

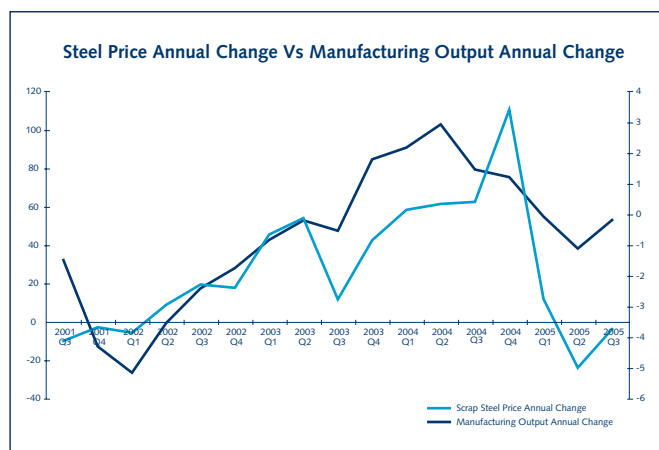
# Scrap, Steel and the China Syndrome

The author of this paper has long held that the price of scrap metal in the UK is a reliable indicator of the health of domestic manufacturing industry. Unfortunately this may no longer be the case...



## Scrap, Steel and the China Syndrome

Logically, demand for scrap reflects the immediate need for raw materials for subsequent processing into steel, and the demand for steel itself is an excellent indicator of the health of the steel industry's main customers: construction (22%), automotive (17%), engineering (24%) and metal goods (14%). Given the relative decline of the UK manufacturing base in these sectors, and high demand for steel in other economies, it might be expected that this correlation would no longer hold true. Examining the statistics however, reveals that the relationship still appears to exist, but that this may now be more a matter of coincidence than evidence of a firm relationship.



The statistics should be considered in the context of the global demand for steelmaking materials and even for the transport systems by which they are moved around the world. As well as depriving the writer of a useful rule of thumb, this trend may have serious latent implications for western economies.

China has been the world's largest steel producer for the past 9 years, producing 23% of world demand in 2003, compared with her nearest rivals Japan (11%) and the USA (9%). Expressed as tonnages, China's production of crude steel grew by 40.65 million tons to 222.34 million tons between 2002 and 2003. This is a huge increase in output, but should be measured against China's apparent steel consumption which grew by 50 million tons to 247.25 million tons over the same period. China was therefore a net importer of steel and this demand was reflected in the global steel market, which grew by 59.6 million tons to 936 million tons in 2003.

This year, world production is expected to exceed one billion tons, with China's 5-year plan indicating a domestic requirement of 310 million tons by 2010, which in turn is putting severe pressure on world supplies of raw materials.

## How steel is made

There are two basic methods of producing steel, basic oxygen steelmaking (BOS) and electric arc furnace (EAF).

The BOS process uses iron ore and metallurgical coal as raw materials, which are charged into a blast furnace. Hot air is

blown over the heated raw materials to produce liquid metallic iron. This is then charged into the BOS furnace where as more oxygen is blown through a quantity of scrap is added to control the temperature.

It is usual for the ore and coal to be shipped from Australasia and South America in large bulk cargo vessels of which some 500 are in operation, each carrying 1.2 million tons per year. It is thought that global trade in ore and coke is already hitting the limits of current shipping capacity and there is little hope of new dry cargo capacity in the immediate future as shipyards are mainly manufacturing oil tankers to satisfy China's increasing demand for higher value crude oil and petroleum products.

EAFs melt recycled scrap by striking an electric arc within the furnace between its electrodes and the scrap in the bottom of the furnace.

The BOS process was originally the process by which high quality steel was made in large quantities. EAFs were used to produce small quantities of special steels where longer melt times and lower outputs were less important. EAFs were subsequently used to produce low grade steel, but technological developments have improved the quality of steel made by this process to the extent that the capital cost per ton of steel produced is now significantly less than that of BOS manufacture for equivalent grades.

China is still predominantly a BOS manufacturer but also consumes 50 million tons of scrap per year of which 10 million tons are imported. This has risen from 7.8 million tons in 2002, and coupled with increasing demand in other countries, (notably Turkey and Korea) has caused the world price rises for ferrous scrap which have occurred since 2003. The major scrap exporting countries after the USA and Japan are Germany, France and the UK.

## What are the immediate implications?

Ignoring the unfortunate demise of the writer's "rule of thumb", and apocryphal accounts of sewer drain covers being welded down in certain countries, many governments have begun to consider controls. Understandably, the main steel manufacturers, including the Ukraine, USA and Korea are thought to be considering quotas to ensure that domestic producers are given priority over scrap supplies before exports are considered.

Given the decline in manufacturing industry in the UK and the EU15 over the last 15 years, it might be thought that these developments are of little importance, but this trend should be considered in the context of the construction and automotive industries creating 40% of world demand for steel. These

industries show little sign of reducing their own global markets or indeed experiencing reduced global demand for their products. As they relocate their manufacturing bases to emerging economies, the demand for steel continues to increase, and increased costs to transport iron ore and coke and to buy and process scrap will inevitably feed through to higher domestic prices for manufactured products.

This in turn may well mean that as steel manufacture becomes increasingly marginalised to low cost economies, its supply to the world's manufacturing industries may come to have considerable strategic significance in the world economy, much as oil is perceived to have now.

## Steelworks Plant Values

The plant and machinery required to produce molten steel is very expensive to construct. The on processing equipment, including rolling mills, re-heat furnaces, roughing and finishing stands and cooling and straightening facilities are heavy duty structures, of bespoke design, and constructed to operate in hostile environments.

Many European and US steel works have historically operated older equipment which has been upgraded when circumstances and the demand/price cycles have permitted.

The value of a steelworks plant is therefore significantly higher on an in situ basis within continued production. If it becomes necessary to dispose of assets, or to arrive at market values, perhaps for loan security purposes, older equipment is of no interest to the global market and is often abandoned or scrapped.

Given the increased global demand for steel and its manufacture from low cost economies, modern equipment is saleable, but vendors must be braced for lengthy marketing campaigns perhaps from three to five years. That said, complete bar, wire or section mills have not been readily available during the past three years and these might be expected to sell reasonably quickly. Similarly, melting and continuous casting equipment would be at a premium, but whilst demand for steel remains strong.

It certainly seems that in future, The Office for National Statistics will provide a more reliable indicator of manufacturing activity than the price of steel scrap. In reality, it always did!



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