Reasons and impact of steel price increases on the agricultural machinery industry

Robert Adams

CNH Agricultural Product Development Sourcing

Sheet Steel Prices, 1980 - 2004
(Dollars Per Ton)

Steel Prices Fell for Decades
(Dollars per short ton, Purchasing Magazine)

Source: Purchasing Magazine.
Discussion Agenda

- Market Scenario
- Influences on the Steel Industry
- CNH and the Impact of Steel
- Activities to React to the Market Condition
- Conclusion
Market Scenario

Perfect Supply and Demand Theory

- Prices increase - additional supply encouraged or doors open for alternative products.
- Additional or alternative supplies cause prices to drop or stabilise.
- Process continues until market equilibrium is reached and price, supply and demand are in equilibrium.
- Equilibrium lasts until the supply and demand balance changes again.

But the market is not perfect !!

- Oversupply situations or shortages may last for many years.
- Prices are low for many years and industries get used to that situation.

This is what happened until recently for most of the ore, coal, steel and casting market.
Steel production and prices have evolved

1997 – 1st half 1998
- steel demand growth exceptionally strong.
- decline in economic activity cause major problems for producers in South East Asia and Japan.
- Japan and Korea attempt to increase their exports to other markets
- steelmakers in Russia, Ukraine and elsewhere redirect exports from the Asian market to Europe and North America.
- prices fall sharply

2000
- Asian markets revival and strong growth in North America, lead to a sharp recovery in steel plant production
- demand recovery causes steel prices to rise rapidly

mid 2001
- market depressed as consumption in the US falls
- expectations of recession in other major markets widespread
- September 11, 2001 events further damages confidence about future demand
- world steel production high and prices low

2002
- production levels remain high
- steel selling at prices covering the cash costs of only the lowest cost producers
- US government introduce a tariff of 30%
- EU and many other countries follow to block the anticipated flood of material
- US economy shows more rapid recovery than expected
- continued high level of production and much better prices
2002 cont’d
- financial performance of most metals companies greatly improves
- steel industry was starting it’s consolidation
- steel consumption in China continues to grow strongly
- large rise in production
- strong demand for imports from the major producing countries
- prices rising

2003
- economic growth slower than expected in continental Europe and the USA
- high activity in China and other Asian areas cause crude steel production to rise strongly - 7.1 %

2004
- continued very rapid economic growth in China and a strong recovery by the US
- sustained steel demand and production rose by a further 8.7 %
- by late 2004 steel production running at 1.09 billion tonnes annually – beats previous 1989 peak of 787 tonnes – and is 200 million tonnes higher than 2002

2005
- strong production activity in China (increases of 20 %) Russia and Ukraine
- continued growth forecast for steel consumption with a slowdown in 2006
Influences on the Steel Industry

There are many factors which have affected steel prices

- General industrial growth world-wide
- China factor
  - Growth rate
  - Heavy investments
  - High flows of foreign investments
  - Trade and Chinese exports
  - Consumption
  - Privatization
- Historical price trends
- Industry consolidation
- Major steel input costs
- Dollar depreciation
- Shipping costs
World demand for steel is still increasing

- Higher demand from major industrial blocks increases prices
- Demand in the United States and EU in the recovery phase but still below the steel needs of late 2000

- Chinese boom in construction, industrialization and outsourcing
- Chinese demand is increasing by more than 20% per year
- Stronger growth in industrial production in the United States, Europe and Japan

General industrial growth world-wide

Source: Wirtschaftsvereinigung Stahl, IISI Medium Term Outlook, March 2005
Steel consumption grew a lot faster than average economic growth forecasts suggested.

China factor

- A large portion of 2003 economic growth is from China.
- China’s Gross Domestic Product (GDP) is only 4% of world GDP in 2003 but accounted for:
  - 13% of world growth
  - 33% of world steel consumption
- Developing economies growth in GDP results in faster growth in per capita steel consumption.
- Developing economies need to build more infrastructure than developed economies.
- China is the driver for recent market evolutions.
- Chinese economy’s share of global output doubled to 4% in 10 years.
- Chinese consumption of world supply is:
  - 31% coal
  - 30% iron ore
  - 27% of steel products
  - 25% of aluminium
  - 7% oil.
Chinese long term goal to raise per capita GDP to $3000 by 2020

- annual growth required is 7.2%

- rapid expansion is achievable but creates social problems

- future economy forecast to grow by:
  - 8.5% in 2005
  - 8.7% in 2006
  - 8.9% in 2007

- growth rate of industry forecast at 9.3 – 10.1% over next 3 years

China’s GDP will continue to grow

GDP Growth %, China
Source: National Bureau of Statistics
2003 fixed asset investment increased by 27.7% - 9.8% higher than 2002

- public sector investment - 72.1% of total – surged by 28.2%
- investment growth in 2004 was 25.8% strongly towards manufacturing
- 1st quarter 2004 growth reached 43%
- Government introduces measures to cool investment
- manufacturing investment eases to 38.3% and agriculture to 20.3%
- future investment expected to grow by:
  - 18% in 2005
  - 13% in 2005/6

China’s investment grows at record levels before cooling

Investment rate %, China
Source: Asian Development Outlook 2005

Forecast
High flow of foreign investment into China

- China quickly became #2 as destination for foreign investment in the World
- Foreign direct investment (FDI) rose by 13.3% to $60.6 billion in 2004
- Investors come partly for unskilled labour. Cost is 4% of that in the US and one third of the cost in Malaysia
- China’s infrastructure continues to strengthen. The business environment has improved significantly since it joined WTO
- Multinational enterprises have accelerated their relocation of labour-intensive and export-oriented industries to the PRC
- WTO membership has prompted an opening of services to more foreign participation. FDI in services during 2002-2004 grew slightly faster in manufacturing than agriculture
- FDI in steel and cement slowed significantly in the second half of 2004 as those industries faced government curbs.
Export growth uptrend on strong external demand

- In 2003, exports rose by 35.4%
- Production from foreign-funded enterprises at 58% of exports
- Imports grew by 36% - mainly energy products and raw materials due to:
  - High investment-led domestic demand
  - Rising international oil prices
  - Reduced import tariffs
- Trade surplus increased in 2004 to $58 billion
- Growth rate forecast to fall to 12-12% in 2005-2007
- Protectionist action possible from major trading partners
- Growth in industrial nations will slow
- Labour and oil cost increases will raise costs for importers
Higher incomes generating higher consumption

- Total consumption increased faster in 2004 than in 2003
- Real rural incomes grew by 6.8% in 2004 - the highest rate since 1997.
- Urban incomes increased by 7.7% - retail sales up by 10.2% in 2004
- Private consumption has declined as a share of GDP in recent years.
- Growth of consumption in rural areas has been slower than in urban areas
- Private consumption as a share of GDP is below the 60% average seen in other countries with a per capita GDP of around $1,000
- Investment in the past 2 years has raised the proportion of capital formation to GDP to about 45% - the proportion of total consumption in 2004 fell to 55
- High investment, without support from high levels of consumption growth, have resulted in excess production capacity and have been followed by sharp declines in economic growth
China moves towards privatisation

- much progress has been made in State Owned Enterprise (SOE) reform

- the State-owned Assets Supervision and Administration Commission continued its efforts to strengthen its supervision over 178 major central SOE groups and improve the management of SOE’s nationwide

- the commission tightened policies on management buyouts and stated that privatisations should be carried out through open and competitive bidding

- efforts to repair state-owned commercial banks continued when the Government injected $45 billion of its foreign exchange reserves into the Bank of China and the China Construction Bank to strengthen their balance sheets and prepare them for stock market listings
Reasons and impact of steel price increases on the agricultural machinery industry

- **Historical price trends**
  - Steel prices have failed to keep up with overall inflation since January 1979.
  - Impact has been price declines and volatility for more than 2 decades.
  - Nominal prices declined since 1989.
  - Declining prices helped steel buyers, but put continuous pressure on steel makers.
  - Investment and maintenance were curtailed - steel companies eventually started to go bankrupt.
  - This was a structural cause of weakened steel output, and an inability to react to rapidly changing market conditions.
Industry consolidation

The industry consolidates to adjust to production

- consolidation will have a major effect in slowing the pace of decline, and putting a floor under prices
- with a market of many small mills there is little individual influence on the market
- the incentive was to operate at full capacity and let prices move freely
- in a consolidated scenario there will be adjustment of production in order to defend prices
- the practical effect will be:
  - the end of bargain prices available during price crashes
  - more stability and less risk to holding inventory
- examples of consolidation:
  - Mittal Steel from LNM Holdings, Ispat International and the U.S.-based International Steel Group (ISG)
  - Arcelor, formed in 2002 through the merger of steel companies in Luxembourg, Spain and France
  - Corus from the 1999 union of British Steel and Dutch firm Hoogovens
- steelmakers are now concentrating on their next strategic steps:
  - produce liquid steel close to sources of raw materials
  - produce steel in countries with low labour costs
  - position downstream operations and service centres close to end users
Major steel input costs

The recent rise in raw material prices, e.g. for iron ore, is higher than previously expected.

- Coke prices are forecasted to decrease about 20 percent in 2005
- Scrap prices should remain stable
- Prices for Iron Ore, Coking and Thermal Coal are to increase in 2005 again
- In general, the AIECE expects lower commodity prices for 2005 for most products, as demand will slide and supply will increase
- MEPS sees scrap supply under pressure as demand is high and new sources are not available (MEPS, March 2005)

Sources: Steelonthenet, James F. King, Steel Analysis; AIECE – Association of European Conjuncture Institutes, October 2004
Iron ore producers expanding to meet demand

<table>
<thead>
<tr>
<th>Company</th>
<th>Base</th>
<th>Capacity mt/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVRD</td>
<td>Brazil</td>
<td>299.3</td>
</tr>
<tr>
<td>Rio Tinto</td>
<td>UK</td>
<td>173.0</td>
</tr>
<tr>
<td>BHP Billiton</td>
<td>Australia</td>
<td>144.1</td>
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<tr>
<td>Privat Intertrading</td>
<td>Ukraine</td>
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<tr>
<td>IUD - Donbass</td>
<td>Ukraine</td>
<td>38.4</td>
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<tr>
<td>Anshan I&amp;S Works</td>
<td>China</td>
<td>36.8</td>
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<tr>
<td>Anglo American</td>
<td>South Africa</td>
<td>32.4</td>
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<tr>
<td>LKAB</td>
<td>Sweden</td>
<td>28.9</td>
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<tr>
<td>Mittal Steel</td>
<td>Various</td>
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<tr>
<td>CVG</td>
<td>Venezuela</td>
<td>26.9</td>
</tr>
<tr>
<td>Cleveland-Cliffs</td>
<td>USA</td>
<td>26.5</td>
</tr>
<tr>
<td><strong>Total capacity</strong></td>
<td></td>
<td><strong>1403.7</strong></td>
</tr>
</tbody>
</table>

- Integrated producers use iron ore and coal as their basic inputs - largely unaffected by the scrap market.
- In June 2003, integrated producers agreed an increase in iron ore prices of 9%.
- High level of steel production in 2003/4 and huge demand from China, caused a shortage of iron ore.
- Expansion plans from the global "Big Three" (CVRD, Rio Tinto, and BHP Billiton) – and other major producing countries will not ease the short-term market situation.
- Steelmakers are working to secure supply for 2005 and beyond through long-term contracts with iron ore producers.
- 20% price increase agreed in 2004.
- Iron ore continued in very short supply during 2004, with spot cargoes traded at high prices.
- Future price increases are under negotiation - expectation that contract prices may rise by over 50%.
2003/4 thermal coal market was poor

Key Japanese market agreed with a $2/tonne reduction - spot prices at $25 per tonne

Supply and demand changed dramatically in the coal market later in 2003 and into 2004

In contracts for 2004/5 hard coking coal prices were increased by 28% and thermal coal prices by over 50%

In negotiations for 2005 coking coal prices have doubled from $50 to $105 per tonne
North American and European producers have become partly dependent on coke, mainly from China.

2003/4 high levels of steel output in China absorbed increasing quantities of domestic coke production, leaving the export market short.

Coke prices rose from under $100 to over $400 per tonne and quantities were hard to obtain.

Shortage of shipping capacity caused freight rates for iron ore and coal to double or triple.

Integrated producers (who include the larger companies with public shareholdings) faced substantial rises in costs for raw materials and transport, while energy prices also rose sharply.

Combined with the increase in scrap costs for electric steelmakers, these cost increases were large by past standards.
Scrap price is crucial to the economics of electric steelmaking - ferrous scrap is the major input

- in the key US market scrap prices responded to the improved steel price situation after March 2002 and rose from about $70/tonne to $120/tonne by March 2003
- scrap remained at $100-$120/tonne for the remainder of 2003, but surged in early 2004 to $230
- prices fell back in the summer months, but rose sharply again as production continued to rise in the later part of 2004
- scrap prices fell substantially in early 2005, but are expected to remain high in 2005, before a fall in 2006
- Turkey retains its position as the largest importer of scrap importing from Russia, Romania and the Ukraine
Dollar depreciation

- what happens in US is followed later by Europe
- dollar depreciation is impacting firstly NA prices and then European markets
- from 1996 dollar increased in value. Very strong levels following the Asian financial crisis in 1997-98
- in 2002 the dollar started to weaken - has fallen over 50% against the euro, and over 20% against Asian currencies
- import prices have increased. Domestic mills can raise prices, since imports are unable to undercut them
- the weak dollar makes exports attractive
- the U.S. moved from a net importer for the past three decades to a net exporter in 2004 – high demand for flat products
Shipping costs

Freight costs increase as shipping space demand outstrips capacity

- increase in demand for imports and exports of raw materials and finished goods has led to a shortage of shipping capacity
- raw materials and steel were made more expensive by a shortage of container ships
- shipping rates increased by a factor of five in 2004
- at $20 per metric tonne, shipping cost is a low percentage of final product price
- at $100/tonne, shipping is a major addition to the cost of imported iron ore, coal, or coke
- shipping rates have moderated but are still above $60/tonne
- additional moderation will occur in 2005 through 2007 as hulls currently being laid at shipyards enter service
CNH and the Impact of Steel

- CNH directly procures more than $200 Mil USD of steel products for its global facilities
- 60% is for the NA market
- Commodities directly and indirectly linked to the steel market are:
  - steel – raw material
  - castings, forging and machining
  - gears and gearboxes
  - transmissions and axles
  - fabrications & weldments
  - hitches
  - cabs
- List is not complete because the influence of steel is reflected also in other product families
- Total steel content circa 73% of product
Metal content of a tractor is one third of 3rd party material input

CNH Tractor 3rd Party Material Analysis

Combine metal content dominates 3rd party material input

CNH Combine 3rd Party Material Analysis
CNH steel cost in Europe from 2003 protected by the influence of the FIAT Group contracts

advantage was lost after expiration of the contracts and reversion to the spot-buy market

without the benefit of contracts in North America, steel costs followed the market

the overall result in 2004 was a cost to CNH of $160 million dollars

the forecast is that supply will improve in forthcoming years but not back to pre-2003 levels

2006 forecast is to be able to fix prices with yearly contracts
Activities to React to the Market Condition

CNH Combating cost increases

- Organisational approach
- Cost Reduction Programmes
- Technical Expert Workshops
enhanced focus on commodity management is key in the global market to manage, forecast and act proactively

a Global Strategic Sourcing organization introduced focused on quality, technology, delivery and total cost

approach provides CNH with:

- full leverage on the global direct and Tier 2 purchases based on industry best practises
- a breakthrough strategy to manage the increased impact of steel commodities
- a reduction in the Supply Base to leverage total cost
- selective sourcing on low cost countries
- project management to focus on alliances (consortium procurements) and Fiat Group purchasing activities
CNH works on key cost saving initiatives

- standardization:
  - reduction of raw material grade specifications
  - cross platform/product use of common components
- work with suppliers on technical developments to:
  - optimize design
  - improve material usage
  - review application
  - improve assembly processes
  - optimise transportation
  - minimise warranties

Global Sourcing:
- leverage the global presence of CNH in Low Cost Countries and source components at a competitive total cost
- e-Auctions to maximise supplier competitive advantages
- alternative technologies:
  - introduce alternative materials for key applications e.g. substituting traditional metal parts with advanced plastic solutions
- introduce Technical Expert Workshops
Technical Expert Workshops

The Workshop Process is based on 3 key pillars

Resource availability

- Full time technical experts for a limited time (8-10 days)
- Dedicated functional supports from Purchasing, Quality, Manufacturing Engineering, and Finance
- Internal drawings, technical specifications and physical parts
- Competitors’ information and physical parts

Structured Process

- One Process champion and one Team Leader
- Process to be completed in a short timeframe
- Cross regional analysis within the Company
- Reviewing and tracking of process performance after the completion of the TEW

Effective Supplier involvement

- Involvement of experts from key suppliers (avoid commercial presentations)
- Suppliers must be informed of the objectives and well prepared through appropriate support before the meetings
- Invite the suppliers to cover all key components of the target system
Major steps of TEW Workplan

1. Introduction
   - Identification of participants from all functions
   - Selection of suppliers to be invited
   - Identify target components list
   - Collect for each component:
     - Drawings
     - Technical specs
     - Physical parts
     - Unit costs
     - Supplier Annual Purchase Value
     - Suppliers’ performances
     - Quality data
   - Collect current idea database by component and suppliers
   - Present activity and support suppliers in the preparation of the material to be discussed during the TEW
     - F2F Explanation of objectives
     - Status updates

2. Internal CNH Brainstorming
   - Understanding of what information/tools are available and how they are structured
   - Analysis of components and mapping of differences according to the following dimensions:
     - Dimensions
     - Materials and treatments
     - Testing requirements
     - Make vs. buy
     - Manufacturing
     - Packaging
   - Generation of preliminary long list of potential technical savings ideas and commercial opportunities for each specific component (to be then discussed with suppliers)
   - Generation of a list of commercial misalignments

3. Supplier Meetings
   - Mapping of key technological innovations for each component
   - Identification of gaps between internal solutions and industry standards/best practices
   - Estimate of preliminary saving opportunity for each idea and time
   - Suggestions for Bill of Design/Manufacturing process optimization
   - Updated/reviewed long list of technical savings ideas and commercial opportunities for each component

4. Wrap up
   - Wrap up with Top Mgmt
   - Handover of technical ideas to CRT/Engineering and commercial proposals to Purchasing
   - Input ideas into tracking database
   - Finalize generated ideas internally and with suppliers
   - Draft implementation plan for each idea
   - Get buy-in and approval from each involved function

Key Activities

- 1 day
- 3 days
- 5 days (each Supplier separately)
- 1 day

- Preparation

10 day modules
**Objectives**

- Identify technical savings opportunities on selected tractor components (focusing on current production)
- Highlight opportunities for cost realignment between similar components when cost differences are not substantiated by technical/design differences
- Confirm/ suggest improvements to CNH bill of design / manufacturing process for the selected components
- Evaluate all generated Cost Reduction Ideas and perform all activities (internal and with suppliers) to start promptly “Solution Development”

**Deliverables**

- List of potential technical saving ideas (“Identified”) and input for “Cost Modelling” exercise
- List of Commercial opportunities for cost realignment to be used in the subsequent commercial challenge to selected suppliers (“Identified”)
- List of proposals for CNH bill of design (“Identified” for Manufacturing)
- List of “Planned” ideas

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Analysis guidelines for Workshop execution

**Cost reduction “shopping list”**

- What are the **key cost drivers** (tech specs that affect the price of a component)?
- Is the **component necessary** for the functionality of the axle or can it be deleted/downsized?
- Can we **change the material** of the component to a cheaper one?
- Can we **commonize parts** used in different axles?
- Can we **reduce the tolerances**? Can we change the testing specifications?
- Can we **eliminate some machining operations** not necessary for the functionality of the part? Can we speed up, downsizing requirements, the machining process?
- Can we **change the production/machining technology** to a cheaper one? Can we change some aspects of this process reducing cycle time?
- What are the technical solutions used by **CNH competitors**? To what extent do they differ?
- Can we **change the packaging** specifications?
- What is the **impact of volumes** on unit price?
- What are the guidelines that the Company should follow for future designs (**Bill of Design**)?

**Effects on components**

- Delete component functionalities
- Change material
- Standardize / commonization
- Reduce number of manufacturing processes
- Increase tolerances
- Reduce weight
- Simplify / change packaging
- Benchmark against competitor solution
Conclusions

Scenarios

**Indicators for falling prices**
- Currently, stocks are full and growth of demand, especially from China, is slowing down
- Chinese measures to dampen economic overheating are working
- Slower growth of world economy
- Steel Mills are not always able to forward higher prices to their customers
- A lot of analysts believe that steel prices will fall during the year

**Indicators for at least constant prices**
- China’s economy is going to grow steadily with around 8-9 percent during the next years
- Investments into fixed assets will grow at around 16 percent
- Steel companies are trying to hold prices stable by cutting production to the level of demand
- Steel producers will at least try to forward higher input prices, especially for iron ore, but even for energy and transportation, to their customers

Taking into account the massive price hikes from 2004 and a slower growth of the economies in China and the world, but still increasing demand not completely covered by new production capacities, steel prices will stay on high levels, but not inevitably on the highest points.
Conclusion: In 2005, steel prices will fall, but the overall high price level will stay in the mid-term.

1. Raw materials
   - Costs for raw materials, especially steel input costs, have risen sharply in 2005
   - Other costs, like transportation and energy, increased as well
   - Lower raw material prices are very improbable in the near future

2. Demand in China
   - Economic growth until 2007 at least 8% p.a.
   - Hard landing is becoming unlikely as the measures by the Chinese government take effect
     - In general, industry demand growth is slowing down, but still in the double digits

3. Threats
   - Lower growth of world economy
   - Slower than expected growth of the Chinese economy
   - Higher production and rising capacities in the near future

4. In the long run
   - Demand from China is going to remain high and grow steadily
   - Concentration in the sector leads to stable and high price levels
     - Steel and raw materials will stay expensive for the next few years

Steel prices will remain high in the near future, but lower demand and lacking willingness of customers to accept higher prices, make further increases more difficult. It is even more probable that some steel products will become cheaper.
Uncertainty still exists over the future

STEEL: U.S. Prices Skyrocket

Automotive NewsWire November 7, 2005

*Prices for domestic steel have skyrocketed in recent weeks signalling a potential surge in imports, especially from China.* While steel prices were very high one year ago, the shortages that drove those prices high turned into a glut and brought steel prices way down. Now it looks like the rollercoaster ride in prices is about to go up again.

*According to the Wall Street Journal, the price of hot-rolled coil, the most common steel product, has risen to about $600 a ton in the U.S.* That same product sells for $380 a ton in China. China has grown to become the world’s largest steel maker and consumer and it controls much of the world’s steel markets. For instance, earlier this year China flooded markets in Japan and Korea, driving steel prices in each country downward. In the U.S., steel prices earlier this year fell 50% in the face of global glut orchestrated primarily by the Chinese. Now, however, as the Chinese pull out of the market to supply domestic needs and as U.S. inventories decline, prices are rising rapidly.

*The WSJ reports that some steel executives are forecasting continued rising demand for steel in the domestic economy, and if that occurs, prices are expected to rise even further.*

Other analysts believe demand for steel will slow over the winter months and cheap imports will return, taking the pressure off of prices.