Korea’s Steel Market
Recent Trends and Outlook

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Korea Iron and Steel Association
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Executive summary

Steel making capacity

- Recent trends show Korea’s steel making capacity has remained at stable level for the past 5 years. Particularly, it even decreased by 600 thousand MT in 2018 due to exit of EAF facilities.

Domestic supply and demand

- Steel consumption in 2019 slightly increased compared to 2018 but failed to recover at the level of 2016. Korea’s steel demand is expected to decrease 1.9% - 3.7% in 2020 due to a slump in steel consuming industries.

Steel trades

- Steel export decreased by 0.2% in 2019 compared to the previous year and likely to maintain in 2020 at around 30 million MT.
- Steel imports reached 16.8 million MT by y-o-y 9% increase in 2019.
- Long product imports have significantly increased by y-o-y 12.9%, and China occupied 50.6% of the volume.

Trade remedies on steel products

- Global steel industries are facing the era of trade remedies. 31.7% of trade remedies from 1995 to 2018 were on base metals & articles according to WTO.
- Korea, on the other hand, has applied only for 6 AD on steel imports.
01

General economic outlook
01. General economic outlook

Overview

- Korea’s GDP has maintained a stable level around 2% - 3% growth for the past 10 years
- Bank of Korea has expected increase by over 2% in 2019, but is keeping a careful watch on economic uncertainties sparked by COVID-19 outbreak

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019e</th>
<th>1H</th>
<th>2H</th>
<th>TOTAL</th>
<th>2020 (e)</th>
<th>2021(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.2</td>
<td>2.7</td>
<td>2.0</td>
<td>2.2</td>
<td>2.3</td>
<td>2.3</td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Private Consumption</td>
<td>2.6</td>
<td>2.8</td>
<td>1.9</td>
<td>1.9</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Equipment Investment</td>
<td>14.6</td>
<td>-2.4</td>
<td>-7.8</td>
<td>5.7</td>
<td>4.2</td>
<td>4.9</td>
<td>4.9</td>
<td>5.2</td>
</tr>
<tr>
<td>Construction Investment</td>
<td>7.6</td>
<td>-4.3</td>
<td>-4.3</td>
<td>-3.6</td>
<td>-1.2</td>
<td>-2.3</td>
<td>-0.9</td>
<td>-0.9</td>
</tr>
<tr>
<td>Exports</td>
<td>3.8</td>
<td>3.3</td>
<td>-0.4</td>
<td>2.3</td>
<td>2.1</td>
<td>2.2</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Imports</td>
<td>7.4</td>
<td>1.6</td>
<td>-1.6</td>
<td>2.4</td>
<td>2.3</td>
<td>2.4</td>
<td>2.4</td>
<td>2.9</td>
</tr>
</tbody>
</table>
01. General economic outlook

Productions and business sentiment

- Korea’s industrial production has constantly increased by y-o-y 0.4% during 2019 but the growth is slowing down.
- BSI index has shown a negative record of steel sectors below the manufacturing industries.

* Source: Kostat

* Source: MOTIE, KIET
02

Steel making capacity development
Global steel making capacity has rapidly increased by 16.2% over the decade compared to 2009.
China occupies about 48.8% of global steelmaking capacity and Korea only about 3.5%.
Korea’s capacity has rather decreased about 600 thousand tons in 2018, and maintained the same level in 2019.

* Source: OECD (Mar. 2020)
03

New Challenges of the industries
03. New challenges of the industries

POSCO the Lighthouse Factory

- World Economic Forum has appointed POSCO smart factory as Global Lighthouse Factory in 2019. It was the first official recognition as a Korean iron and steel company.
- POSCO is one of the front-runners dare to apply new technologies including big data analysis to steelmaking processes, and PosFrame is the world’s first smart factory platform designated for continuous steelmaking process.
- POSCO has completed more than 320 projects to establish smart factories from 2016 to 2019 and was able to cut cost about 2,520 hundred million KRW

Smart steelmaking and How PosFrame works

* Source: POSCO Newsroom
04

Domestic supply and demand
04. Domestic supply and demand

* Source: Korea Iron & Steel Association
Exports and imports
05. Exports and imports

Exports by products category

Imports by products category

Exports and imports by countries in 2019

* Source: Korea Iron & Steel Association
05. Exports and imports

Continuous import penetration of stainless steel products

- Korea’s import penetration rate is relatively higher than other major steel producing countries with highest record on STS above of 220% in 2019.
- STS flat products (HR·CR) imports from Indonesia rapidly increased in 2019 and particularly STS HR was even higher than that of China
- Import penetration rate by country (2018, Worldsteel): US 31.8%, Japan 9.2%, Korea 27.8%

Korea’s Steel Import penetration in 2019
(Import / Domestic demand)

Korea’s STS HR import (2015-2019)

<table>
<thead>
<tr>
<th>Year</th>
<th>Indonesia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>332.3 MT</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>320.4 MT</td>
<td>1.2 MT</td>
</tr>
<tr>
<td>2017</td>
<td>349 MT</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>299.5 MT</td>
<td>0 MT</td>
</tr>
<tr>
<td>2019</td>
<td>219.8 MT</td>
<td>188.7 MT</td>
</tr>
</tbody>
</table>

Korea’s STS CR import (2015-2019)

<table>
<thead>
<tr>
<th>Year</th>
<th>Indonesia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>199.8 MT</td>
<td>1.1 MT</td>
</tr>
<tr>
<td>2016</td>
<td>257.8 MT</td>
<td>0.9 MT</td>
</tr>
<tr>
<td>2017</td>
<td>260.4 MT</td>
<td>1 MT</td>
</tr>
<tr>
<td>2018</td>
<td>264.2 MT</td>
<td>27.4 MT</td>
</tr>
<tr>
<td>2019</td>
<td>246.6 MT</td>
<td>98.9 MT</td>
</tr>
</tbody>
</table>

* Source: Korea Iron & Steel Association
Domestic consumption
06. Domestic consumption

Construction

- Construction order amount slightly rebounded in 2019 due to government temporary stimulus package on residential & public sectors but continuously keep going down since 2017.
- Construction investment focused on residential sectors is likely to maintain downtrend.

**Construction order amount**

(Unit: trillion KRW)

- 2007: 128
- 2008: 120
- 2009: 119
- 2010: 103
- 2011: 111
- 2012: 102
- 2013: 91
- 2014: 107
- 2015: 158
- 2016: 165
- 2017: 161
- 2018: 155
- 2019: 166
- 2020e: 140

* Source: CAK

**Construction investment by type**

(Unit: y-o-y, %)

- Residential
- Non residential
- Civil

**Construction investment forecast**

- 2019: -4.3
- 2019: -4.3
- 2020: -2.3
- 2021e: -0.9

* Source: BOK
06. Domestic consumption

Automobile

- Korea’s automobile production has slightly decrease in 2019 due to domestic consumption decline and overheated competition sparked by trade tensions between G2
- Slight improvement is expected in 2020 but less likely to recover at the level of 2018 due to global demand decline
- Global demand (% y-o-y): (2017) 2.3%, (2018) -0.8%, (2019) -3.3%, (2020f) 0.9%, (2021f) 3.3%

Korea’s automobile supply & demand

* Source : Korea Automobile Association & POSRI

Export destinations in 2019

* Source : Korea Automobile Association
06. Domestic consumption

Shipbuilding

- Korea occupied about 37% out of total world orders, and 29% of world deliveries in 2019
- Korea’s shipbuilding orders rapidly decreased by 28.8% last year due to weak global economic recovery and deterioration of global trade volume
- Orders and deliveries are expected to recover continuously mainly in LNG shipbuilding industry

Order and delivery by country in 2019

<table>
<thead>
<tr>
<th>Country</th>
<th>Delivery (million CGT)</th>
<th>New Order (million CGT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>13.2</td>
<td>29.0</td>
</tr>
<tr>
<td>China</td>
<td>12.4</td>
<td>33.8</td>
</tr>
<tr>
<td>Japan</td>
<td>7.6</td>
<td>24.7</td>
</tr>
<tr>
<td>EU</td>
<td>7.7</td>
<td>13.8</td>
</tr>
<tr>
<td>Other</td>
<td>9.5</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Order and delivery amount

<table>
<thead>
<tr>
<th>Year</th>
<th>Delivery (million CGT)</th>
<th>New Order (million CGT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>12.7</td>
<td>10.9</td>
</tr>
<tr>
<td>2016</td>
<td>10.9</td>
<td>2.2</td>
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<tr>
<td>2017</td>
<td>10.6</td>
<td>7.6</td>
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<tr>
<td>2018</td>
<td>13.2</td>
<td>7.7</td>
</tr>
<tr>
<td>2019</td>
<td>9.5</td>
<td>9.4</td>
</tr>
<tr>
<td>2020e</td>
<td>10.5</td>
<td></td>
</tr>
</tbody>
</table>

(Unit: million CGT)

Source: Clarkson
07

Trade remedy actions
07. Trade remedy actions

Trade remedies on iron & steel products

- Iron & steel industries have been the main target of global trade remedy from 1995 to 2018 based on 2,094 cases out of 6,613 were on Iron & steel products
- Korea, on the other hand, has initiated only 6 cases of AD on steel products since 2004

Global trade remedy from 1995 to 2018

Korea’s remedy action on steel imports

<table>
<thead>
<tr>
<th>Product</th>
<th>Country</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>H beam</td>
<td>CHN</td>
<td>5 yrs (Jul. 2015 – Jul. 2020)</td>
</tr>
<tr>
<td>STS Plate</td>
<td>TAW, ITA</td>
<td>5 yrs (May. 2019 – May. 2024)</td>
</tr>
<tr>
<td>Ferrosilico manganese</td>
<td>VNM, IND, UKR</td>
<td>8 yrs (Feb. 2011 – Feb. 2019)</td>
</tr>
<tr>
<td>Zinc coated Wire</td>
<td>CHN</td>
<td>5 yrs (Aug. 2018 – Aug. 2023)</td>
</tr>
</tbody>
</table>

* Source : WTO
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THANK YOU

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