The Silver Institute
The Global Source
THE SILVER MARKET IN 2016

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Senior Analyst, Precious Metals Demand

The Silver Institute - 2016 Interim Report

November 16, 2016
REAL GDP GROWTH

Source: IMF WEO
GROWTH IN PHYSICAL SILVER DEMAND

Source: GFMS, Thomson Reuters
## World Silver Supply and Demand

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Mine Production</td>
<td>790.8</td>
<td>823.7</td>
<td>868.0</td>
<td>893.0</td>
<td>887.4</td>
<td>-0.6%</td>
<td>12.2%</td>
</tr>
<tr>
<td><strong>Total Supply</strong></td>
<td><strong>1,006.6</strong></td>
<td><strong>988.9</strong></td>
<td><strong>1,053.0</strong></td>
<td><strong>1,046.4</strong></td>
<td><strong>1,012.4</strong></td>
<td><strong>-3.2%</strong></td>
<td><strong>0.6%</strong></td>
</tr>
<tr>
<td>Jewelry &amp; Silverware</td>
<td>229.1</td>
<td>276.6</td>
<td>284.7</td>
<td>289.1</td>
<td>257.6</td>
<td>-10.9%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Coins &amp; Bars</td>
<td>159.6</td>
<td>241.9</td>
<td>236.5</td>
<td>292.4</td>
<td>222.0</td>
<td>-24.1%</td>
<td>39.1%</td>
</tr>
<tr>
<td>Industrial Fabrication</td>
<td>615.0</td>
<td>619.1</td>
<td>611.2</td>
<td>588.9</td>
<td>585.1</td>
<td>-0.6%</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Physical Demand</td>
<td>1,003.7</td>
<td>1,137.6</td>
<td>1,132.4</td>
<td>1,170.3</td>
<td>1,064.6</td>
<td>-9.0%</td>
<td>6.1%</td>
</tr>
<tr>
<td><strong>Physical Surplus/Deficit</strong></td>
<td>2.9</td>
<td>-148.7</td>
<td>-79.3</td>
<td>-124.0</td>
<td>-52.2</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Annual Average Silver Price $/oz</td>
<td>31.15</td>
<td>23.79</td>
<td>19.08</td>
<td>15.68</td>
<td>17.15</td>
<td>9.4%</td>
<td>-44.9%</td>
</tr>
</tbody>
</table>

Source: GFMS, Thomson Reuters
THE SILVER MARKET IN 2016

• SILVER PRICES
• DEMAND
• SUPPLY
• INVESTMENT
• PRICE OUTLOOK

GFMS
US DOLLAR SILVER PRICES (As of 15th Nov)

US Dollar Silver Prices

*intra-period change refers to difference between the last business day and the first business day of the year

Source: Thomson Reuters Datastream

GFMS
LONG TERM GOLD/SILVER RATIO
(BASIS MONTHLY AVERAGE PRICES)

Source: Thomson Reuters Eikon
THE SILVER MARKET IN 2016

- PRICES
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- OUTLOOK
WORLD PHYSICAL SILVER DEMAND
FORECAST ANNUAL CHANGES: 2016F LESS 2015 (Moz)

Source: GFMS, Thomson Reuters
INDUSTRIAL FABRICATION FORECAST ANNUAL
CHANGES: 2016F LESS 2015 (Moz)

Source: GFMS, Thomson Reuters
SOLAR DEMAND - SILVER POWDER PRODUCTION

Source: GFMS, Thomson Reuters

<table>
<thead>
<tr>
<th>Year</th>
<th>Japan</th>
<th>United States</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>32%</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>39%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>45%</td>
<td>52%</td>
<td>3%</td>
</tr>
<tr>
<td>2014</td>
<td>45%</td>
<td>43%</td>
<td>12%</td>
</tr>
<tr>
<td>2015</td>
<td>48%</td>
<td>39%</td>
<td>13%</td>
</tr>
<tr>
<td>2016F</td>
<td>45%</td>
<td>41%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Silver Demand (Moz)
GLOBAL COIN SALES

*Excludes Commemorative and China Mint coins

Source: GFMS, Thomson Reuters – Quarterly Coin Sales Survey

GFMS
WORLD PHYSICAL SILVER DEMAND
FORECAST ANNUAL CHANGES: 2016F LESS 2015 (Moz)

Source: GFMS, Thomson Reuters
DEMAND SUMMARY

- Strong decline in physical bar and coin demand following last years' stellar growth
- Jewelry fabrication struggling to recover with weak demand out of Asia and a looming stock overhang
- Solar demand positive outlier this year driven in large by capacity expansions in China
- The continued shift toward smaller mobile devices and away from larger desktop computers will remain intact, weighing on electronics demand growth
THE SILVER MARKET IN 2016

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GFMS
MINE PRODUCTION WINNERS AND LOSERS H1 2015 VERSUS H1 2016

Source: GFMS, Thomson Reuters
SILVER MINE PRODUCTION BY SOURCE METAL

- primary: 30.4%
- lead/zinc: 34.4%
- copper: 22.1%
- gold: 12.5%
- other: 0.6%

Source: GFMS, Thomson Reuters
TOTAL CASH COSTS NET OF BYPRODUCTS

H1 2016 Average Silver Price ($15.82/oz)
H1 2015 Average Silver Price ($16.55/oz)

Source: GFMS, Thomson Reuters
TOTAL CASH COST ON A CO-PRODUCT BASIS + CAPEX

Source: GFMS, Thomson Reuters
OUTSTANDING DELTA ADJUSTED PRODUCERS HEDGE POSITION

Source: GFMS, Thomson Reuters
SUPPLY SUMMARY

- We estimate that mine supply peaked in 2015 and will trend lower in the foreseeable future.
- Supply from scrap is expected to stabilize around 2016 levels in the medium term.
- The hedge book remains at low levels and hedging is not forecast to return to the market in strength.
- Government sales are not expected to be a feature of the market in the years ahead.
- Declining total supply is expected to be a key driver of annual deficits in the silver market going forward.
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Identifiable Investment is the sum of bars, coins and ETPs.

Source: GFMS, Thomson Reuters
INVESTORS’ POSITIONS IN COMEX SILVER FUTURES & OPTIONS

As of 15th November

Thomson Reuters Datastream

GFMS
ABOVE GROUND STOCKS

Source: GFMS, Thomson Reuters

As of end-Q3. Custodian vault figures exclude ETF holdings

Source: GFMS, Thomson Reuters
THE SILVER MARKET IN 2016

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OUTLOOK

• The sluggish sentiment in Asia has had a significant impact on silver off-take in 2016, a theme expected to persist in 2017, albeit to a lesser extent.
• Physical demand is expected to pick up again (Europe) supported by short term falling prices.
• PV demand in the solar sector is expected to continue to be the star performer of industrial off-take.
• Mine supply is expected to decline in the long run and we believe that 2016 was the beginning of this protracted decline. Meanwhile, scrap levels are expected to stabilize.
• Above ground stocks are expected to flat line going forward amid a chronic shortfall of supply against physical demand. This will provide support to prices in the long run
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