

World Steel Dynamics (WSD) is a leading steel information service in Englewood Cliffs, N.J. WSD's steel experience, steel database and availability of steel statistics are the principles for performing steel forecasts, studies and analysis for international clients. WSD seeks to understand how the "pricing power" of steel companies the world over will be impacted by changes in the steel industry's structure. To submit your questions for WSD, e-mail WSD@aist.org.



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Long-term Steel Outlook Remains Good

Q: WSD's outlook for steel demand in 2008 is stronger than some other forecasts we have seen. What are the reasons behind your position?

A: The evidence seems to be growing that, as long as inflation remains moderate (i.e., the current surge ends this year), the longer-term steel demand outlook is much improved versus the period from 1974 to 1999, when it was suppressed in part by a massive decline in demand in the former Soviet Union.

There has been an unbelievable rise in steel intensity since 2002. In the past five years, real GDP growth has been faster than in the prior 20 years, with the ratio of investment to GDP, especially in the developing world, also increasing substantially. The impact on steel demand has been quite positive, since about 40% of the market for steel products is tied to construction and another 40% to capital spending.

As indicated in Table 1, there have been alternating extended periods of sizable steel production growth and only slight steel production growth. WSD suspects that the periods of sizable production growth occurred when fixed asset investment was rising as a share of GDP.

As indicated by World Bank data, there has been a substantial rise in the ratio of investment to GDP in the world since 2002. The reasons are, first, a much higher ratio of investment to GDP in the developing world than in advanced countries; and, second, developing world GDP, on a purchasing power parity (PPP) basis, now accounts for about one-half of global GDP. These relationships, and other facts, are embedded in WSD's Global Income-Shift Paradigm views, about which we will be publishing much more in the months ahead.

Given that steel production rose 6.9% per year from 1999 to 2007 and that it will grow 4% per year from 2007 to 2020, by 2020 global steel output would be 2,221 million tonnes – for a growth rate of 5.1% per annum from 1999 to 2020.

Table 1 — Extended Growth and Non-growth Periods for Global Steel Demand

| Time period | Production | | Growth per year (compounded) | Duration |
|-------------|---------------------------|-------|---------------------------------|----------|
| | Start (million tonnes) | End | | |
| 1900–1929 | 28 | 119 | 5.1% | 29 years |
| 1929–1946 | 119 | 108 | –0.6% | 17 years |
| 1946–1974 | 108 | 707 | 6.9% | 28 years |
| 1974–1999 | 707 | 789 | 0.4% | 25 years |
| 1999–2007 | 789 | 1,344 | 6.9% | 8 years |
| 1999–2020 e | 789 | 2,221 | 5.1% | 21 years |
| 2007–2020 e | 1,334 | 2,221 | 4.0% | 13 years |

e = estimate

Q: What is WSD's "Global Income-Shift Paradigm"?

A: In order to better understand what has happened, WSD is working on an economic "observation" piece we are calling the Global Income-Shift Paradigm. This "observation" explains why the global economy, global investment and global steel demand have been growing at a faster rate since 2002 and why still relatively high growth rates seem likely in the next decade (at least as long as inflation does not become a major problem).

The driving forces that make up the Global Income-Shift Paradigm are twofold:

- The developing world's ever-increasing share of global GDP, reflecting its faster growth rate than the developed world. This growth is in part a consequence of the

transfer of funds from the developed world due to factors such as foreign direct investment, high oil prices, trade deficits, growing global trade and well-performing stock markets.

- The developing world's far higher savings and investment as a ratio to GDP versus the developed world.

The major force stimulating the global economy is the Information Revolution, which is impacting the global economy at a far greater speed than the Industrial Revolution (which began in the 18th century). Two new aspects of the Information Revolution are the FOSMEs (flexible out-sourcing manufacturing entities) and IXNEs (investors excited about non-North-American equity investments), both of which are speeding up the allocation of resources around the world.

We have created real growth figures for GDP, savings and investment for three regions of the world – advanced countries, China and the rest of the world – after adjusting for inflation rates, currency values and changing PPP values. We then compared the year-to-year changes in GDP and investment for each region to the changes in apparent consumption – in effect, creating a steel intensity analysis. Looking ahead to 2017 on a “mid-low” basis, even assuming lower growth rates for real GDP for each of the three regions of the world, we derive a 4.4% per annum growth rate compounded (CAGR) for a global steel demand from 2007 (see Table 2), down from 6.9% for the 8-year period of 1999–2007, but well above the 0.4% CAGR from 1974 to 1999.

Steel intensity per each index point of real GDP growth, which had dropped from about 3.5 million tonnes of apparent steel consumption per point of real GDP growth to a low of 2.5 million tonnes in 1998–1999, has rebounded in the last few years north of 3.0 million tonnes and is expected to continue that trend (see Figure 1 on next page). Hence, WSD continues to expect good steel industry growth over the next decade. ♦

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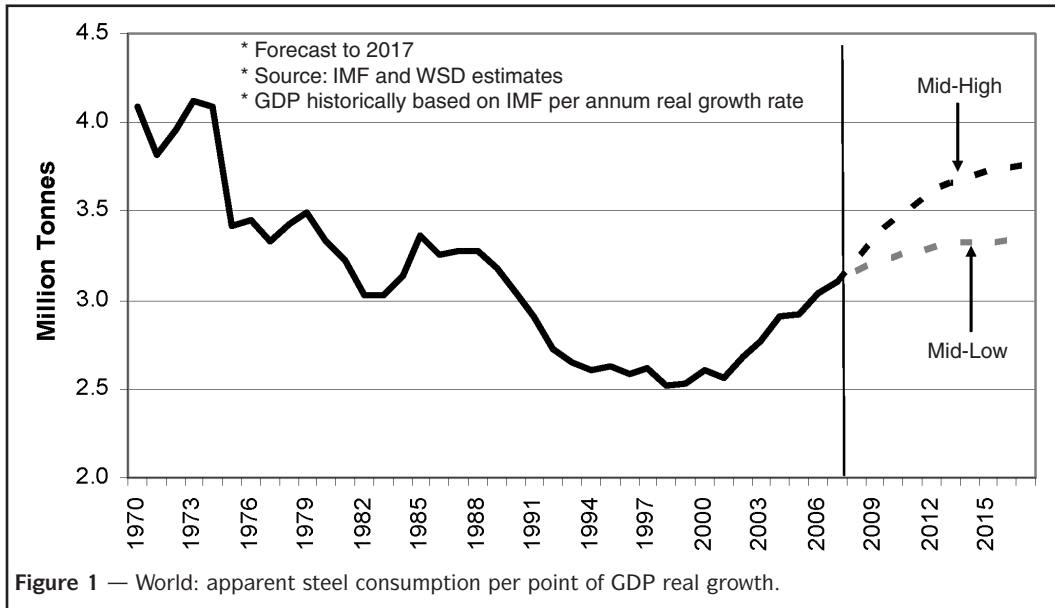
Table 2 — Global Income Shift Paradigm — Summary Results

| Region/ country | Real GDP growth 2002–2007 | Real GDP growth 2007–2017 Mid-Low | Real GDP growth 2007–2017 Mid-High | Ratio: Real investment to GDP 2002 | Ratio: Real investment to GDP 2007 | Ratio: Real investment to GDP 2017 Mid-Low | Ratio: Real investment to GDP 2017 Mid-High |
|--------------------|---------------------------------|---|--|--|--|---|--|
| Advanced | 2.4% | 1.8% | 2.5% | 19.9% | 21.1% | 21.0% | 22.1% |
| China | 10.4% | 6.0% | 7.5% | 35.2% | 43.2% | 46.0% | 49.0% |
| ROW | 6.0% | 5.5% | 7.0% | 21.9% | 25.1% | 29.0% | 33.0% |
| Total | 4.7% | 3.9% | 5.0% | 22.4% | 26.0% | 29.0% | 31.9% |


| | Real investment growth 2002–2007 | Real investment growth 2007–2017 Mid-Low | Real investment growth 2007–2017 Mid-High | Real GDP world shares 2002 | Real GDP world shares 2007 | Real GDP world shares 2017 Mid-Low | Real GDP world shares 2017 Mid-High |
|----------|--|---|--|----------------------------------|----------------------------------|---|--|
| Advanced | 3.6% | 1.8% | 3.0% | 56.2% | 50.4% | 41.2% | 39.4% |
| China | 15.0% | 6.7% | 8.9% | 12.3% | 16.0% | 19.6% | 20.2% |
| ROW | 8.9% | 7.0% | 10.0% | 31.5% | 33.6% | 39.2% | 40.4% |
| Total | 7.8% | 5.0% | 7.2% | 100.0% | 100.0% | 100.0% | 100.0% |

| | Apparent steel demand growth 2002–2007 | Apparent steel demand growth 2007–2017 Mid-Low | Apparent steel demand growth 2007–2017 Mid-High | Apparent steel consumption (in tonnes)/ billion \$ GDP 2002 | Apparent steel consumption (in tonnes)/ billion \$ GDP 2007 | Apparent steel consumption (in tonnes)/ billion \$ GDP 2017 Mid-Low | Apparent steel consumption (in tonnes)/ billion \$ GDP 2017 Mid-High |
|----------|--|---|--|---|---|---|--|
| Advanced | 2.2% | 1.7% | 2.2% | 17,877 | 17,662 | 17,531 | 17,227 |
| China | 18.8% | 4.9% | 8.4% | 33,106 | 47,768 | 43,171 | 52,056 |
| ROW | 8.7% | 6.7% | 9.5% | 17,712 | 20,029 | 22,517 | 25,307 |
| Total | 8.2% | 4.4% | 6.8% | 19,696 | 23,287 | 24,521 | 27,529 |


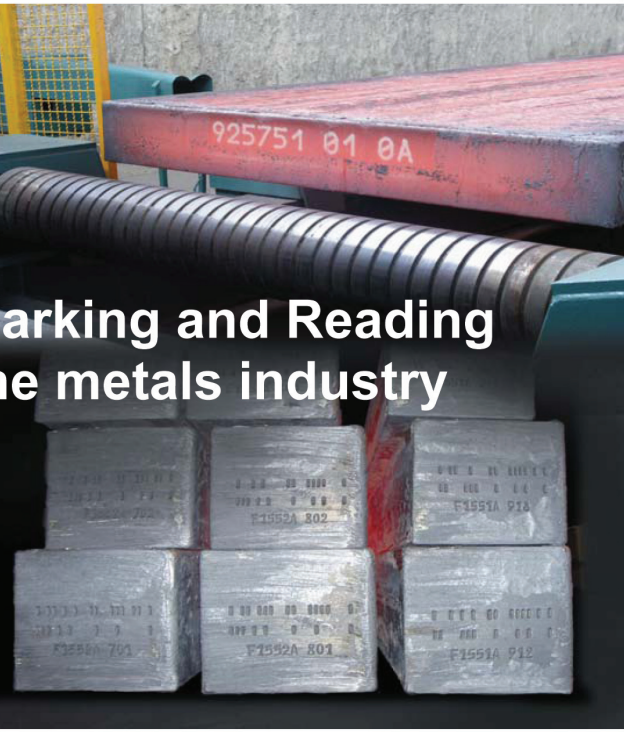
| | Per capita apparent steel cons. growth 2002–2007 | Per capita apparent steel cons. growth 2007–2017 Mid-Low | Per capita apparent steel cons. growth 2007–2017 Mid-High | Apparent steel consumption (in tonnes)/ billion \$ investment 2002 | Apparent steel consumption (in tonnes)/ billion \$ investment 2007 | Apparent steel consumption (in tonnes)/ billion \$ investment 2017 Mid-Low | Apparent steel consumption (in tonnes)/ billion \$ investment 2017 Mid-High |
|----------|---|--|---|---|---|---|--|
| Advanced | 1.5% | 1.1% | 1.6% | 89,830 | 83,704 | 83,480 | 77,951 |
| China | 18.2% | 4.3% | 7.8% | 94,005 | 110,602 | 93,850 | 106,237 |
| ROW | 6.9% | 5.1% | 7.8% | 80,753 | 79,801 | 77,643 | 76,687 |
| Total | 6.9% | 3.1% | 5.5% | 87,837 | 89,611 | 84,421 | 86,196 |



Do you have a question for World Steel Dynamics?
 Submit it today to WSD@aist.org.




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