

REASONS AND IMPACT OF STEEL PRICE INCREASES ON THE AGRICULTURAL MACHINERY INDUSTRY

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1 Introduction

Since the introduction of modern agricultural equipment, the reliance on steel and ferrous products has been of paramount importance. They provide the strength needed to support the many work horses that the farming industry relies upon at a cost that can make modern farming economical for farmers and profitable for manufacturers.

Steel is one of the largest inputs into durable goods manufacturing, and is heavily used in the making of machinery and equipment.

Despite its heavy use, steel was not a particularly important topic to many equipment makers over the past decade, for the price was on a downtrend while availability was rarely an issue.

The steel industry changed in 2004, and buyers can no longer take the industry for granted.

The spot price of almost every type of steel doubled or worse in 2004, while sporadic shortages interrupted production lines. Steel consuming companies had a difficult time making profits despite strong sales and some price increases of their own. Given this situation, buyers want answers to several questions. Why did prices jump so high, so suddenly? What is the outlook for 2005 and beyond? Is there anything buyers can do to improve the situation?

Over the last decade, the impact of changing market requirements for steel has been dramatic. Steel demand growth was exceptionally strong in 1997 and the first half of 1998. This was followed by a sharp decline in activity caused by the economic crisis in

the Asian economies, giving major problems for producers in South East Asia and Japan.

The fall in local demand led producers in Japan and Korea to attempt to increase their exports to other markets. It also caused steelmakers in Russia, Ukraine and elsewhere to redirect exports from the Asian market to Europe and North America. The result was a very sharp fall in prices in 1998.

A revival in Asian markets, combined with continued strong growth in North America, led to a sharp recovery in steel plant production in 2000. This caused steel prices to rise equally rapidly. From mid 2001 the market was depressed, as consumption in the US fell and expectations of recession in other major markets were widespread. The events of 11th September 2001 further damaged confidence about future demand. At the same time world steel production was high and prices extremely low.

The reaction to those disastrous circumstances was not a sustained cut in production around the world to raise prices; it was to continue a high level of production, selling steel at prices covering the cash costs of only the lowest cost producers and generating heavy losses for most others, and to hope that the market would recover before stock levels could no longer be tolerated.

This drove US producers into ever more determined efforts to block imports, leading eventually to the case under Section 201 of the US Trade Act. In February 2002 US government ruled that a wide range of imports should face a tariff of 30%.

Similar reciprocal actions were then taken in the EU and many other countries, as they attempted to block the anticipated flood of material that would be diverted to their markets by the major exporters.

During 2002 the US economy showed a more rapid recovery than expected and ferrous consumption remained generally good in most regions. The result was a continued high level of production and much better prices. This came too late to save some substantial US producers, who entered Chapter 11 bankruptcy in 2001 and 2002, but the financial performance of most metals

companies was greatly improved. The steel industry was starting its consolidation.

Steel consumption in China continued to grow strongly, matched by a large rise in production but also providing strong demand for imports from the major producing countries. Strong demand and rising prices made the trade restrictions unnecessary and they were largely withdrawn in 2004.

In 2003 economic growth was generally slower than expected, with a poor performance in continental Europe and a slowdown at mid-year in the USA. Nevertheless, high activity in China and other Asian areas caused crude steel production to rise strongly, with growth of about 7.1 %.

In 2004, continued very rapid economic growth in China and a strong recovery by the US economy were the main driving forces behind sustained steel demand and production rose by a further 8.7%. The period 2002-2004 showed the most rapid growth in world steel production since the early 1970's.

In late 2004 world crude steel production was running at an annual rate of 1.09 billion tonnes, 90 million tonnes higher than a year earlier and 200 million tonnes higher than in early 2002. These are record levels. The previous peak in market activity, in 1989, was when crude steel production was 787 m tonnes.

Production in the USA surged in the second half of 2002 following the introduction of import restrictions, but by mid 2003 had stabilised and fell back in the second half. In 2004 a strong economic upturn caused production to rise sharply by about 10 % over 2003. Production in the European Union also stagnated at mid 2003, but was running 3-4 % up during the first half of 2004. Production in Japan has benefited from a much stronger domestic economy and good export markets, but is still only about 2 % higher than in 2003. In other parts of the world, however, production continues to boom, with China showing increases of over 20 % and strong activity also in Russia and Ukraine.

The growth was moderate in 2005, but 2005 is another good year for growth in world steel consumption, by previous standards, before a

modest slowdown and adjustment forecasted in 2006.

Causes of steel price increases are numerous. There has been a general world wide industrial growth, but significantly the China has emerged as a key influence on steel availability and pricing. She has seen a high growth rate in domestic and export trade. This, coupled with heavy investments in infrastructure and capital equipment from internal and foreign investors has put her at the forefront of developing nations.

Historical price trends, industry consolidation, the costs of raw materials, the impact of the dollar on commodity costs and shipping expenses have also played a key part in explaining what has happened to steel prices and we can look at these in some detail.

2 World-wide industry growth

One of the primary reasons for steel prices escalation is the synchronized rebound in the major industrial blocks and the consequent higher demand. This rationale is very valid, but often misapplied.

Demand in the United States and EU is in the recovery phase, and still far below the steel needs of the cyclical peak of late 2000. The real increase in demand goes back to China. A boom in construction, along with rapid industrialization and outsourcing, is causing Chinese demand to increase by more than 20 % per year, or about half of the total U.S. output each year for the past four. Stronger growth in industrial production in the United States, Europe and Japan was layered on strong Chinese growth (**fig. 1**).

Today this is explained by the fact that a large portion of the economic growth in 2003 comes from China.

While China's GDP represents only a 4 % of World GDP in 2003, it accounted for fully 13 % of the world's growth. China was responsible for about one third of global steel consumption in 2003.

In general steel consumption grew a lot faster than average economic growth forecasts suggested.

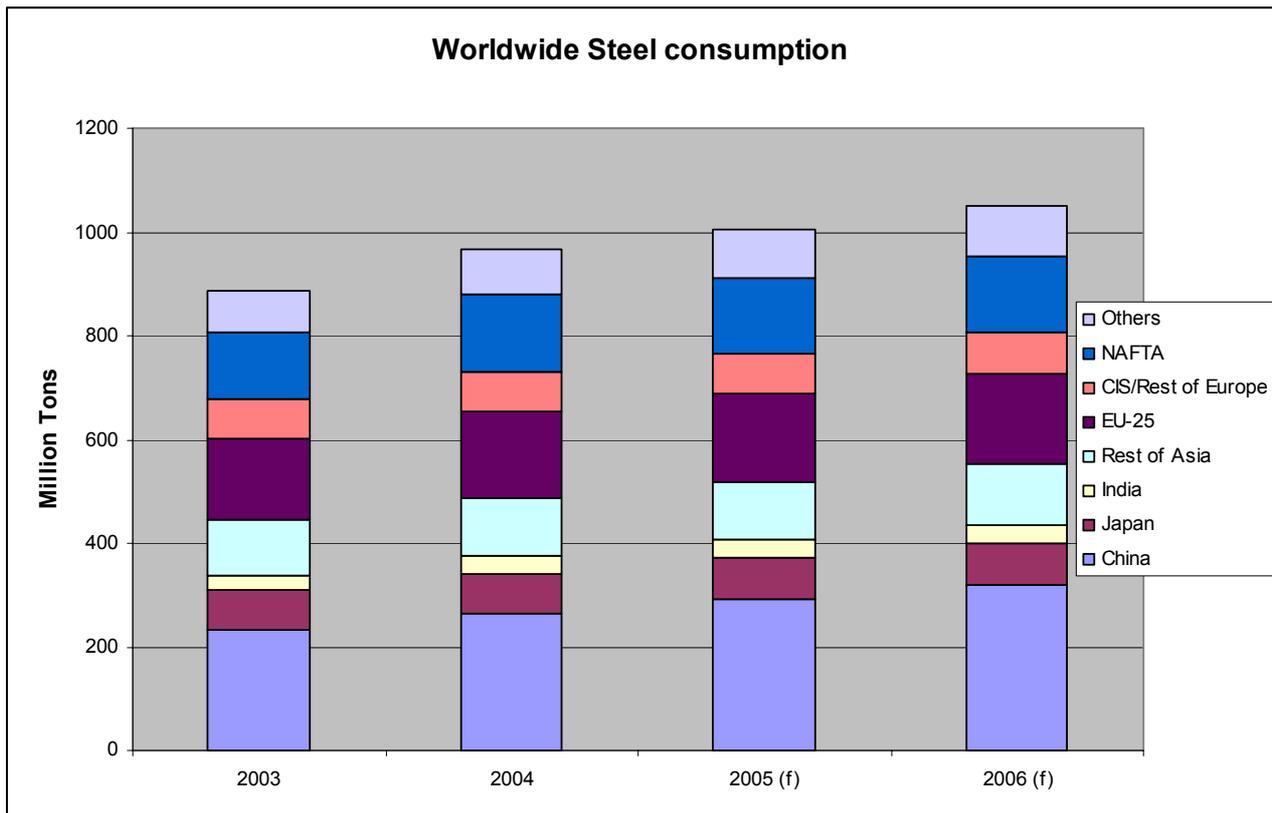


Fig. 1

3 The China factor

China was the driver for the recent market evolutions. Chinese economy's share of global output doubled to 4% in the last decade, consuming:

- 31 % of coal;
- 30 % of iron ore output;
- 27 % of steel products;
- 25 % of aluminium;
- 7 % of World's oil supply.

China has strong growth objectives that revolve around 6 main areas:

- Its goal of raising per capita GDP from \$840 in 2000 to \$3000 by 2020. An annual increase of 7.2 %. China is likely to achieve this with projected growth of 8.5 % in 2005, 8.7 % in 2006, and 8.9% in 2007 led by manufacturing and construction.
- Heavy investments. Fixed asset investment soared by 27.7 % in 2003, 9.8 % higher

than the previous year. Public sector investment, which accounted for 72.1 % of total investment, surged by 28.2 %, driven largely by local government investment decisions. Future investment in fixed assets is expected to grow by about 18 % in 2005, and by about 13 % in 2006-2007.

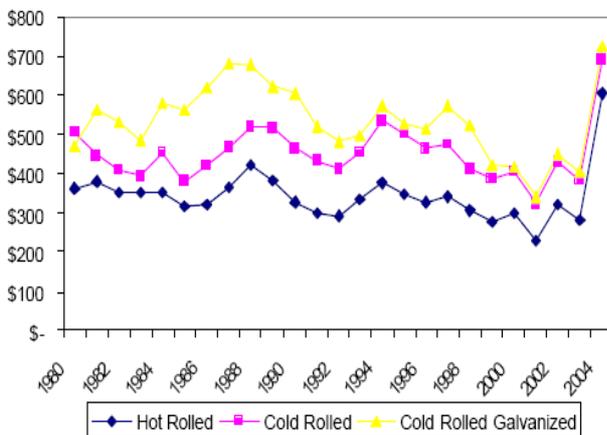
- Foreign investment. China moved fast to become #2 as a destination for foreign investment in the World. Foreign direct investment (FDI) rose by 13.3 % to \$60.6 billion in 2004.
- External trade which maintained its robust uptrend on strong domestic and external demand, with the result that China overtook Japan to become the world's third-largest merchandise trader, after the United States (US) and Germany.
- Total consumption which increased faster in 2004 than in 2003, driven by improving rural and urban incomes. Future consumption will maintain double-digit growth rates, but these will be significantly lower than the rates for investment.

- Industry reforms. Progress has been made in SOE (State Owned Enterprise) reform. With the State-owned Assets Supervision and Administration Commission continued its efforts to strengthen its supervision over 178 major central SOE groups.
- China's ambitious revitalisation programme and the shortage of raw materials became the leading identifiable cause of steel price increases we see today.

4 Steel prices and steel industry consolidation

It's easy to illustrate the impact which the changing market conditions have created using sheet steel price changes as the most representative example (fig. 2).

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



Source: Purchasing Magazine.

Fig. 2

Steel prices have failed to keep up with overall inflation since January 1979, causing price declines and volatility for more than 2 decades (fig. 3).

While declining prices helped steel buyers, it put continuous pressure on steel makers.

Investment and maintenance were curtailed, and 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.

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

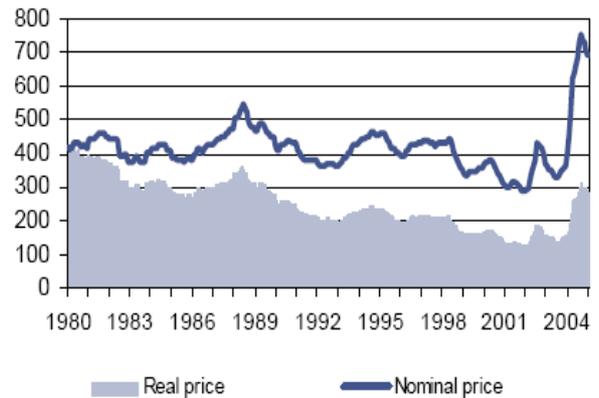


Fig. 3

The effect was and will be a steel industry consolidation.

Consolidation did not lead to the price increases. Prices would have increased in 2004 no matter how many steel companies there were, for the real issue was ore and coke supply, not furnace capacity.

However, as raw materials supply normalizes and prices begin to decline, consolidation will have a major effect in slowing the pace of decline, and most importantly in putting a floor under prices.

In addition to the consolidation, steelmakers are now concentrating on their next strategic steps.

To this end there are three trends that look likely to shape the business profiles of leading steel producers:

- liquid steel is increasingly being produced close to sources of raw materials;
- more steel is being produced in countries with low labor costs. Russian, Ukrainian, Turkish, Indian, Brazilian and Chinese steel producers, for example, have some of the most ambitious capital expenditure programs in the industry;
- downstream operations and service centers positioned close to end users are increasingly seen as a competitive advantage because control over distribution is important.

5. Major steel input costs

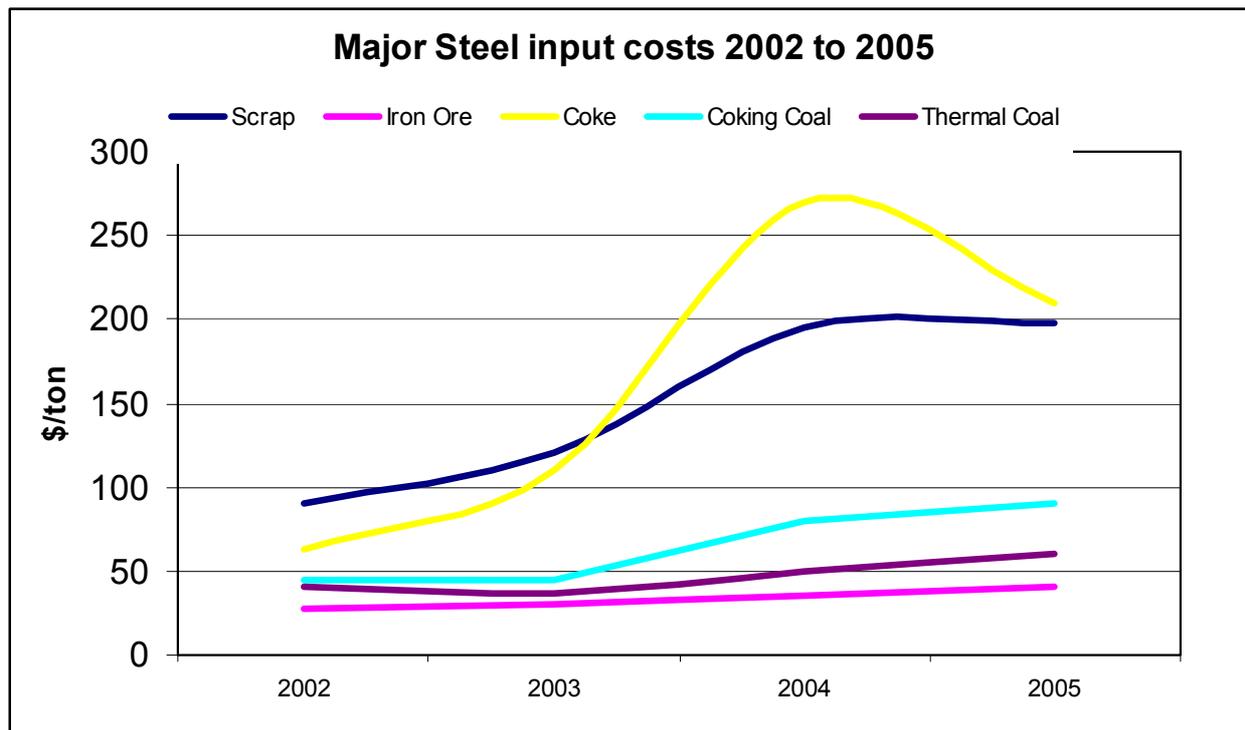


Fig. 4

5.1 Iron ore and coal

Integrated producers use iron ore and coal as their basic inputs and are largely unaffected by the fluctuations in the scrap market (**fig. 4**). The extremely high level of steel production in 2003, continuing into 2004, with huge demand from China, caused a shortage of iron ore.

This supply deficit during 2004, resulted in spot cargoes being traded at extraordinary prices. 2005 prices are under negotiation, with the expectation that contract prices may rise by over 50%.

Iron ore prices are largely controlled by the global "Big Three" (CVRD, Rio Tinto, and BHP Billiton) who have massive expansion plans in place. The major iron ore producing countries of Australia, Brazil, India, Africa, Sweden and North America also have plans in place. Nevertheless, these will do little to ease market tightness in the short term. Steelmakers have therefore been hurrying to secure supply for 2005 and beyond through long-term contracts with iron ore producers.

Supply and demand also changed dramatically in the hard coking coal market late 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%.

North American and European producers have allowed themselves to become partly dependent on purchases of coke, mainly from China. In 2003 and 2004 the very high level 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.

At the same time the large volumes of raw materials being moved caused a major tightness in the ocean shipping market, causing freight rates for iron ore and coal to double or triple, further raising costs for integrated producers.

The result of these developments was that 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.

5.2 Steel scrap

Scrap price is crucial to the economics of electric steelmaking, which has ferrous scrap as its major input.

In the key US market the scrap price responded to the improved steel price situation after March 2002 and rose from about \$70/tonne to \$120/tonne by March 2003, the

highest level since 1998 (**fig. 5**). Scrap remained at \$100-\$120/t for the remainder of 2003, but surged in early 2004 to \$230, well above the previous record levels. Prices fell back in the summer months, but rose sharply again as production continued to rise in the later part of 2004. Early in 2005 scrap prices have fallen substantially, but are expected to remain high in 2005, before a fall in 2006.

Scrap Prices Flip From Record Low to Record High

(Number 1 heavy melt, dollars per ton)

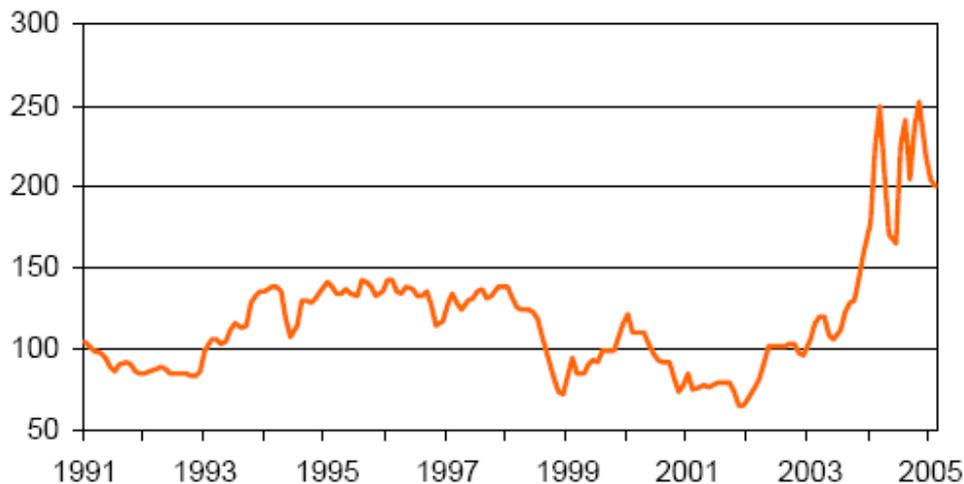


Fig. 5

The US exported roughly 9 million to 11 million tons of steel scrap each year from the mid-1980's through the mid-1990's. It's biggest customer being China. With the Asian financial crisis of 1997 and 1998, and the rapid strengthening of the dollar, exports fell below 6 million tons for 1998-2000, then began to recover. By 2003, exports of scrap were back to old levels. This was viewed as an abnormality rather than a recovery. In 2004 exports continued to grow, and reached a record level that just exceeded peak levels of the early 1990's.

This price level increase seems however to slow down during 2005 and the short term dynamics are now ruling the markets.

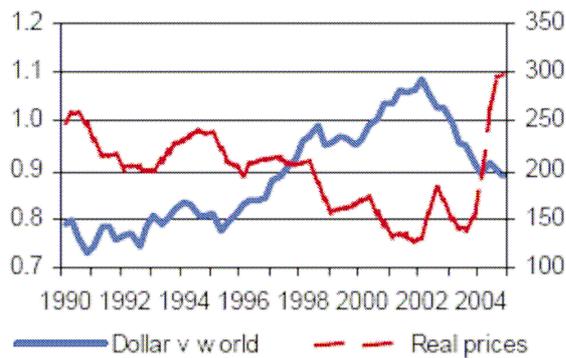
Turkey retains its position as the largest importer of scrap importing primarily from Russia, followed by Romania and the Ukraine; these three accounted for 55 % of the total in 2004.

6 Dollar depreciation

Experience tells us that there is a correlation between what happens in US and what in some months is going to happen in Europe. The dollar started increasing in value in 1996, and shot to very strong levels following the Asian financial crisis in 1997-98. Every time the dollar became 10% stronger, imported steel became 10 % less expensive.

Exchange rate line on the right is simply the inverse of the exchange rate line on the left (**fig. 6**). As the dollar gets stronger, a buyer can get more imported steel with each dollar. As the dollar weakens, a buyer has to use more dollars to purchase a ton of imported steel. A weak dollar also means that domestic steel is a bargain for other countries. Exports become a viable market, and domestic buyers have to outbid foreign buyers to keep steel at home.

Strong Dollar, Weak Steel Prices



Strength of World Currencies Explains Prices

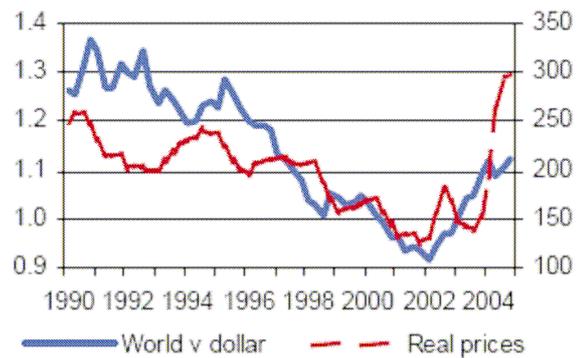


Fig. 6

Domestic mills can also raise prices, since imports are unable to undercut them. Moreover, the weak dollar makes exports attractive. The US was a net importer of almost every steel product for the past three decades, but in 2004 there were significant exports. Flat products were particularly in demand, and plate is still exporting almost as much as is imported.

7 Shipping costs

Raw materials and steel were also made more expensive by a shortage of container ships. Shipping rates increased by a factor of five in 2004. At \$20/t, shipping cost is almost irrelevant when compared to final product price. But at \$100/t, shipping is a major addition to the cost of imported iron ore, coal, or coke. Shipping rates have moderated, although they remain above \$60/t. Additional moderation will occur in 2005 through 2007 as hulls currently being laid at shipyards enter service. Global agricultural markets are already seeing the adverse impact of government policies on subsidy reduction. Competition is fierce and manufacturers are constantly challenged to maintain competitive pricing and margins. Raw material and scrap prices combined with added transportation costs and the impact of currency depreciation have given agricultural machinery manufacturers an additional major headache. How to maintain margins and profitability without passing material cost increases onto end customers.

8 CNH and the steel commodities

CNH re-action to the steel price increases has been swift and decisive as has been necessary. Product costs have seen the full impact of the crisis and passing some costs onto end customers has been inevitable.

CNH steel cost in Europe from 2003 show that with contract protection afforded by the influence of the FIAT Group on costs were contained below the open market. This advantage was lost after expiration of the contracts and reversion to the spot-buy market (**fig. 7**). Without the benefit of contracts in North America, steel costs largely followed the market. The overall result in 2004 was a cost to CNH of 160 million dollars. A figure that is believed to be similar to our competitors.

With the peak of 2004 and 2005 past, the forecast is now that supply will improve in forthcoming years but not back to pre-2003 levels. The impact of steel costs is seen not only on the 30 % direct steel content of vehicles but also the indirect content of the many varied commodities (**fig. 8**). For tractors and combines, CNH relies on steel products as the principle source of components. For a tractor, ferrous metal products represent 30 % of 3rd party material costs (**fig. 9**). A combine with its reliance on steel for major panels has an even larger dependence with a 44 % content (**fig. 10**). With this heavy reliance on steel, the increases in price have had a dramatic impact on product costs. Solutions to offset these penalties have been sought aggressively both in current products and then extended into new developments where styling and investment also must be considered.

European Flat Steel Trend Forecast

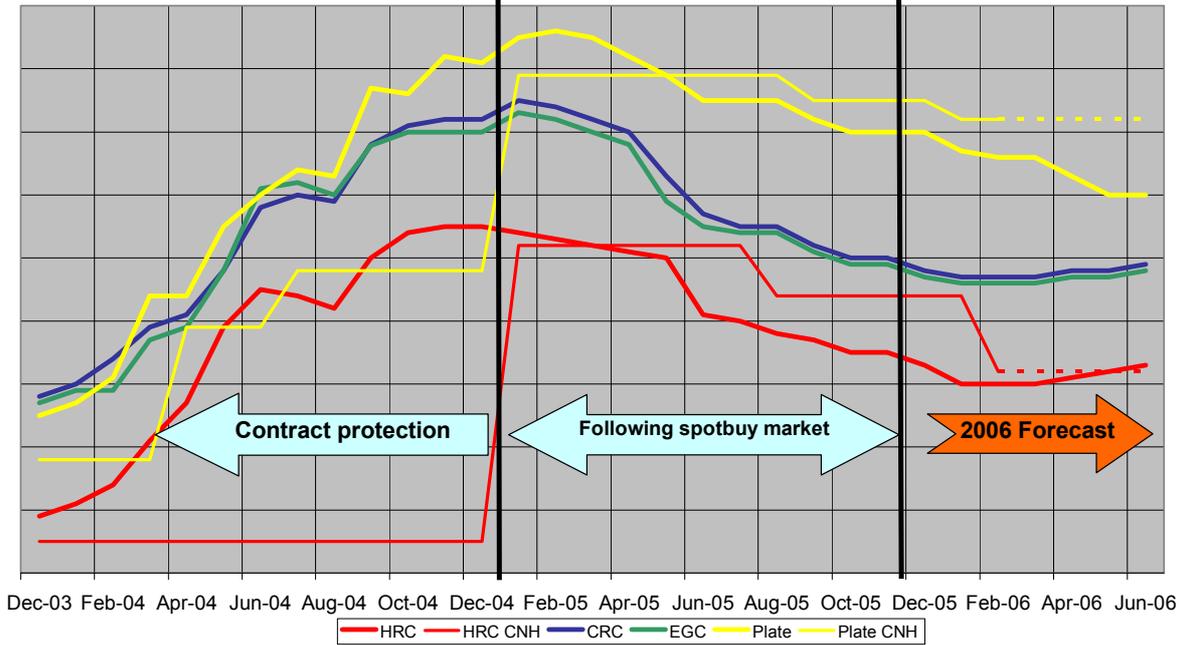


Fig. 7

Steel Content of Major Commodity Types

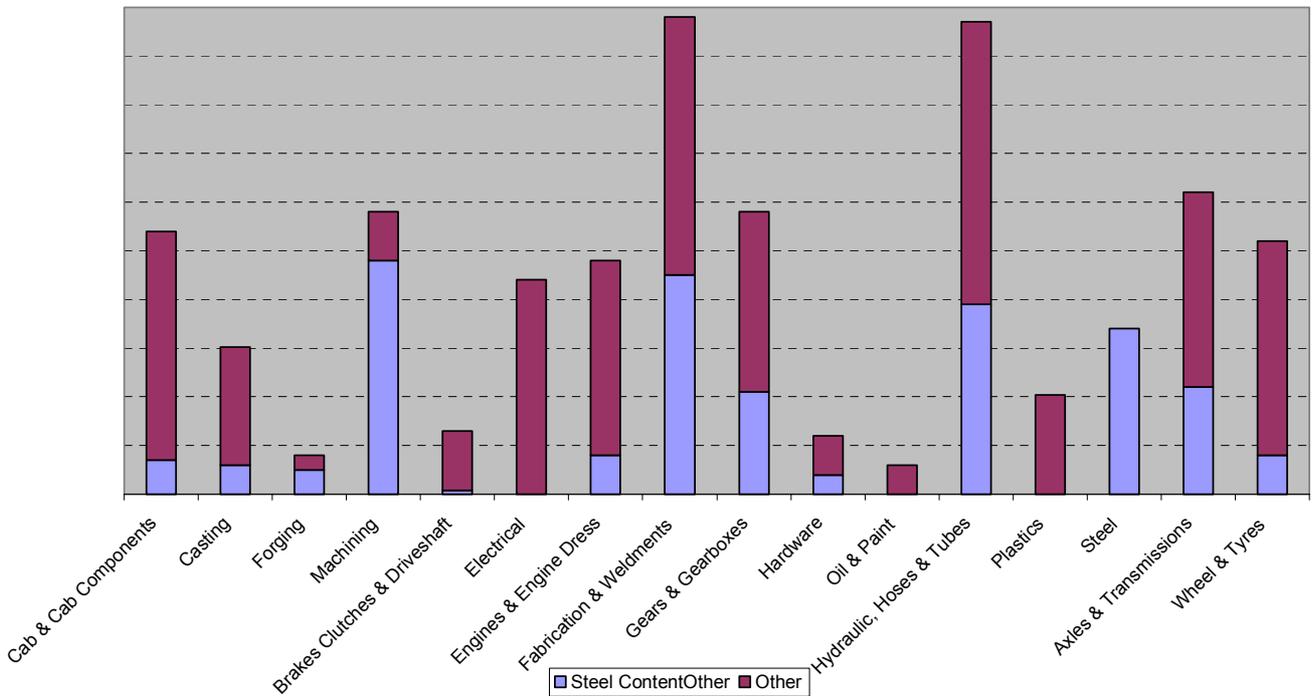


Fig. 8

CNH Tractor 3rd Party Material Analysis

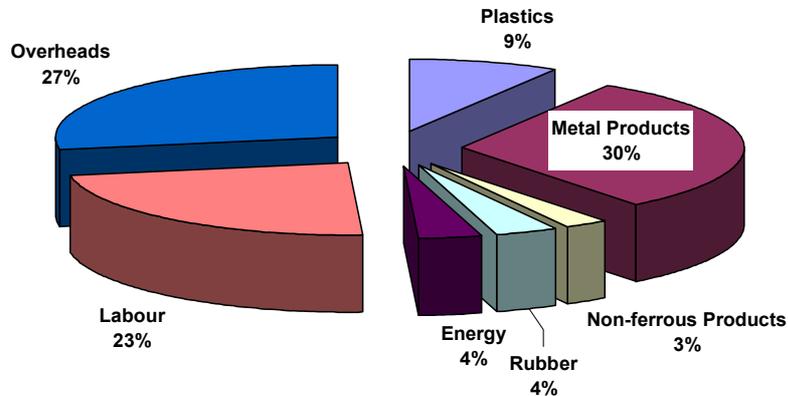


Fig. 9

CNH Combine 3rd Party Material Analysis

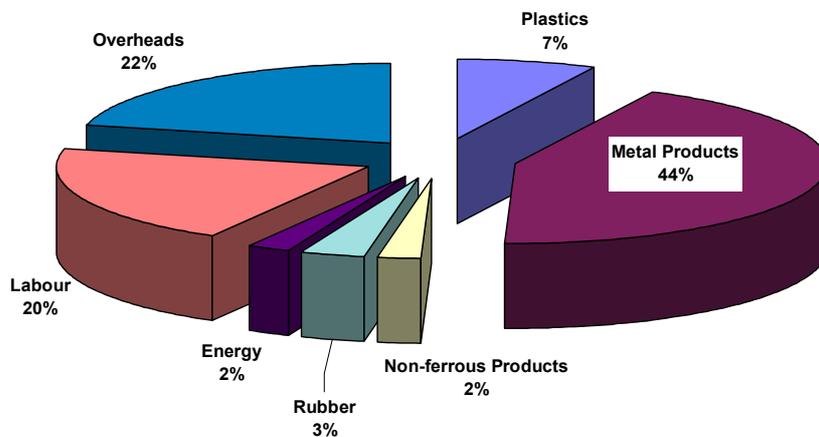


Fig. 10

9 The CNH challenge

In the light of the cost increases from steel, CNH's drive has been aimed at organisational reform and questioning and attacking costs through challenging designs and operating with best competitive practices.

The **Strategic Sourcing** organization in CNH was created to improve supply base collaboration and effectiveness by implementing global commodity strategies

focused on quality, technology, delivery, and total cost. The Purchasing organization changed its name to Strategic Sourcing to reflect our core accountability of sourcing and the need to define and implement longer-term commodity strategies.

This approach provides CNH with:

- full leverage on the global direct and Tier 2 purchases based on industry best practises;

- the need for a breakthrough strategy to manage the increased impact of steel commodities;
- a dramatic reduction in the Supply Base to leverage better total cost while selectively adding low cost country sourcing;
- project management to focus on alliances (consortium procurements) and Fiat Group purchasing activities.

The enhanced focus on commodity management is key in the global market scenario in order to manage, forecast and act proactively in an environment that like steel, needs a more structured approach.

In particular, the commodities directly and indirectly linked to the steel market are:

- Steel – raw material
- Casting, Forging and Machining
- Gears and Gearboxes
- Transmissions and Axles
- Fabrications & Weldments
- Hitches
- Cabs

Obviously this list is not complete because the influence of steel is reflected in other product families for example Hydraulic components, but those mentioned represent the 73 % of the purchased content of a vehicle.

For this reason the forecast on the steel material trends is managed by the Steel Commodity leader, who monthly releases an overview in order to update and share information for all the other commodities and set the next steps for negotiations, contract extensions, market opportunities.

CNH directly procures more than 200 Mio USD of steel products for its global facilities, 60 % of which is for the NA market, mainly sheets cut to length (64 %), tubes (23 %) and bars (11 %).

Starting from the third quarter 2003, CNH suppliers were showing signs of the impact of the steel prices in their cost structure. The CNH approach was in NA to confirm and consolidate where possible the long term contracts and partially delay the requests of increase. In Europe the situation was more sound, mainly linked to the leverage that CNH

could have through the Fiat Group. Since 1998 New Holland first and then CNH were procuring raw material with the leverage of Fast Buyer, a Fiat Group company with the mission to provide central coordination on some of the purchasing activities to Fiat Sectors and to third parties. The effect was a contractual protection until end of 2004 with stable prices for CNH and some selected Suppliers. But in US and EU the 2005 result was different: CNH was following the spot-buy market with quarterly agreements in order to capture every single opportunity looking to Low Cost Countries (LCC) as alternative to the consolidated sources and using extensively the e-auction tool. The 2006 forecast is to be able to fix prices with yearly contracts and further work on standardization, Technical savings and Global Sourcing.

This indeed is the strategic approach to the sourcing activities, do things better to mitigate raw material pressures through:

- standardization: reduction of the raw material grades working on specifications, part's reduction and cross platform/product use of common components in order to leverage the volume effect;
- technical saving: work with Suppliers in order to optimize design, material usage, application, assembly, transportation and warranties aiming at a better total cost;
- global sourcing: leverage the global presence of CNH in Low Cost Countries and source components at a competitive total cost;
- alternative technologies: using Engineering resources to introduce alternative materials for key applications. For example, substituting traditional metal parts with advanced plastic solutions.

These initiatives have been combined in major programmes aimed at introducing technical savings using the best internal resources and the expertise of key suppliers.

Cross functional teams in each Engineering site are tasked with developing and implementing an on-going Cost Reduction Programme. This takes ideas from any source,

examines the feasibility of implementation and projected product cost savings potential and plans introduction in the shortest period to optimise benefits.

While 'brainstorming' has been used across all functions to produce ideas, specific actions have also been identified to get as many ideas as possible into the savings portfolio.

The one golden rule in all of the exercises is that 'no idea is a bad idea'. Benchmarking with similar products across the global product range enabled engineers to propose best technical solutions and at the same time provide opportunities for standardization. This provided Strategic Sourcing improved leverage for cost reduction negotiations.

Benchmarking with competitor's products also highlighted areas where the CNH solution was not the most cost effective. Arguably this can be more difficult and expensive to implement where competitors have a fundamentally different approach to it's product but nevertheless can provide short term and long term opportunities to reduce costs.

To boost the number of opportunities, a 'Technical Expert Workshop' concept was introduced in the early part of 2005.

This process takes complete vehicle systems e.g. wiring harnesses, engine cooling, instrumentation, front axles, etc. and systematically examines them using a disciplined process to identify cost reductions from material specifications through to manufacturing processes.

CNH participating groups in this exercise are cross regional and consist of dedicated representatives from Strategic Sourcing, Quality, Manufacturing, Engineering and Finance. These are supported by technical experts from key suppliers.

The workshops are completed in a short timeframe, 8-10 days. During this period intensive reviews are carried out comparing

current CNH components for all product lines and products used by competitors.

Groups focus on actions that could result from a change of a component or component system. This will include:

- delete component functionalities;
- change material;
- standardize / commonisation;
- reduce number of manufacturing processes;
- increase tolerances;
- reduce weight;
- simplify / change packaging;
- benchmark against competitor solution.

Initial indications from the workshops have revealed savings in excess of expectations. As a bonus, an opportunity to compare quality levels has arisen which will benefit product quality and reliability. This success has given a clear indication that this path is one which will ultimately contribute to the results CNH are looking for.

So the steel crisis has certainly provided all manufacturers with a major challenge – reduce costs to offset the increases or risk losing margin.

CNH has risen positively to this challenge with a wide range of cost saving activities. The long term benefits of which will be better quality, lower cost products to give farmers innovative and tough products at an economical price while still providing sufficient margin for investment in future research and development.

The struggle is by no means over and the short term situation is proving difficult. If steel prices do decrease as forecast, there is the prospect of improving profitability enhanced by the cost reduction programmes put in place. However, as agricultural manufacturers emerge from this crisis, increases in oil prices will give yet another challenge to this already hard pressed industry.