The recent restructuring of the Swedish special steel industry

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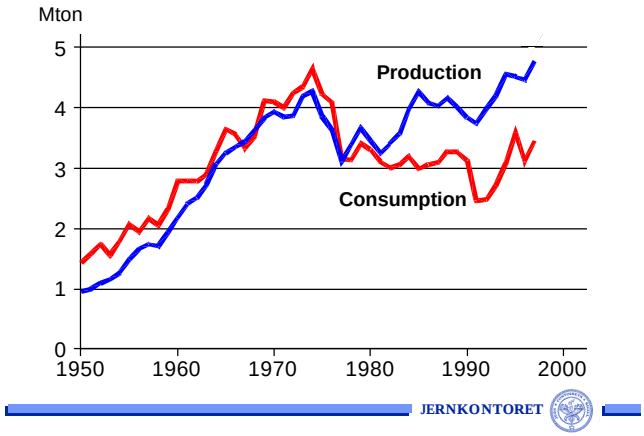
INTRODUCTION

Sweden is a fairly small country located in the northern part of Europe rather far away from the larger markets for iron and steel products. Its own market is small, and therefore economies of scale, which are of great importance in basic iron and steel making, cannot be fully utilized if shipments should be confined to the domestic market. Yet, Sweden has since long been known for a steel industry producing high quality steel products.

The main reason for this is historical and abundant natural resources of pure iron ore deposits, large forests for production of charcoal and numerous water falls which could furnish the iron industry with the necessary power. In the early 18th century Sweden was the world's leading iron manufacturer, accounting for about a third of the world trade.

Fig 1



Sweden's leading position was completely changed during the 19th century with the introduction in England and on the continent of metallurgical processes which used coal and coke as fuel and as reducing agents. Sweden had no deposits of fossil fuels. Thus its competitive position was decreased.

However, Sweden's ample supply of waterpower for production of electricity and pure ore with low phosphorous content helped Sweden to produce steel of high quality. These factors formed the basis for the development of the special steel industry in Sweden during the first part of the 20th century (Fig 1).

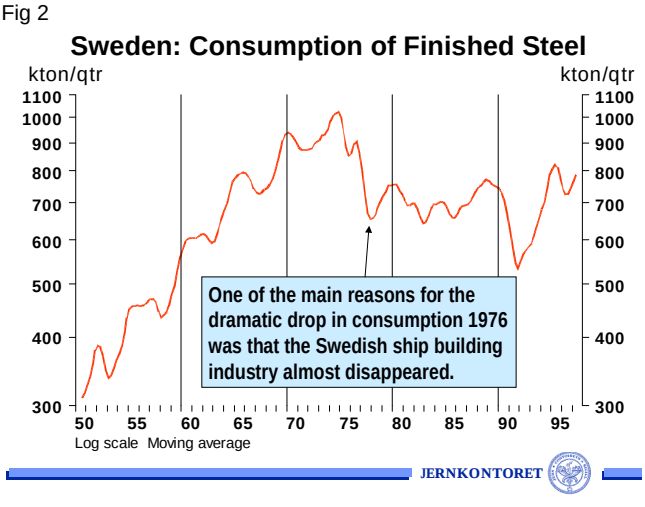
Today, in 1998 the Swedish steel industry has a strong international position. In spite of the turbulence of the world steel industry during the last two decades, the production of steel in Sweden has shown a considerable growth.

Thus, the production of finished steel is higher than ever before and the international competitiveness of the Swedish steel industry is good. This present situation is a consequence of the recent restructuring.

THE RESTRUCTURING OF SWEDISH STEEL INDUSTRY AFTER THE ENERGY CRISIS IN THE 1970ies

The Swedish steel industry was hit by the energy crisis earlier and harder than most other countries. One of the main reasons for this was the disappearance of the Swedish ship building industry, which at that time was number two in the world and consumed a substantial amount of the domestic steel. Almost at the same time the activities in the Swedish building sector were also reduced (Fig 2).

Fig 2



Thus the three big integrated steel companies in Sweden, the state-owned NJA in Luleå and the two privately owned steel companies in Borlänge and Oxelösund very early experienced severe profitability problems. This led to a merger of these companies in 1978 and to two dramatic restructuring processes carried out between 1978-1982 and between 1986-1991. The product profile of the company which originally contained long and flat products of many different shapes and grades, had by 1989 been reduced to flat products only. The large number of different types of metallurgical furnaces was reduced and concentrated to integrated ore based oxygen steelmaking only. At the same time the flow of semis

between the different plants was simplified. Also during this period the production of steel with more added value began and the share of high strength steel increased.

Other producers of steel were also affected by the downturn of the market that followed the energy crisis.

Radical structure changes took place in the stainless steel industry during the first half of the 1980ies. The production of stainless steel was in several steps regrouped from Uddeholm, Nyby and Fagersta into two companies, Avesta and Sandvik.

In addition Avesta and Sandvik established a new joint company for welded tubing, Avesta Sandvik Tube AB, and a joint company for stainless wire rod production, Fagersta Stainless AB. Later in 1992 Avesta AB merged with the British Steel Stainless Group and formed Avesta Sheffield AB.

Also the special steel producers of high alloy steels with production plants in various locations like Hagfors, Söderfors, Wikmanshyttan and Långshyttan were restructured. In the early 1980ies only two companies were left, Uddeholm Tooling, specialized in tool steel and Kloster Speedsteel, specialized in high-speed steel. Both these companies were later on bought by foreign competitors.

The SKF owned Ovako-group, producer of ball bearing and engineering steels, has its main plants in Hofors and Hellefors. The name Ovako is a reminiscence of an ”unsuccessful” merger with a corresponding steel producer in Finland.

In the late 1980ies the above actions had resulted in a structure where in Sweden there was only one producer per product group (Fig 3).

The restructuring operations were characterized by plant closures and concentration of the production to fewer sites where capital investments were made to modernize the equipment. Through plant closures and concentrations, it was possible for the steel plants to reach and maintain a high rate of capacity utilization. A high capacity utilization is a prerequisite for a profitable operation (Fig 4).

Besides costs of raw materials, labour and capital, which to a large extent are outside the control of a specific company, the most important cost components are yield, energy consumption and labour productivity. The last three factors can be controlled by activities taken by the management. By the described restructuring operations these costs were dramatically reduced.

In the restructuring operations most of the Swedish companies also increased their orientation into special product niches and hereby strengthened their market position. The companies' key issues during the restructuring have been simplicity in the flow of production and simplicity in the product range, meaning concentration on a smaller number of products.

A reduction of personnel always follows a restructuring operation. Such a reduction has to be handled with great skill by the management to avoid its negative impact on the employees (Fig 5).

Fig 3

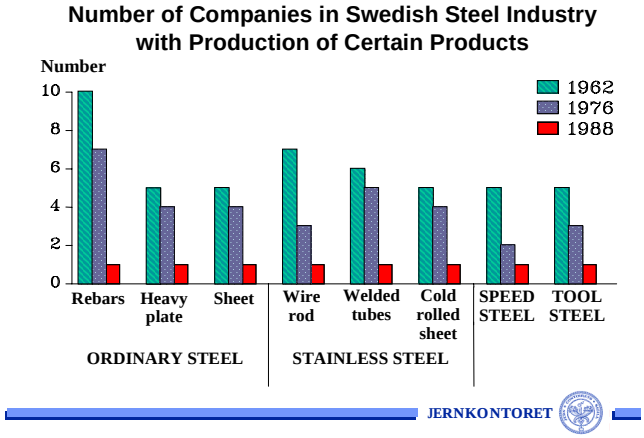


Fig 4

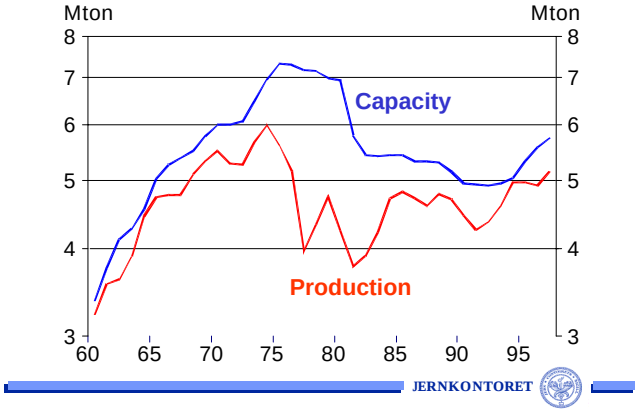
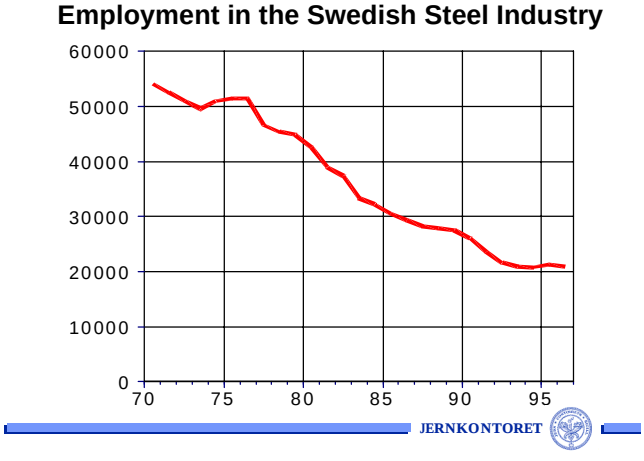


Fig 5



KEY FACTORS BEHIND THE SWEDISH STEEL INDUSTRY

Special Products and International Marketing

Sweden has traditionally pursued a very liberal trade policy where tariffs have been low or non-existing and no quantitative restrictions have ever been applied against market economy countries. This has resulted in a strong competition on the Swedish market and has brought about a high pressure of transformation, which in turn has lead to the high degree of specialization and the high share of exports in total output that characterizes today's Swedish steel industry.

Thus the Swedish steel industry's dependence on the development in foreign countries and fluctuations in the international business cycle is evident. To be able to sell the products abroad and retain the customers, marketing aspects have always been important to Swedish steel managers. Direct contact with the end customers is a must. Several steel producers formed marketing organizations of their own in foreign countries already in the late 19th century. This led to close contacts with end users and their demand was guiding the production of the Swedish steel industry.

Through this relationship with the end consumers, research and development people were able to create new products and adjust their metallurgical processes. In this way the Swedish steel industry was able to maintain its reputation as a high quality producer and product development became successively more oriented towards special steel products and certain niches. The structure of the Swedish industry therefore came to differ from that of other countries due to its large share of specials steel, which is larger than in other traditional steel producing countries.

This development has been further strengthened during the last 10 years when the various steel producers have tried to become one of the world's leading producers in their special product niches. In several cases the world wide number one position also has been reached (Fig 6).

A consequence of this has been that the share of exports has gradually grown over the years from around 20% in the 1950ies with a sharp increase after the oil crisis up to about 80% today (Fig 7).

Through orienting their production towards certain niches, Swedish steel companies seek to avoid the tough price competition that exists in the bulk of steel markets and thereby increasing their profitability.

Due to the niche orientation and the small domestic market, several product lines have been given up by the Swedish steel producers. A consequence of this has been increased imports of foreign steel to the Swedish market. Today about 80% of the domestic Swedish requirements are imported. A feature which normally is not the case in a traditional steel producing country (Fig 8).

Fig 6

Swedish steel producers are world leaders in many areas:

Stainless
Sandvik **biggest in seamless tubes**
Avesta Sandvik Tube one of the **biggest in welded tubes**
Avesta Sheffield **biggest in hot rolled plate**
Fagersta Stainless **one of the two biggest in wire rod**

Tool steel
Böhler Uddeholm **biggest**

High speed steel
Erasteel Kloster **biggest**

Electrical resistance wire
Kanthal **biggest**

Ball bearing steel
Ovako Steel **one of the two biggest**

Commercial steel
SSAB **biggest in wear resistant steels**

Iron and steel powder
Höganäs **biggest**

Fig 7

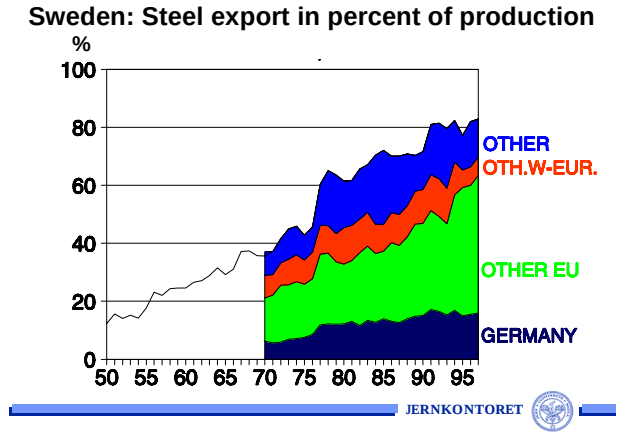
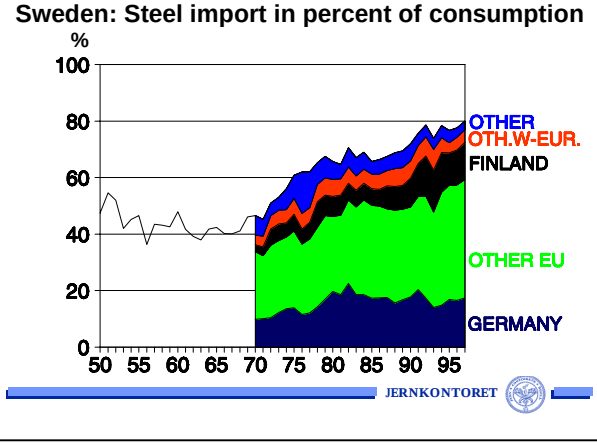


Fig 8



Strong Focus on Research and Development

Swedish steel companies have by tradition been strong believers in the importance of research and development work. They have also been flexible and quick to adopt new or improved methods of iron and steelmaking. Swedish metallurgists have made valuable contributions to the development of steel technology. The orientation of the research activities has been towards higher quality and cost reduction, especially with regard to energy costs. Early examples are methods of sulphur reduction in hot metal, which in the 1950ies was pioneered by Swedish mills, and the ASEA-SKF process from the 1960ies, which produces very pure steel. Also in the field of melting-reduction Sweden was among the pioneers in the 1960ies-1970ies with the Elred, Inred and Plasmasmelt processes.

A more recent example of successful Swedish development is in the field of injection metallurgy where Sweden through activities at MEFOS, the Foundation for Metallurgical Research in Luleå, in a close co-operation with the steel companies early reached a leading position.

In the development of new alloy steels, Swedish producers also have played an important role. Recent examples are micro alloyed carbon steels, pioneered by Oxelösund, and stainless duplex steels developed by Avesta and Sandvik. In this type of development work the earlier mentioned close contacts with the end users have been extremely valuable.

The steel industry has also derived important benefits from close co-operation with the domestic engineering industry and with Swedish makers of equipment for steel plants and rolling mills. Contributions by ABB in melting and refining of steel as well as process control and by Morgårdshammar in the field of rolling mills are good examples of this. For the equipment manufacturers on their part this collaboration also has been important as it has made it possible for them to take advantage of the experience obtained when exporting.

To me it is quite clear that without the strong emphasis on research that always has existed in Sweden, it would not have been possible for the Swedish companies to obtain their present competitive position.

Effective Management Structure

Traditionally steel companies all over the world used to have functional organizations. Ascompanies grew bigger this form of organization became more and more difficult to manage, as most decisions were made centrally and often high up in the organization. The flexibility became low and when increased competition required immediate action it often became difficult to respond quickly and appropriate.

Sweden pioneered the change in the steel industry to more decentralized and more flexible types of organizations. Steel companies were reorganized into divisions, control and service units already in the early 1970ies. Much later similar reorganizations also took place in steel companies abroad.

The conversion to a more decentralized organization increased the responsibility of the employees and the decision making was made closer to the site where the problems and the commercial possibilities were located. It also created opportunities for closer and better relations with the unions, which is of utmost importance when it comes to restructuring a company.

I personally think that the decentralized organization structure played an important role in the early restructuring of the Swedish steel industry and in the selection of profitable product niches and necessary investments.

International Owner Structure

Traditionally steel companies around the world have been nationally owned. In some countries private ownerships prevails. In others state ownership has dominated the integrated mills. In the early 1980ies foreign ownership in other countries' steel industry was rare.

In Sweden on the other hand a change in ownership structure took place in the late 1980ies and early 1990ies, when several Swedish steel companies were acquired by or merged with foreign steel companies. These changes in ownership were also followed by a cross border restructuring of the involved companies. Examples are Avesta Sheffield which is a merger between British Steel Stainless Group and Avesta AB. Another example is the tool steel producer Uddeholm Tooling, which from 1991 belongs to the Austrian Böhler-Uddeholm Group (Fig 9).

Fig 9

THE SWEDISH STEEL INDUSTRY 1998

The companies classified according to their main production policy

	Swedish owned	**Partly owned** by foreign steel-related companies	**Wholly owned** by foreign steel-related companies
Ordinary steels	SSAB Inexa Profil		Fundia Scana Björneborg
Stainless steels	Sandvik Steel	Avesta Sheffield AST Fagersta Stainless	Anval
Other alloy steels	Kanthal Ovako Steel	Surahammar	Erasteel Kloster Uddeholm

There are reasons to believe that competitive products and strong market organizations were important issues when the Swedish companies were bought. The acquiring company therefore saw clear synergetic effects with the Swedish companies

There is a clear trend that most governments no longer are interested in owning steel industries today. Private ownership is dominating and still increasing. In a world without financial restrictions, company ownership over the borders are natural and should be welcomed.

SUMMING UP

In the restructuring of a company it is important that the company has a clear strategy, right equipment, right organization and right manpower level.

If you have to restructure a group of different steel companies, then form ***one*** company and appoint ***one*** management. The first objective of this management is to form a competitive structure of the group.

In the planning phase you then have to define the market and which products you are going to produce. Then define your steel production capacity in such a way that the company even in a low state of the market has a sufficient capacity utilization. Then structure your closures and investments in a way which is optimal for total company.

In the execution phase you have to appoint a special management to take care of redundant personnel.