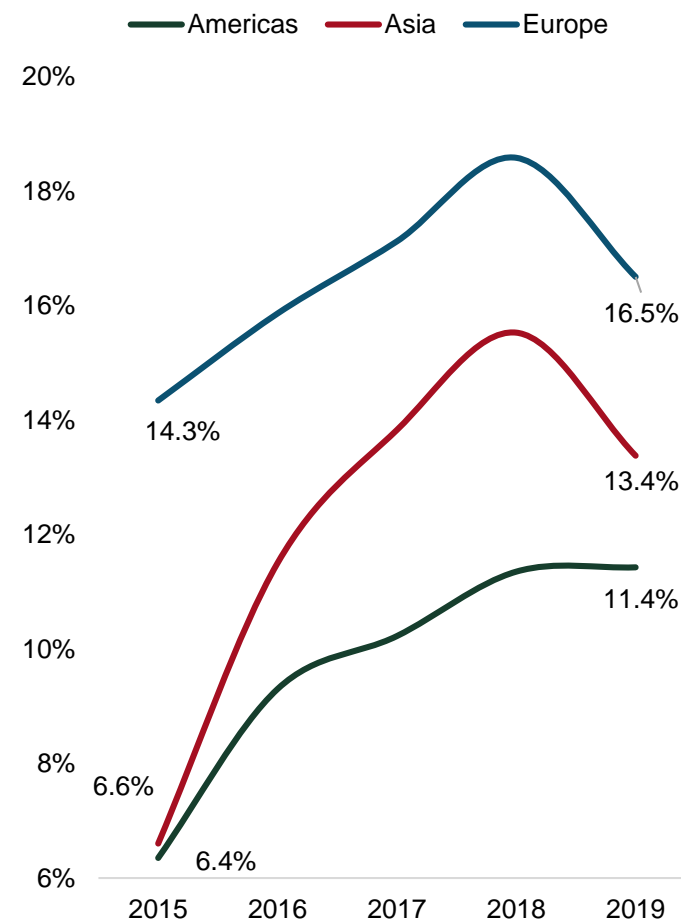
Regional Stock Movement 2014-2019



Steel mills have seen slight decline in EBITDA in the last year while European mills maintains a relatively higher EBITDA margin.

Regions	Mills	EBITDA				
		2015	2016	2017	2018	2019
Americas	 AKSteel	7.2%	10.2%	8.8%	7.1%	7.3%
	 GERDAU	9.8%	9.9%	10.8%	13.2%	13.9%
	NUCOR	8.2%	13.3%	13.0%	15.1%	15.8%
	(Uss)	0.2%	3.8%	8.3%	10.0%	8.7%
APAC	 ANSTEEL	1.9%	10.2%	11.7%	15.3%	10.7%
	 BAOSTEEL	9.1%	13.4%	15.1%	17.0%	13.6%
	JFE	7.8%	8.4%	11.0%	11.2%	10.1%
	TATA STEEL	7.6%	14.0%	17.5%	18.6%	19.1%
Europe	 ArcelorMittal	5.3%	10.2%	11.7%	13.4%	10.0%
	 EVRAZ	15.7%	19.2%	23.7%	27.5%	26.0%
	 Severstal	32.4%	31.8%	32.4%	35.3%	35.1%
	 ThyssenKrupp	5.4%	5.1%	2.7%	2.8%	1.1%
	voestalpine	12.9%	13.0%	15.1%	13.9%	10.3%

Regional EBITDA Movement 2015-2019





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