



Applied Value Quarterly Steel Report

Q2 2019 Report

April, 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...**

KORSNÄS MTG TELE2 MILLICOM THE DIGITAL LIFESTYLE

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












2019

Industries of Expertise

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

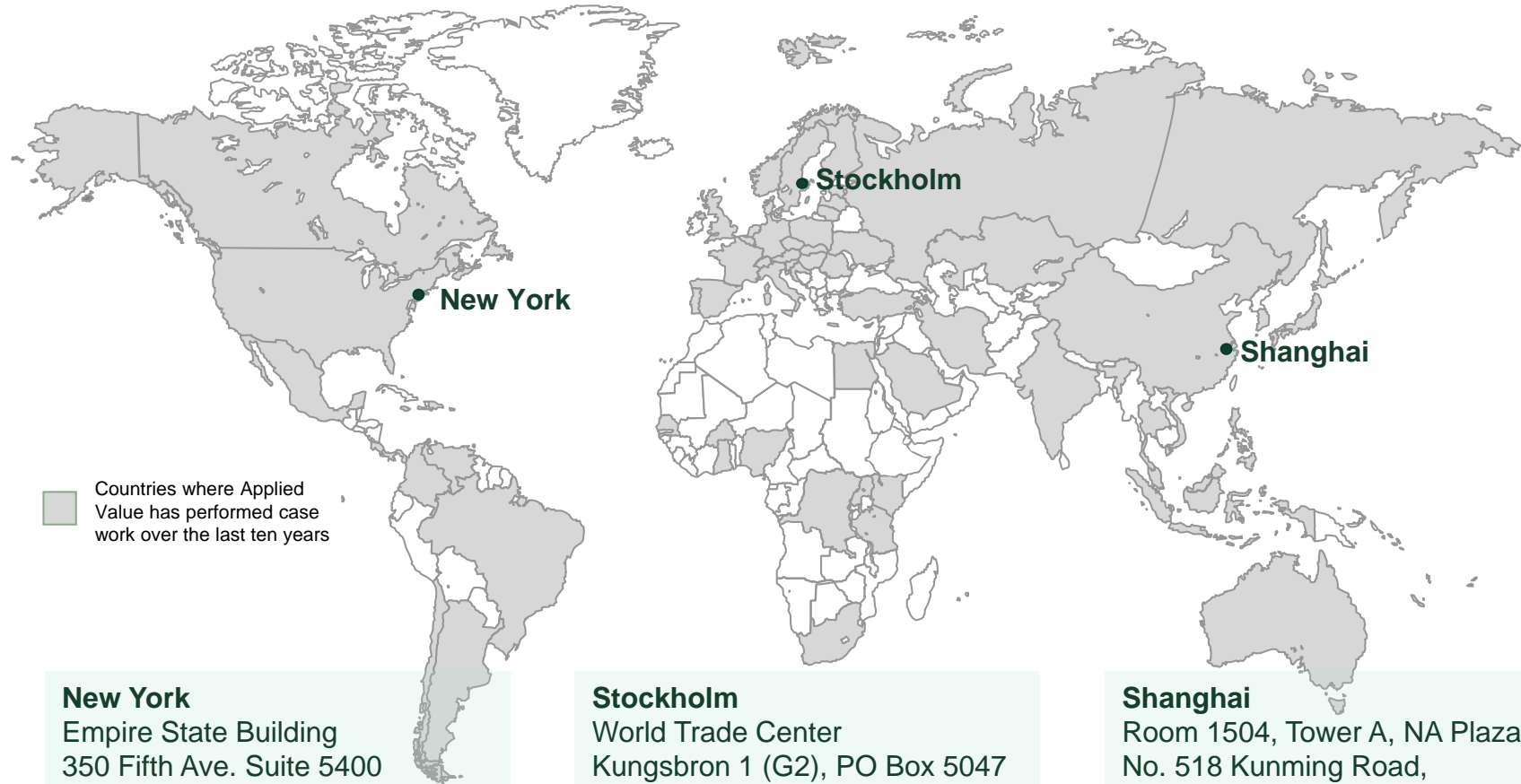


Lean Growth Principles

 Investments	 Management Consulting	 Social Responsibility		
Selected portfolio companies				
	 APPLIED VALUE			
 <i>ROI driven</i>	 <i>Fact-based</i>	 <i>Practical over theoretical</i>	 <i>Hands-On</i>	 <i>Global perspectives</i>



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



■ Countries where Applied Value has performed case work over the last ten years

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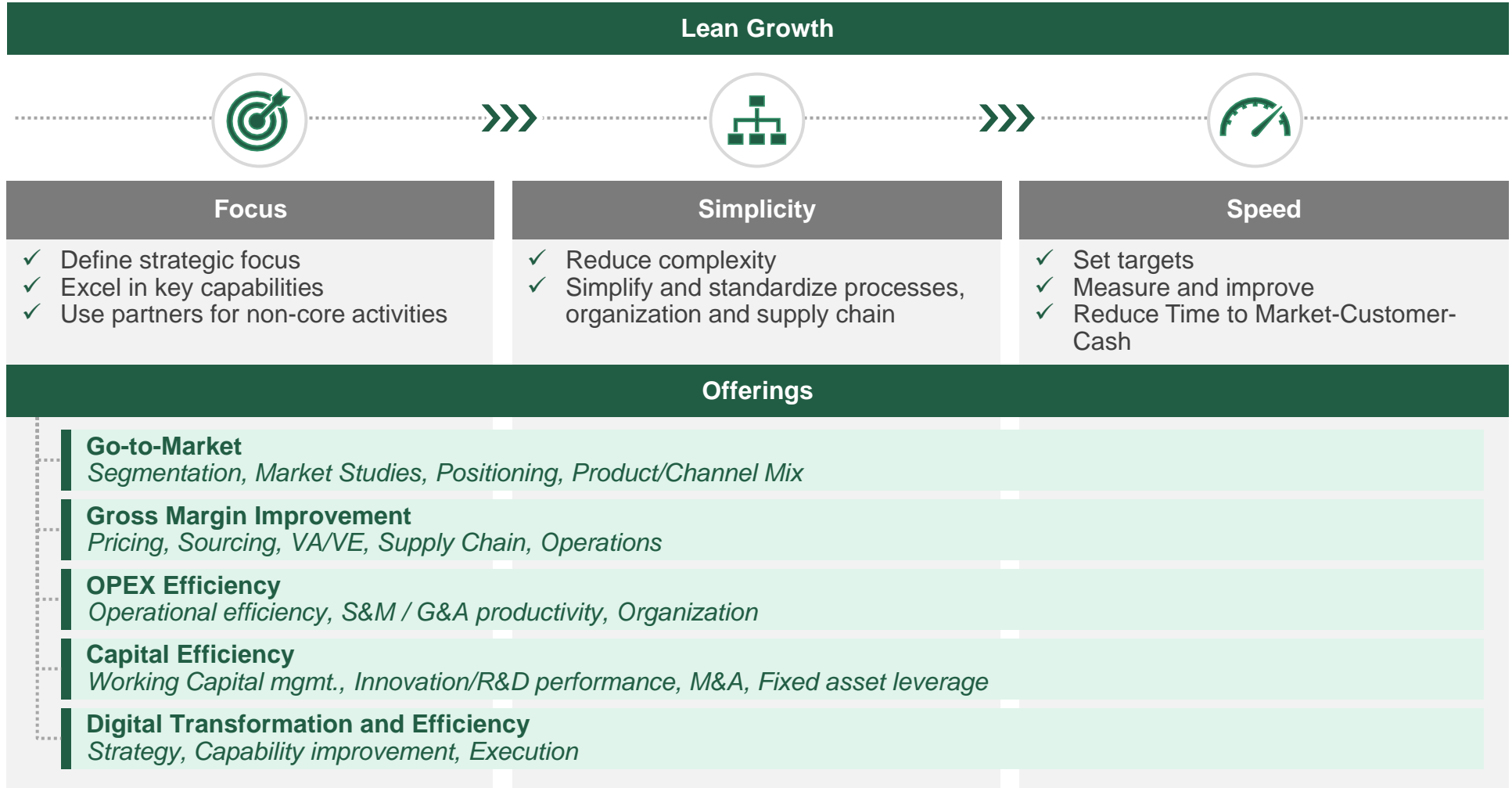
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Our Lean Growth framework is based on Focus, Simplicity, Speed – guiding principles to raise client performance

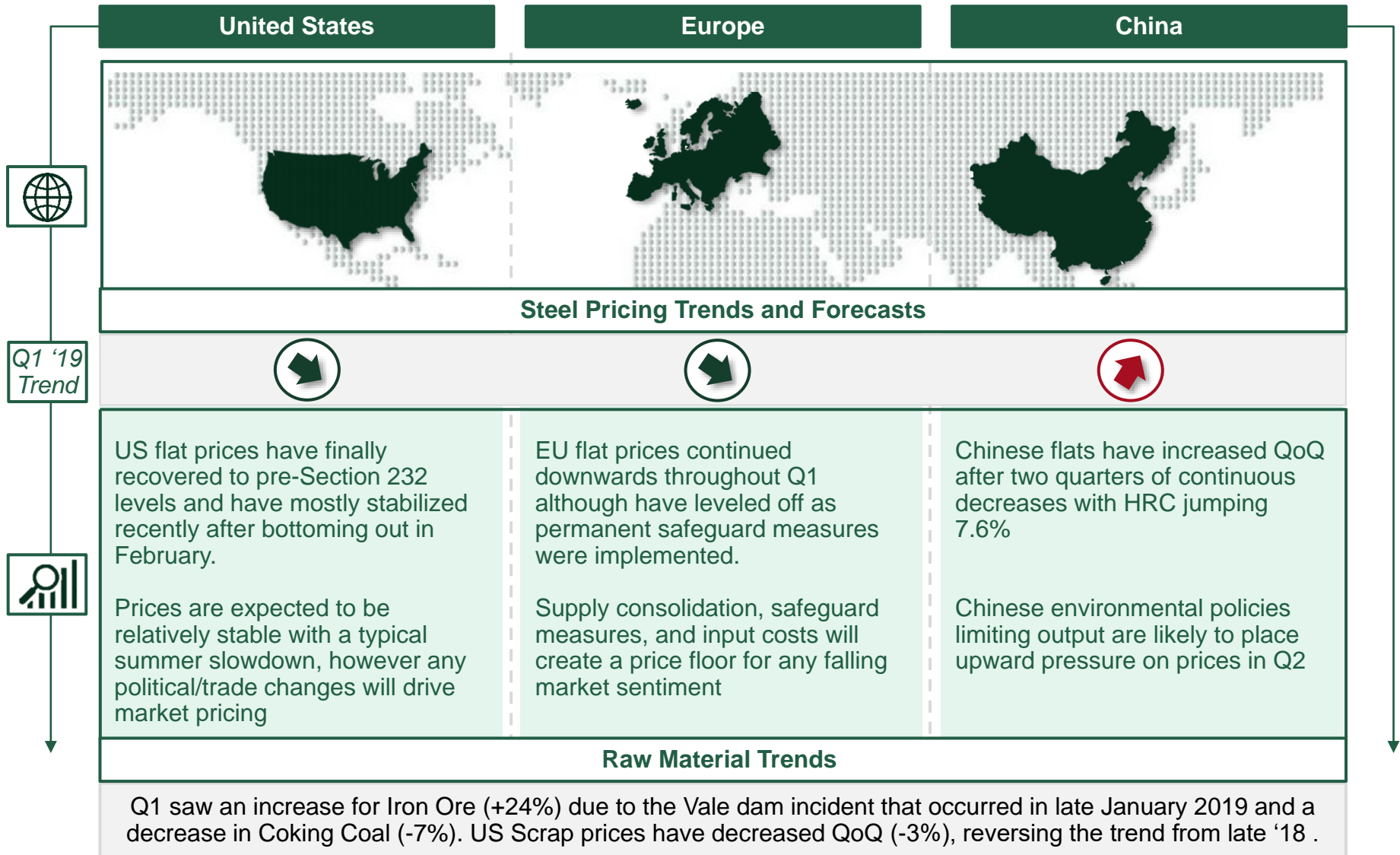


Applied Value has 15+ years of experience working with clients in numerous industries involved in various facets of steel purchasing.





















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	✓	✓	✓	✓		
	Lifting OEM	✓	✓	✓	✓		✓
	Global Engineering	✓	✓	✓	✓		
0.1M	Consumer Goods OEM		✓	✓			✓
	EU Turbine Manufacturer	✓	✓	✓	✓		
0.01M	Automotive Tier 1	✓	✓		✓		
	Scand. Engineering	✓	✓	✓		✓	
	Scand. Construction	✓	✓	✓			



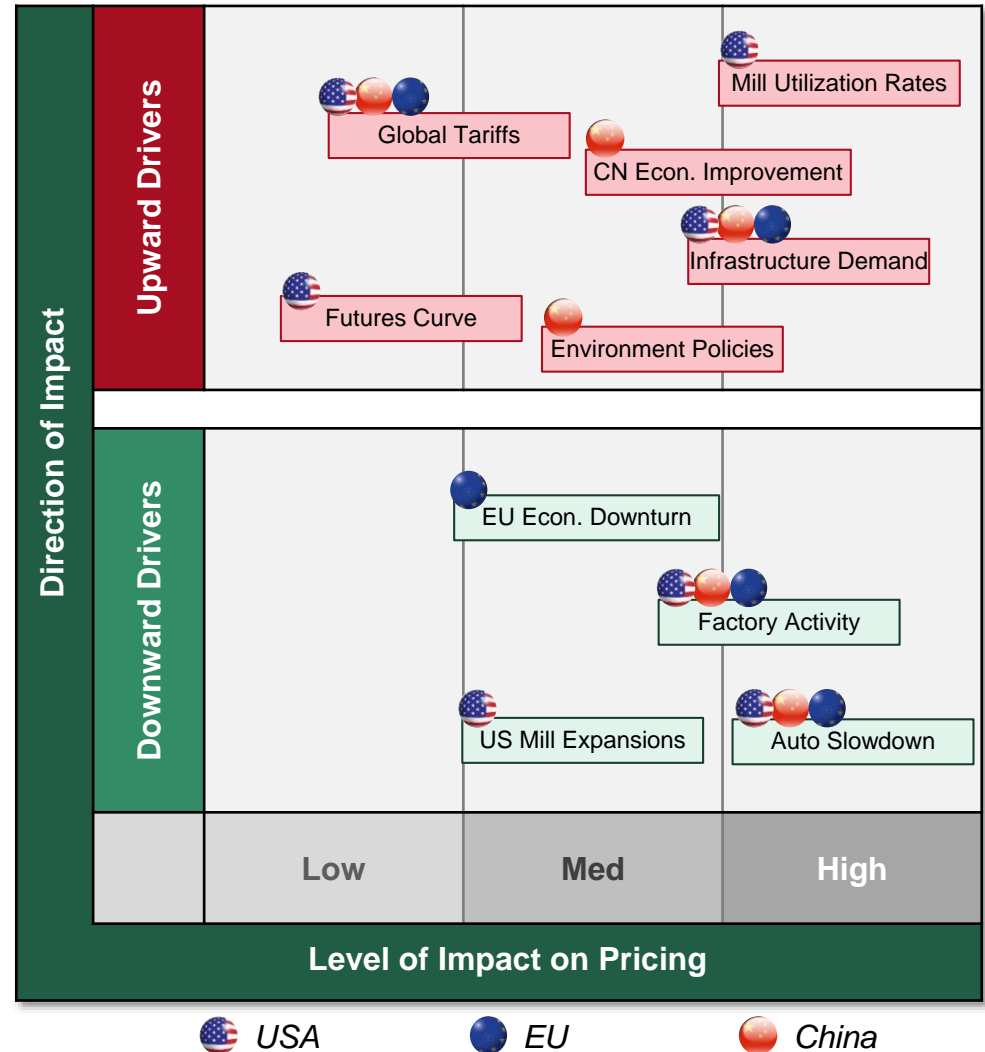
The US and EU flat steel markets saw decreases QoQ during Q1 2019 whereas China experienced increases.



Global Steel Price & Trend Summary.

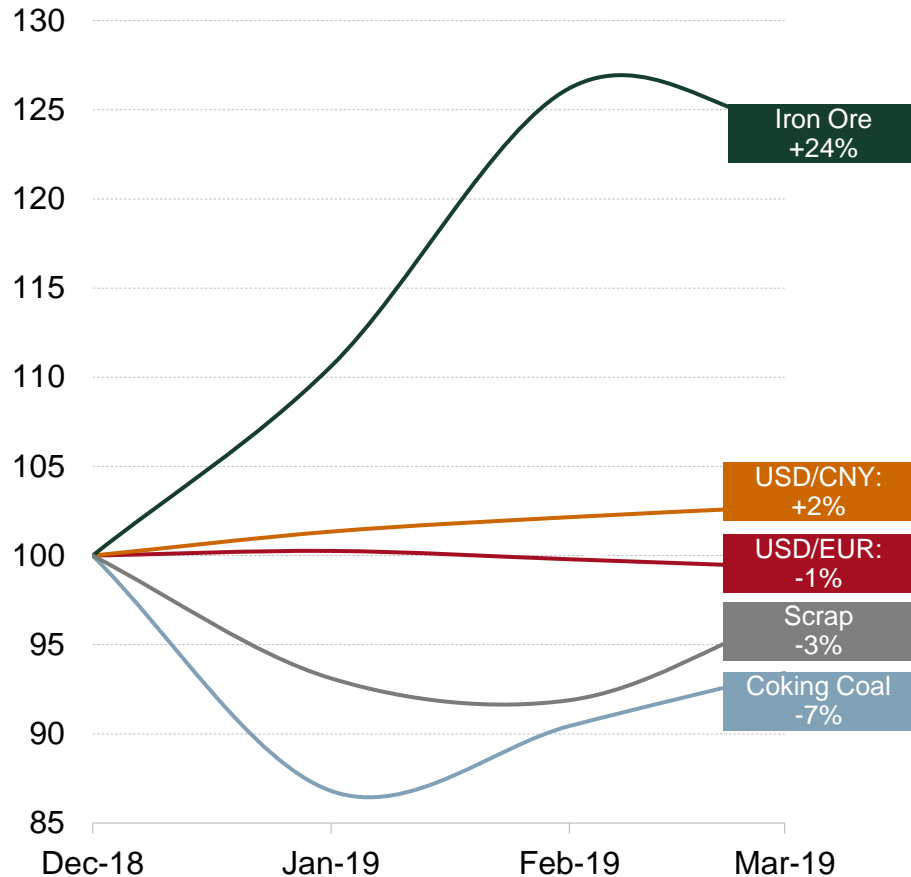
Commodity		Latest Price (Mar)	Last 3 Months	Trend (Forward)
 Flat	US	\$774/MT	-7%	
	EU	€514/MT	-5%	
	CN	\$582/MT	+7%	
 SS	US	\$2,612/MT	-5%	
	EU	\$2,623/MT	-2%	
	CN	\$2,243/MT	+4%	
 Plate	US	\$1,052/MT	-5%	
	EU	\$670/MT	+1%	
	CN	\$581/MT	+8%	
 Bar	US	\$1009/MT	-4%	
	EU	\$640/MT	-2%	
	CN	\$558/MT	0%	
 Welded Tube	US	\$1,196/MT	-5%	
 OCTG	US	\$1,075/MT	-9%	

Major Market Drivers

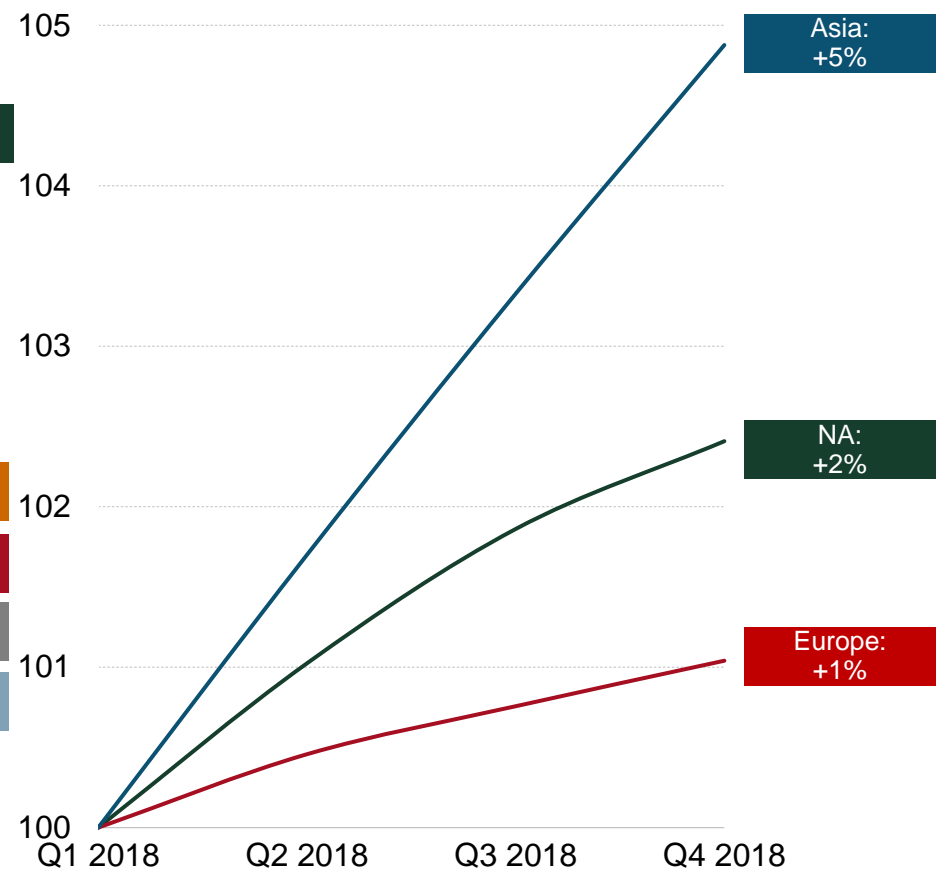


The Q1 2019 leap in Iron Ore prices (+24%) for steel input costs was offset by declines in Coking Coal, Scrap, and Natural Gas.

Indexed Input Costs
December 2018 – March 2019



Indexed GDP Product Growth
Jan 2018 – December 2018



Applied Value Quarterly Steel Report

Q2 2019

Market Conditions by Region

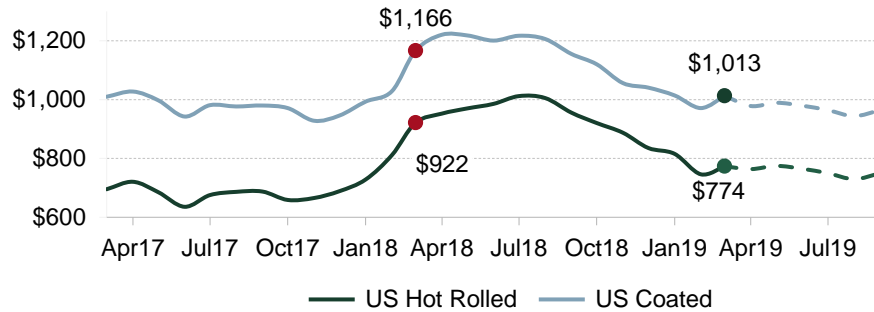
Steel Production Costs

Stock Price Development of Major Steel Companies



US flat prices have finally recovered to pre-Section 232 levels and have mostly stabilized recently after bottoming out in February.

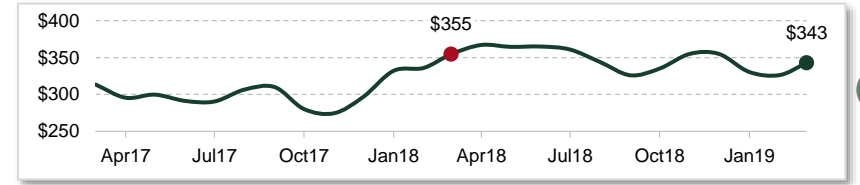
US Flat Prices (USD/MT)



Source: CRU, Applied Value analysis

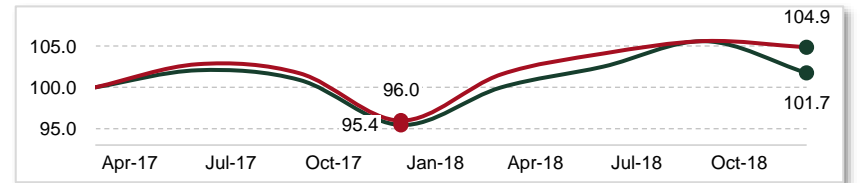
- Over the course of Q1 2018, HRC fell 7.4% while coated fell 2.7%. After the rapid tumble of US Hot Rolled Coil prices in Q4 2018, the same trend followed suit in early Q1 2019 with HRC hitting a yearly low in February at \$746/MT. A slight uptick in March at \$774/MT may indicate that the bottom steel purchasers were anxiously awaiting has arrived.
- Scrap prices decreased by 3.4% in Q1 partly due to decrease in demand. Turkish mills order 214 kMT from the US, down 44.5% the year below.
- US Mill Capacity utilization increased from 80% in December to 81% in February. The high utilization rate has been accompanied by many domestic steelmakers announcing expanded capacity and investments in new sites.
- The spread between Chinese prices and US prices has continued to approach zero, with a QoQ decrease of 35% due to rising Chinese prices, by 7.6% QoQ, and the continued decrease of US prices.

US Scrap Steel Price USD/MT



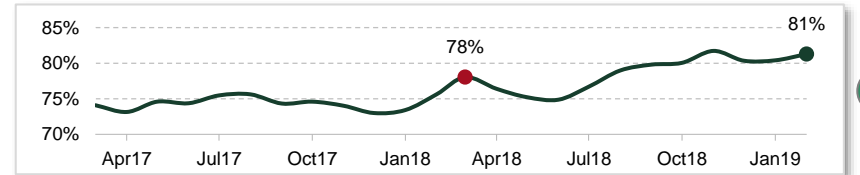
Source: SBB

Indexed Production & Consumption Volume



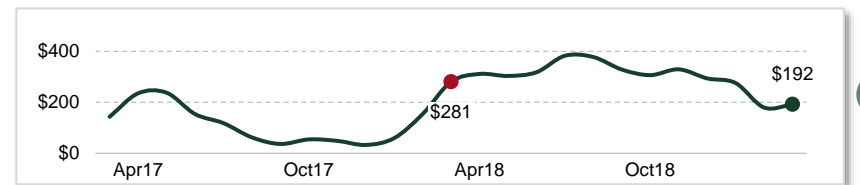
Source: CRU

US Mill Capacity Utilization



Source: AISI, SBB

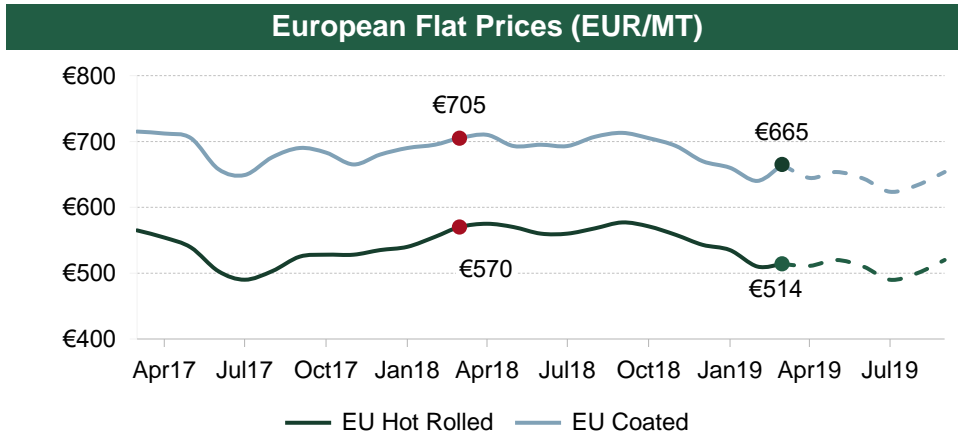
US vs China Price USD/MT



Source: US Census Bureau, CRU



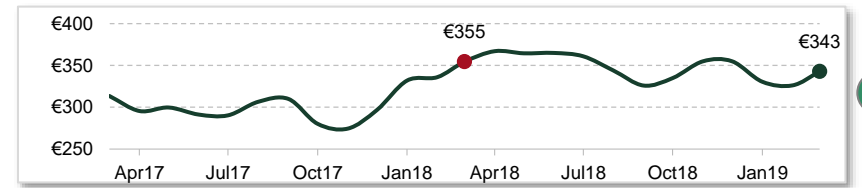
EU flat prices continued downwards throughout Q1 although have leveled off as permanent safeguard measures were implemented.



Source: CRU, Applied Value analysis

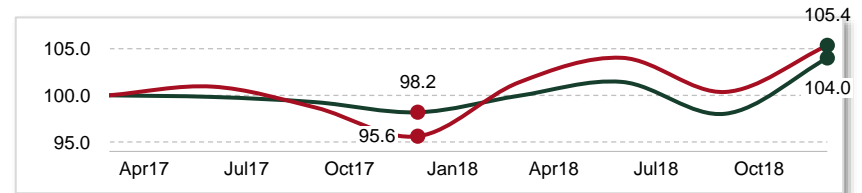
- › EU Hot Rolled Coil has dropped 5.3% in Q1 of 2019 as the EU's passenger car sales for 2019 grew less than 1%. Coated prices have remained neutral with an increase of less than 1% QoQ. In February, the European Commission implemented a permanent import quota above which a 25% tariff will apply which has placed upward pressure on pricing.
- › After dipping in January to a yearly low of 255 EUR, scrap prices returned to December prices with no net change QoQ.
- › Over the quarter, German Sheet Inventory has ticked down, but the annual rate is still 0.5% higher in Q1 2019.
- › The spread between EU and China prices has disappeared with HRC prices in both regions coming in at 514 EUR/MT for the month of March. This is due to a 5% decrease in EU prices QoQ and an 8% increase in CN prices QoQ which has helped to bridge the gap. The closing of the gap has been market driven as the EUR/CNY exchange rate remained flat over this period.

European Scrap Prices USD/MT



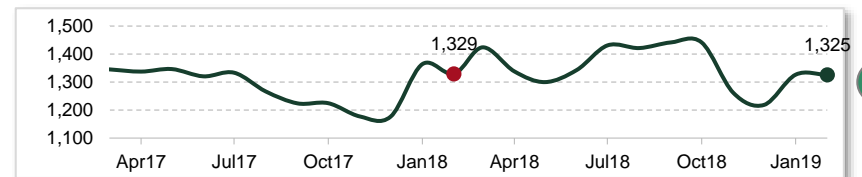
Source: SBB

German Indexed Production & Consumption



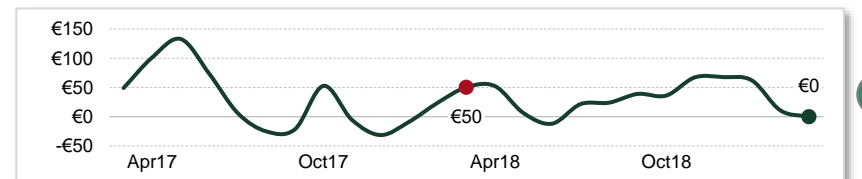
Source: CRU

German Sheet Inventory kMT



Source: CRU

EU vs. China Price EUR/MT

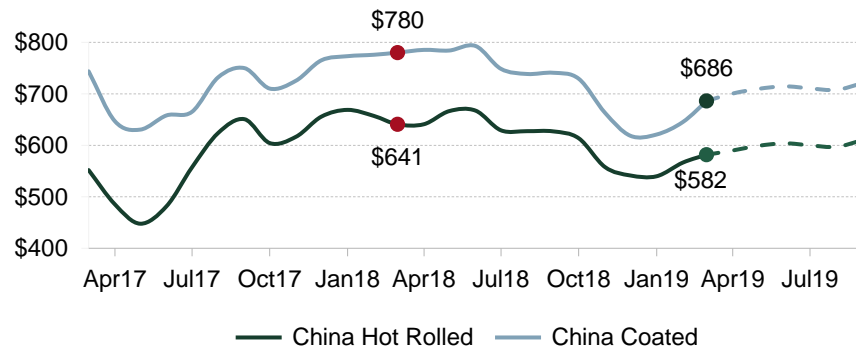


Source: US Census Bureau, CRU



Chinese flat prices increased QoQ after two quarters of continuous decreases with HRC jumping 7.6%.

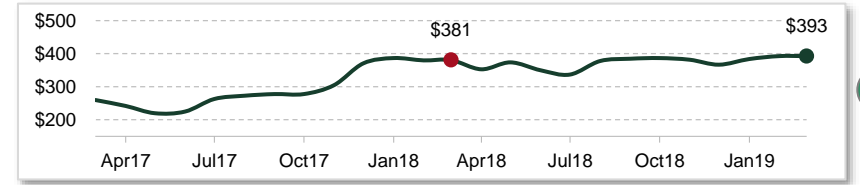
China Flat Prices (USD/MT)



Source: CRU, Applied Value analysis

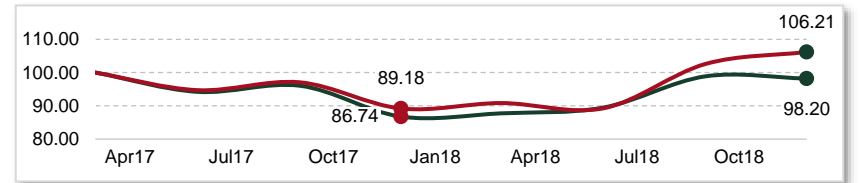
- › HRC jumped 7.6% and coated increased 10.9%. As stricter production cuts come into play in CN, steel prices have seen the first increase since Q2 2018. HRC and Coated hit lows in December at \$541/MT and \$618/MT, respectively, and then rebounded in the following months likely as a market correction.
- › CN scrap price has increased by 7% QoQ to \$393/MT, a 5 year high. Ongoing efforts by the Chinese government to cut down both pollution and production of steel has many buyers turning to scrap. The increase in demand has resulted in the large price increase.
- › After a slow start to the year in 2018, production in CN has rebounded to 2017 levels while scrap prices increased. CN steel exports reached a 6 year low as of Feb. with only 4.5 mMT being exported, a 27% MoM decrease. Over the same period, China's factory activity to hit a 3 year low with a PMI of 49.2. The 2018 annual export amount was 69.6 mMT down 8.1% relative to 2017.
- › The spreads between the US and EU and CN have both trended towards zero, with the US spread currently at \$120/MT and the EU spread at \$0/MT. This is due to US and EU prices coming down while CN prices go up.

China Scrap Steel Price USD/MT



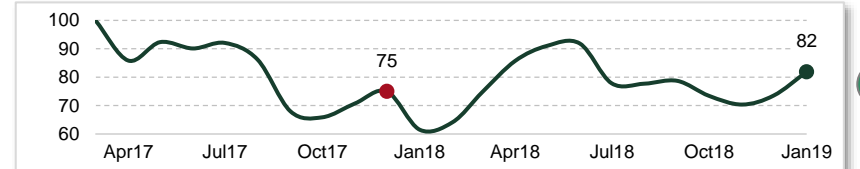
Source: SBB

Indexed Production and Consumption 100= Mar 2017



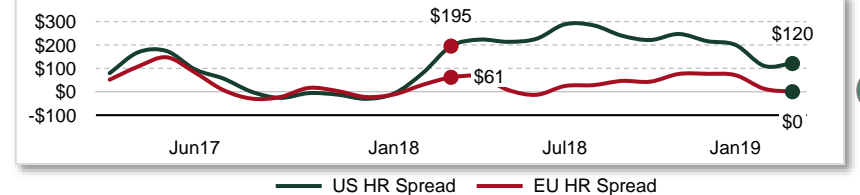
Source: CRU

China Exports 100= Mar 2017



Source: China Customs Statistics

Spread between US & EU 100= Mar 2017



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



Global infrastructure demand and Chinese environmental restrictions have placed upward pressure on steel prices.

Upward Market Drivers



Raw Material Price Increases

- › Iron Ore has jumped 24% QoQ due to the Vale dam incident that occurred in late January 2019.
- › Slab prices increased 13% QoQ partially driven by a 7% YoY reduction in production in Brazil, placing upward pressure on NA prices.
- › CN: Scrap prices have increased by 7% QoQ to \$393/MT, a 5 year high.



Infrastructure Demand

- › US: The 2019 government budget includes a 200 Billion USD initiative for repairing and expanding American infrastructure
- › EU: Construction demand remains strong after reaching the highest levels since early 1990's.
- › CN: \$163 BUSD have been injected into infrastructure projects, including a rail transit project worth \$44 BUSD. This amount of infrastructure spend is an increase of 940% YoY.



Chinese Environmental Restrictions

- › CN: Limitations on production have made China see the first increase in HRC prices since last year.
- › CN: After the large output by Chinese mills in October, production decreased 10% in the last 6 months, resulting in tighter supply.



Global Tariffs

- › EU: The European Commission implemented a permanent import quota in February above which a 25% tariff will apply.
- › US: In late March, a trade court rejected the legal challenge brought to President Trump's Section 232 Powers mentioning the decree marked an appropriate delegation of "intelligible principle."



Mill Utilization Rates

- › US: Mill utilization rates are at 81%, a second high level not seen since 2008. US Steel production for 2018 was 13.2M MT, an 8% YoY increase. These high rates have prompted many domestic steelmakers to invest in new mills to expand capacity, many of them opening in the next two years.



Economic Improvements

- › CN: After an economic slowdown in China last year due to the government's strife to reduce debt reliance, China's economy seems to have improved greatly in the last quarter. The latest China Beige Book reports, "an unmistakable first quarter recovery."



The downward global economic sentiment and uncertainty is affecting industries like automotive and placing downward pressure on steel prices.

Downward Market Drivers



Raw Material Price Decreases

- › US: Natural Gas prices have plunged 28% QoQ as the US Energy Information Administration increased its projection for production in 2019.
- › Coking Coal has decreased 7% QoQ due to weak Chinese demand and low Australian output.
- › US: Scrap prices have decreased by 3.4% in Q1 partly due to decrease in demand. Turkish mills order 214 kMT from the US, down 44.5% the year below.



Automotive Industry Slowdown

- › US: Auto OEMs & Tier 1s have been decreasing demand due to increases in material costs, coupled with declining sales in 2019
- › CN: The automotive industry has seen the first contraction in more than two decades.
- › EU: The automotive Industry has experienced a slowdown and is expected to have a growth rate of under 1% in 2019. Additionally, many global automakers have ceased or are reducing their operations in Europe including: Nissan's Infiniti, Honda, Ford, and Jaguar Land Rover.



Purchasing Managers' Index

- › CN: Factory activity to hit a 3 year low with a PMI of 49.2. The 2018 annual export amount was 69.6 mMT down 8.1% relative to 2017
- › US: Factory growth rate is at its lowest since 2017, hitting a PMI of 52.5, a 3% decrease QoQ.
- › EU: There has been a contraction in the EU's manufacturing activity with a QoQ decrease of 8%, the March PMI lowering to 47.6.



Economic Downturn

- › EU: The European Commission released a statement lowering its growth forecasts for the region's major economies, with Italy growing only 0.2% The instability caused by the prolonging of Brexit has also had economic effects on the region.
- › The Baltic Dry Index, a global economic indicator, has dropped by a whopping 51% QoQ, a signal of looming economic contractions.



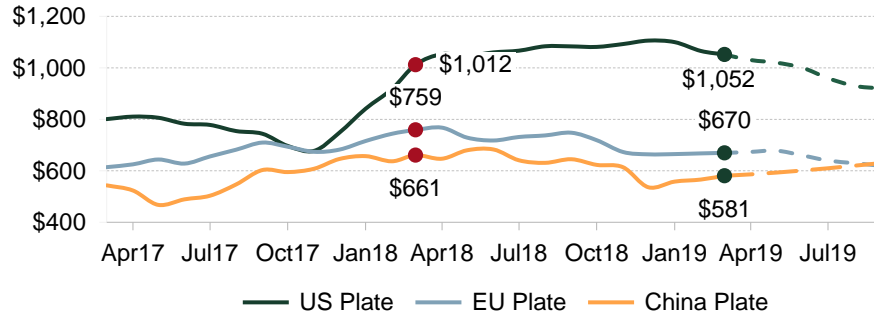
Market Correction

- › US: After a turbulent year in the US steel market, domestic HRC prices began to tumble in Q4 2018 and continued on a downward trajectory into February when they hit a yearly low of \$746/MT. The price slightly increased in March, but the QoQ change was a 7.4% decrease for HRC and a 2.7% decrease for coated material. The rapid decline in prices was due to market correction as 232 prices were unsustainable, and it is likely that the February price is the low the market was waiting for.



Plate Prices in the US have started to follow the flat market downturn, while European prices have remained steady.

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

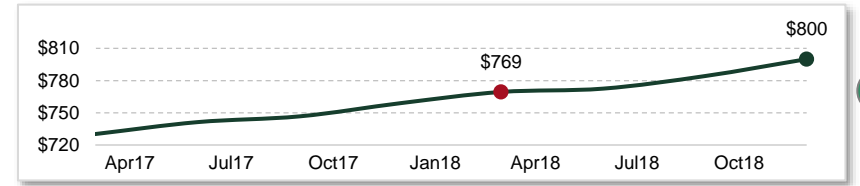


Source: SBB, Applied Value analysis

- › US plate prices have decreased 4.8% QoQ as a result of weakened demand from service centers which have not been buying since Q4. This led to a decrease in lead time from 8.6 weeks to 5.5 weeks QoQ.
- › US Defense Spending has stayed neutral at a 2% increase and US Crude Oil production has also trended sideways. Global oil production has decreased by 7.5%
- › EU prices have increased slightly at 0.8% QoQ, a stark comparison to the European HRC prices, which have decreased 5.3% QoQ .
- › Chinese plate prices have increased 8.4% QoQ, even more than the 7.4% seen in Chinese HRC market. This is likely a rebound from a yearly low in December.
- › Baltic Dry Index has tumbled by a whopping 51% signaling immense slowdown in manufacturing and a large decrease in demand

US Defense Spending

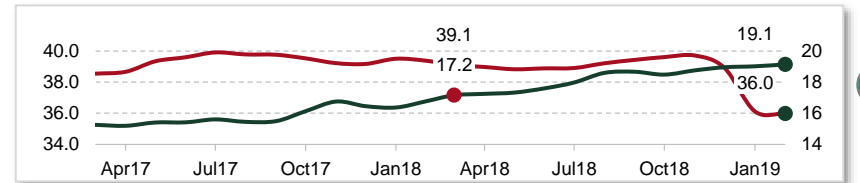
BUSD



Source: St. Louis FRED

Crude Oil Production

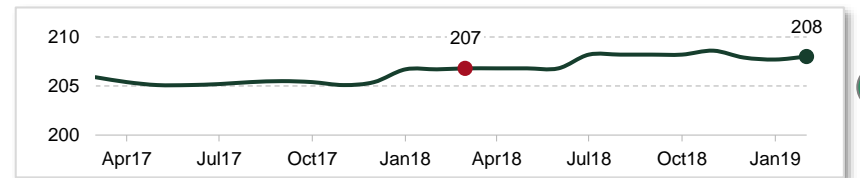
MBPD



Source: EIA

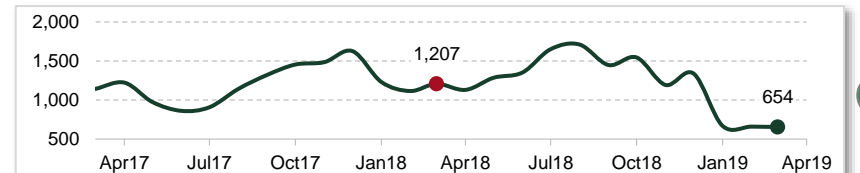
US Ship Building and Repairs

Index: 1985 = 100



Source: BLS

Baltic Dry Index

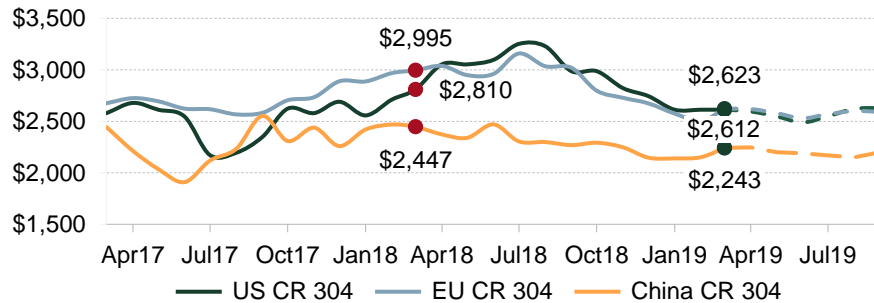


Source: IMF



Global SS prices had sharp declines in Q1 driven by large decreases in natural gas and chrome, of 28% and 10%, respectively.

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

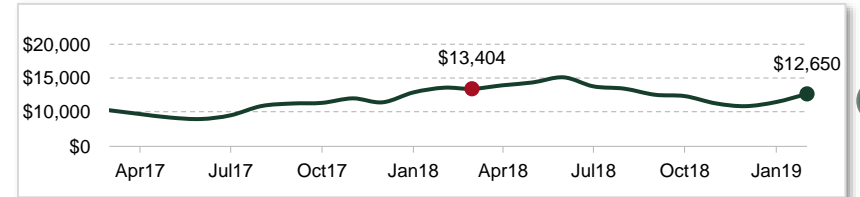


Source: CRU, Applied Value analysis

- Q1 '19 US stainless prices dropped by 4.8% QoQ to \$2,612/MT, a yearly low. European stainless prices have stayed relatively constant with a 1.9% decrease QoQ. Chinese stainless prices increased 4.5% since Q4 2018.
- Raw materials have gone in different directions in Q1 with both Chromium and Natural Gas incurring large decreases at 10% and 28%, respectively. US Natural Gas storage was its lowest levels in 15 years at the beginning of this winter and a cold start to the season upped prices in Q4 but since then have come down due to the US Energy Information Administration's short term energy outlook increasing its projection for production in 2019.
- Nickel and Iron Ore have seen increasing values at 17% and 26%, the latter partly due to the Vale dam collapse in Brazil that halted mining processes and resulted in limited supply in the middle of Q1. At 85\$/MT, Iron Ore is at its peak since Feb 2017 and is likely to come down with supply coming in from Australia and Brazil.

Nickel

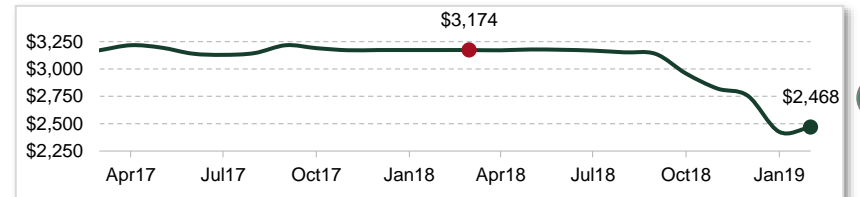
USD/MT



Source: LME

Chromium

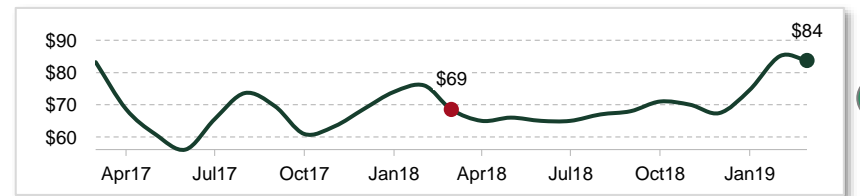
USD/MT



Source: AAM

Iron Ore

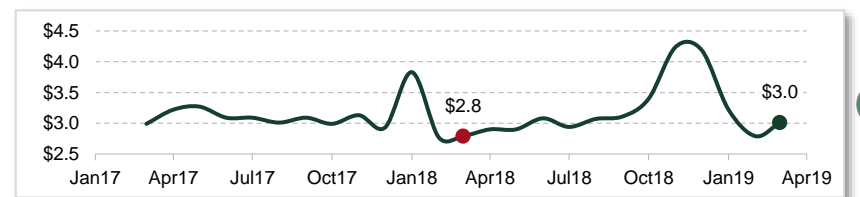
USD/MT



Source: SBB

Natural Gas

USD/mmBtu



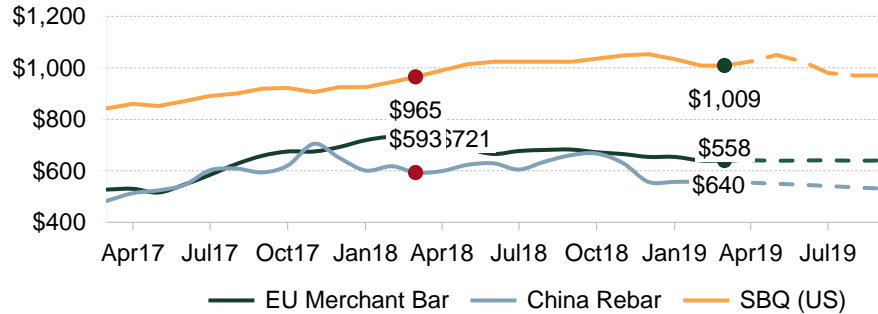
Source: IMF

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



Q1 Bar prices saw decreases in the US of 4% and in the EU of 2% due to lower scrap prices. CN bar remains flat. Nickel has raised by 17%.

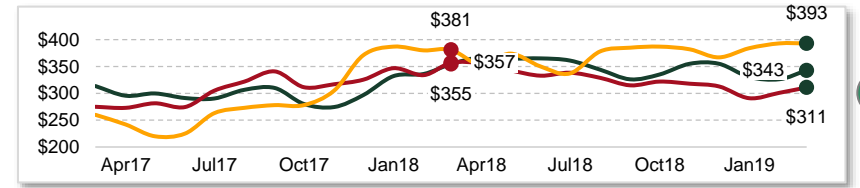
Long Steel Prices (USD/MT)



Source: SBB, Applied Value analysis

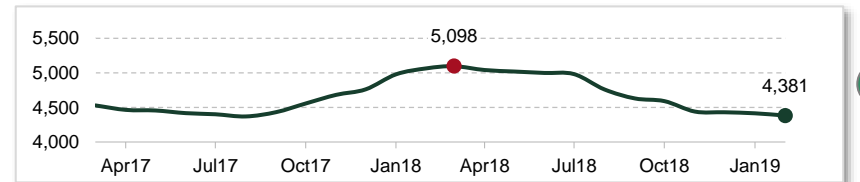
- › US SBQ prices have reversed after their Dec 18 peak and decreased QoQ by 4%. The turnaround comes as US scrap prices have lowered by 3.4% and the automotive industry has experienced decreased demand. Constant Ferrochrome pricing and a 16.7% increase in Nickel may offset the decrease.
- › EU merchant bar saw a continued decline from Q4 into 2019 Q1 with a slight 2.1% decrease as EU scrap and Ferrochrome prices remained neutral and the Eu experienced a slowdown in the automotive industry.
- › China Rebar prices have remained steady after the large 16% drop in Q4 due to large decreases in raw material prices as well as economic factors including increased construction. The leveling of bar prices is likely due to the unexpected rebound of Chinese scrap prices, a QoQ increase of 7%, brought on by sudden demand by Chinese consumers of finished steel.

Scrap Steel Price



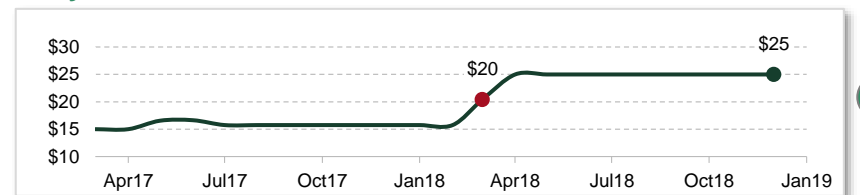
Source: SBB — US Scrap — EU Scrap (USD) — China Scrap

Ferrochrome



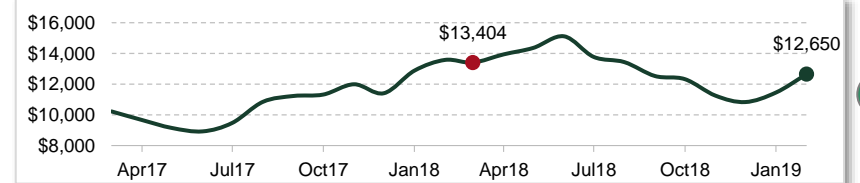
Source: AAM

Molybdenum



Source: SBB

Nickel



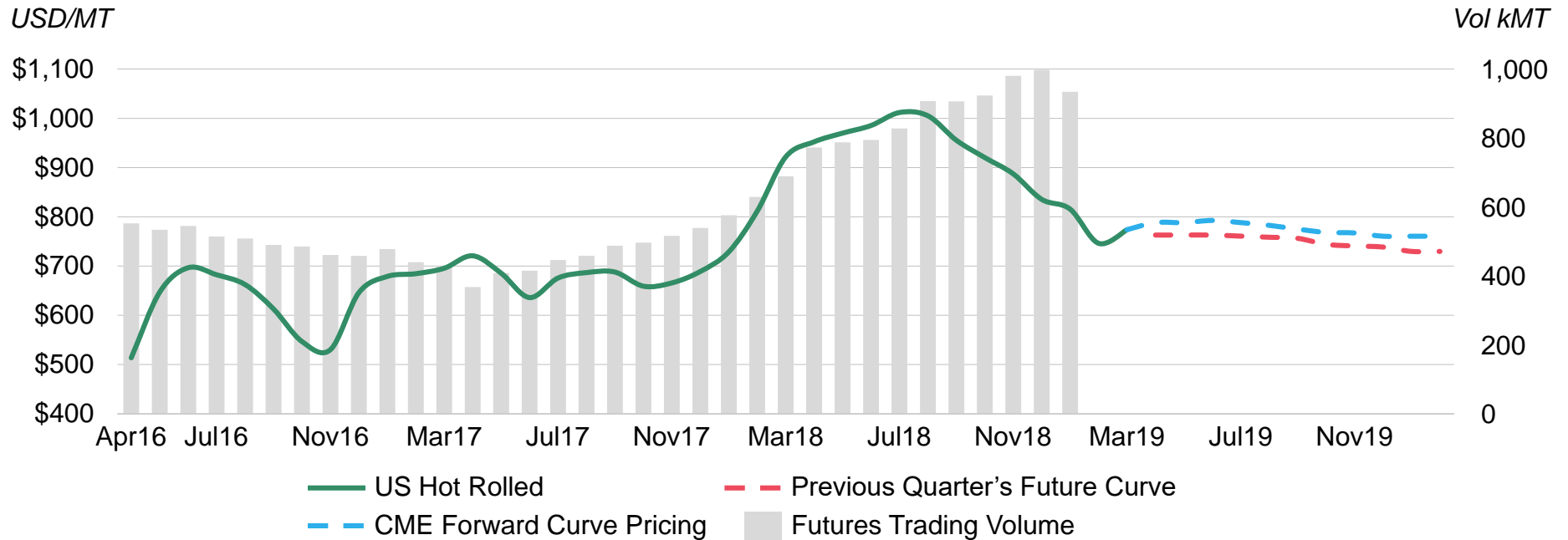
Source: LME

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



The current forward curve for Hot Rolled steel futures is in contango with Q2 prices ending at ~\$778/MT.

Hot Rolled Historical Pricing and Contract Volume & Futures CME Pricing



- › The CME HRC Futures Curve implies that prices will increase slightly until July and then reverse to trend declining gently into the end of the year at 1.3% below current spot.
- › Participation in the futures market through the CME exchange has increased rapidly throughout 2018, one of the more volatile years on record for the steel market. The average annual volume traded over the CME exchange has more than doubled over the last year.

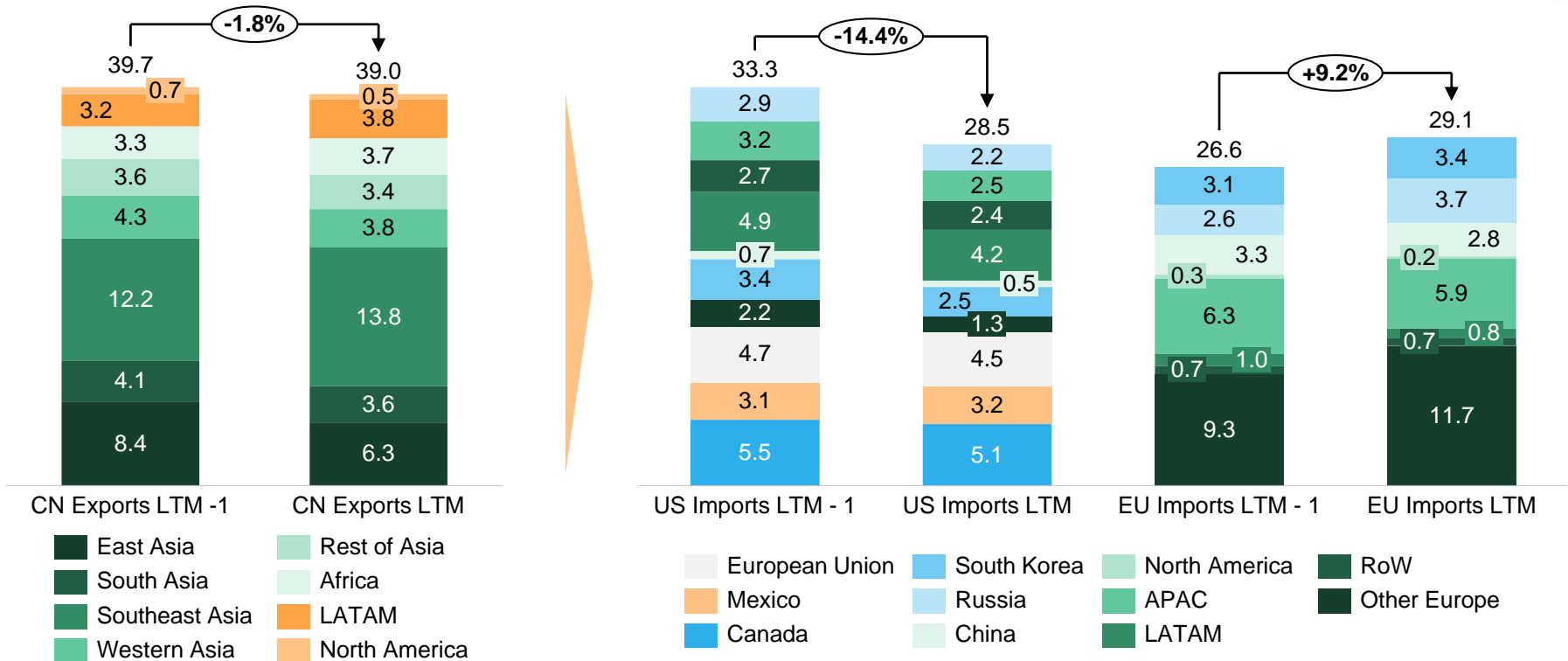
Note: Volumes are traded volumes cleared by CME, i.e. they exclude the "off exchange" OTC (over-the-counter) volumes not cleared by CME Prices pulled for CME futures Apr 6th, 2019
Source: CME, CRU



Import levels have started to decline at a rapid rate in the US, while recently implemented tariffs in EU have yet to see material effect.

China Exports, and US and EU Imports – All Steel Products
MMT

LTM: Jan 18 – Jan 19



- › Chinese exports decreased 1.8% in LTM compared to the same period YoY, driven by lower exports to mainly East Asia, South Asia. Exports to the US were also lower, though they take up a much smaller share of volume
- › US imports are down 14.4% in the LTM relative to the same period last year. At the end of December 2018, the YoY difference was at 8%, illustrating that imports have continued to drop off. First declines were seen in import levels from major trade partner Canada.
- › Europe imports were higher in LTM, as they increased 9.2%. The biggest jumps were on the imports from European countries outside of the EU, and Russia



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Q2 2019

Market Conditions by Region

Steel Production Costs

Stock Price Development of Major Steel Companies



Q1 2019 saw Iron ore jump 24% QoQ due to the Vale dam incident and Coking Coal decrease 7% QoQ because of weak demand.

Current Market Update

Q2 Forecast

• Scrap

- **US Scrap** prices reversed trend in Q1 2019 with a 3% decrease from Q4 2018. February saw the lowest prices of the last two quarters at \$326/MT, at a time when European recyclers were demanding a low selling point for material coming from the US. In January, Turkish mills booked only 214 kMT from the US, a decrease of 44.5% YoY. As domestic mills continue to ramp up their output, additional demand for scrap could push prices higher.
- **EU Scrap** prices acted similarly to US scrap prices by dipping in early Q1 2019, dropping to 255 EUR in January, a multiyear low. Prices then rebounded later in the quarter to result in no net change QoQ. The mid-quarter increase in prices occurred in the same time period as the weakening of the Turkish mills output. There was a 4% increase in scrap prices from January to February, when the Turkish output decreased by 22% MoM.



• Iron Ore

- **Iron Ore** prices soared this quarter, jumping 24% QoQ. February's price of \$85/MT is the highest the market has seen since early 2017. The Vale dam collapse on January 25, 2019 has sent iron ore prices upwards. Vale is the world's largest producer of iron ore and several production facilities have been destroyed in the disaster. Pricing has come down slightly from February to March. Brazil and Australia are likely to increase their supply of iron ore in the near term.



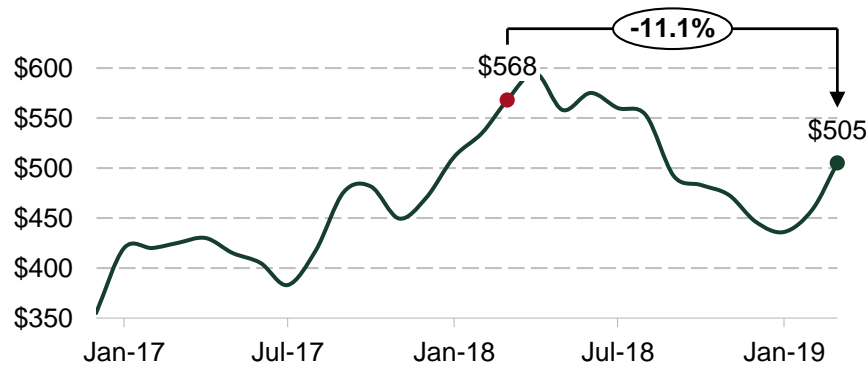
• Coking Coal

- **Coking Coal** saw a large drop MoM from December to January with a 13% decrease, but the price increased slightly resulting in an overall 7% QoQ decrease. Demand for coking coal outside of China has been weak and Australia's exports of the material have dropped to a 2 year low. An uptick in demand is unlikely due to the difficulty in offloading it as well as a movement by the world's largest insurers and banks, including 40% of the world's top 40 banks, to cut back on coal funding for environmental and reputational reasons.



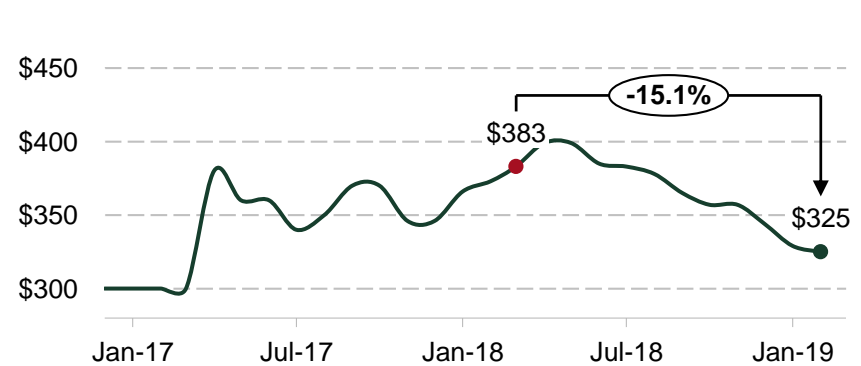
After declining 5.5% QoQ, Pig Iron is at a multi-year low of \$325 while slabs have increased 13.2% QoQ.

Slabs
USD/MT



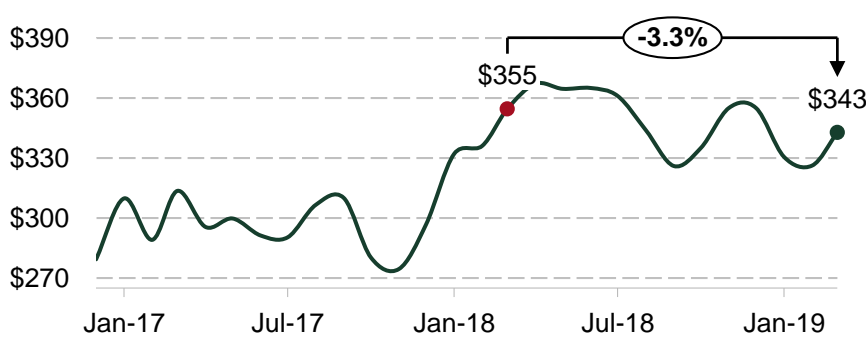
Source: SBB (Semi-Finished / Slab / Latin America export FOB LA)

Pig Iron
USD/MT



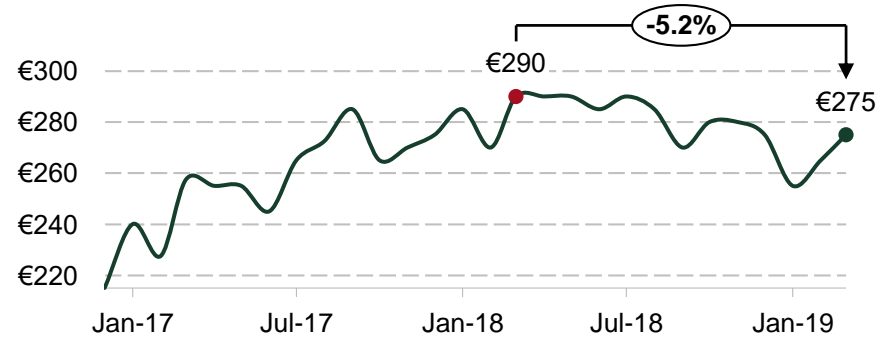
Source: SBB (Brazil export FOB Ponta da Madeira)

Ferrous Scrap US
USD/GT



Source: SBB (Ferrous Scrap, US Domestic - Shredded)

Ferrous Scrap Europe
EUR/MT



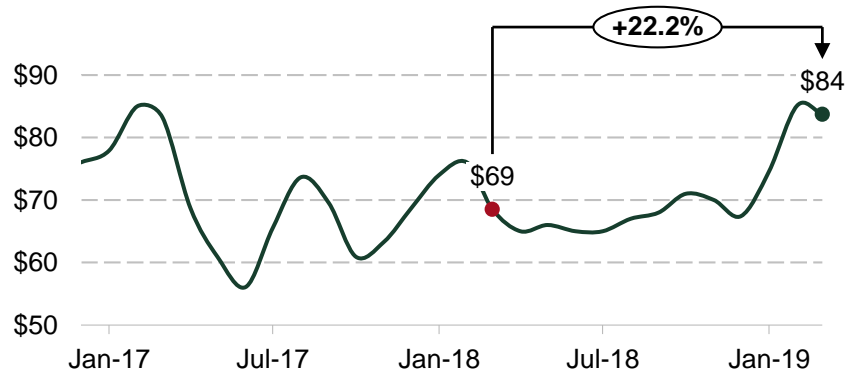
Source: SBB (Scrap / Shredded / N.Europe domestic delivered)

● Previous Year's Data
● Latest Data



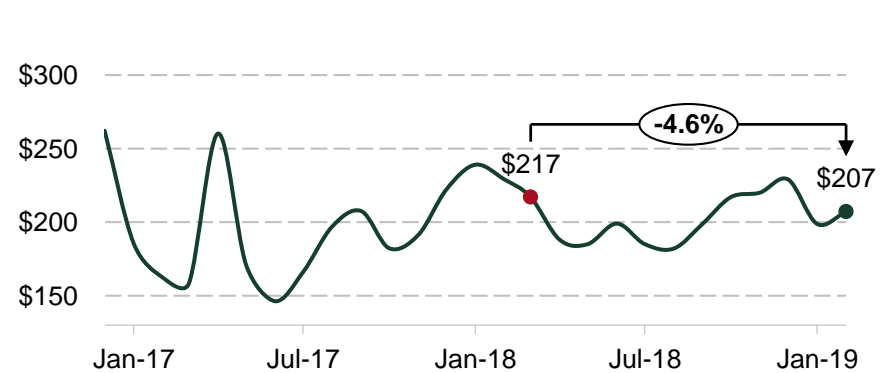
Iron Ore has increased 24% QoQ largely due to the Feb. Vale dam incident; Coking Coal has decreased 7% and Zinc has increased 7%.

Iron Ore
USD/MT



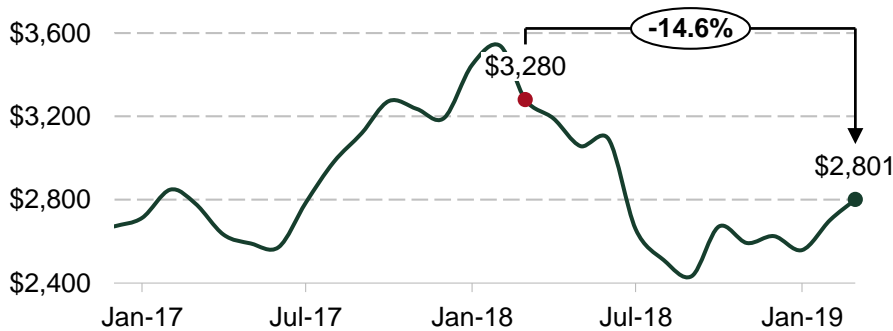
Source: SBB (SGX 62% Fe Iron Ore cash-settled swaps - CFR Tianjin port)

Coking Coal
USD/MT



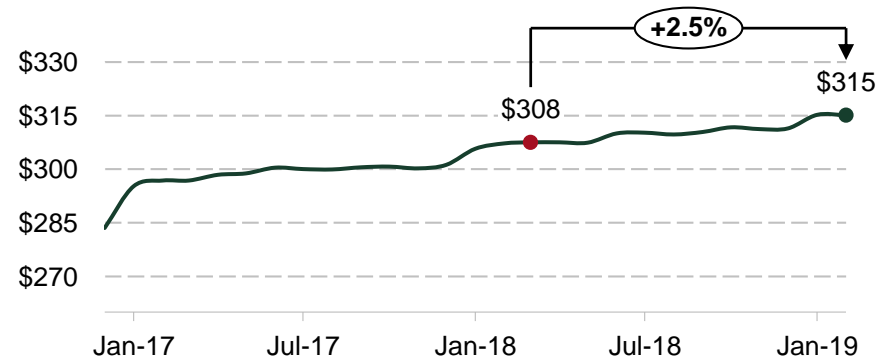
Source: SBB (Hard Coking Coal/Australia export FOB)

Zinc
USD/MT



Source: SBB, London Metal Exchange

Limestone – Producer Price Index



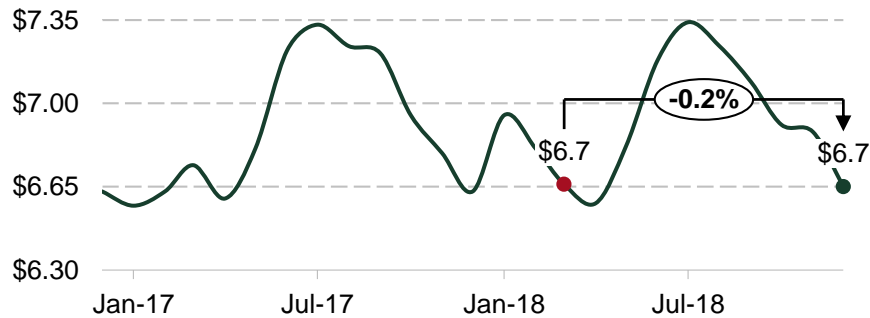
Source: BLS PPI. 1983 = 100

● Previous Year's Data
● Latest Data



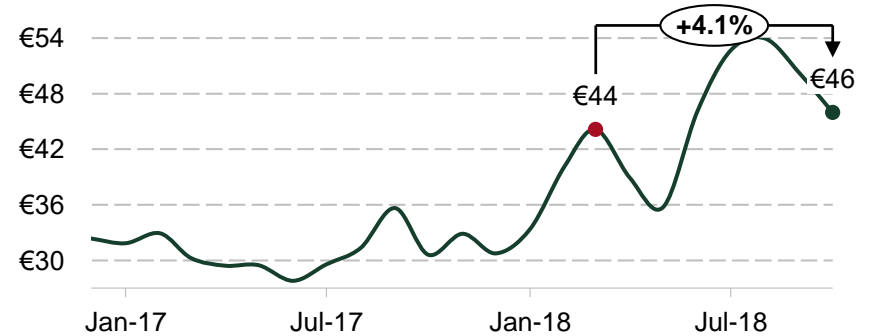
Natural Gas Prices in both regions have fallen over 25%. Electricity prices in the US have fallen 6% and have plateaued in the EU.

Electricity US
US cents/KWH



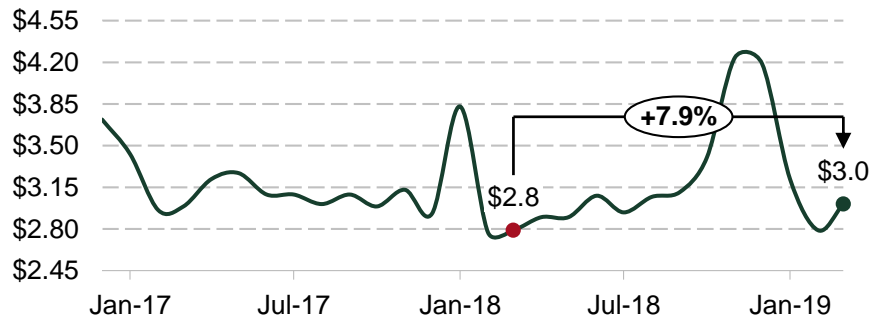
Source: US Energy Information Administration (Industry retail price)

Electricity Europe
EUR/MWH



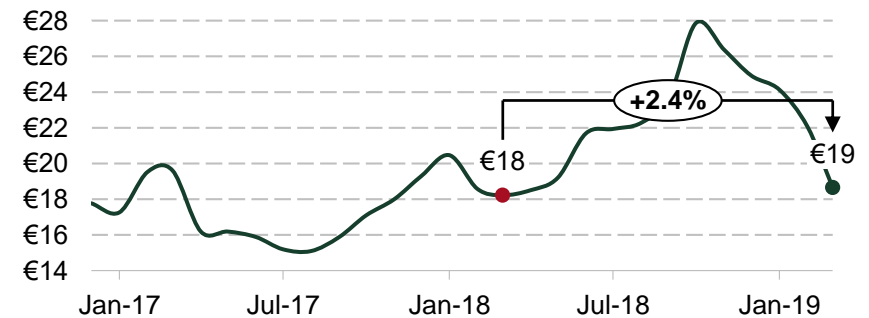
Source: EEX (KWK-Index Germany), Nordpool

Natural Gas US
USD/mmBtu



Source: EIA (Natural Gas spot price at the Henry Hub terminal in Louisiana)

Natural Gas Germany
EUR/MWH



Source: EEX (EGIX Germany)

● Previous Year's Data
● Latest Data



Applied Value Quarterly Steel Report

Q2 2019

Market Conditions by Region

Steel Production Costs

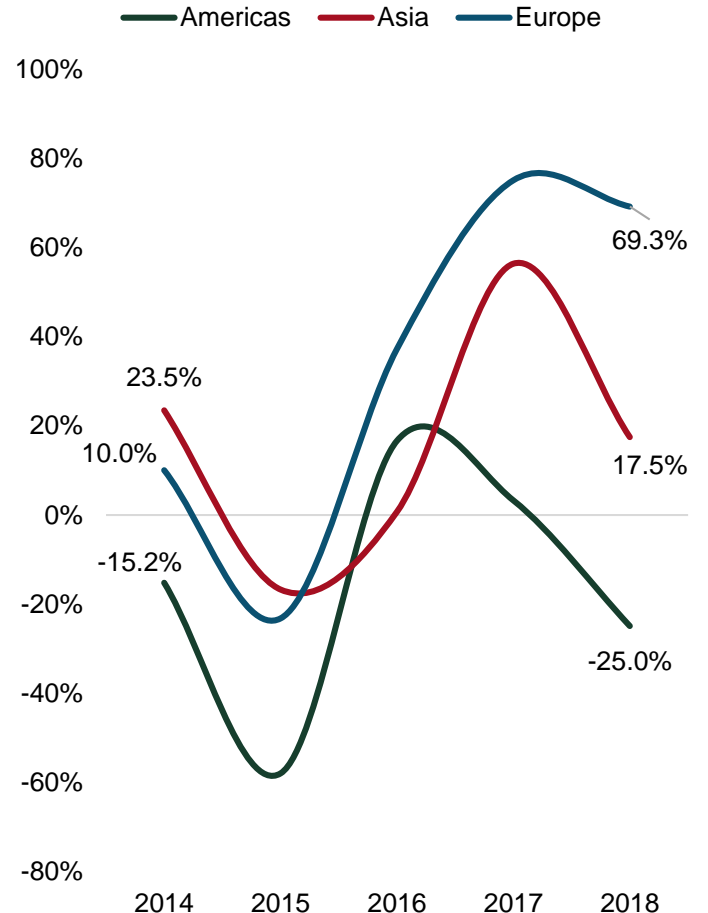
Stock Price Development of Major Steel Companies



If Jan '14 is set as base year, EVRAZ and Baosteel have seen the largest stock price growth while AK Steel seen the largest decline.

Regions	Mills	Indexed Stock Movement				
		2014	2015	2016	2017	2018
Americas	AK Steel	-6%	-65%	63%	-9%	-59%
	GERDAU	-49%	-75%	-42%	-34%	-19%
	NUCOR	-5%	-22%	18%	25%	6%
	(US)	-1%	-70%	28%	31%	-27%
APAC	ANSTEEL	18%	-44%	-18%	27%	1%
	BAOSTEEL	64%	34%	51%	108%	63%
	JFE	14%	-20%	-25%	13%	-21%
	TATA STEEL	-3%	-38%	-5%	77%	26%
Europe	ArcelorMittal	-23%	-67%	-41%	-24%	-46%
	EVRAZ	55%	-28%	122%	246%	371%
	Severstal	-4%	-11%	61%	66%	53%
	ThyssenKrupp	26%	7%	33%	41%	-9%
	voestalpine	-4%	-17%	10%	47%	-23%

Regional Stock Movement 2014-2018



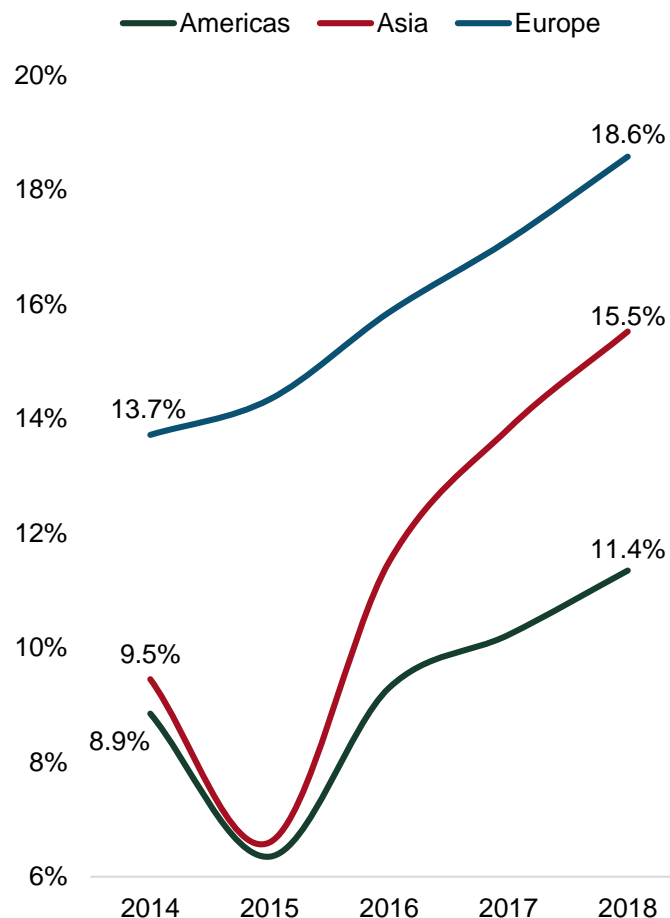
Sources: Cap IQ, Analyst Reports, Applied Value Analysis



Steel mills in each region have seen margin improvements in the past five years with European mills having relatively better EBITDA.

Regions	Mills	EBITDA				
		2014	2015	2016	2017	2018
Americas	AKSteel	5.8%	7.2%	10.2%	8.8%	7.1%
	GERDAU	11.0%	9.8%	9.9%	10.8%	13.2%
	NUCOR	9.8%	8.2%	13.3%	13.0%	15.1%
	(US)	8.8%	0.2%	3.8%	8.3%	10.0%
APAC	ANSTEEL	8.3%	1.9%	10.2%	11.7%	15.3%
	BAOSTEEL	10.1%	9.1%	13.4%	15.1%	17.0%
	JFE	10.4%	7.8%	8.4%	11.0%	11.2%
	TATA STEEL	9.0%	7.6%	14.0%	17.5%	18.6%
Europe	ArcelorMittal	8.5%	5.3%	10.2%	11.7%	13.4%
	EVRAZ	17.5%	15.7%	19.2%	23.7%	27.5%
	Severstal	26.5%	32.4%	31.8%	32.4%	35.3%
	ThyssenKrupp	4.1%	5.4%	5.1%	2.7%	2.8%
	voestalpine	12.0%	12.9%	13.0%	15.1%	13.9%

Regional EBITDA 2014-2018



Sources: Cap IQ, Analyst Reports, Applied Value Analysis





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