The curse of globalisation – must we expect crises in the aluminium industry that are more abrupt in future?

B.G. Rüttimann, Singen; U.P. Fischer, Zollikerberg

Rio Tinto

The increasing disintegration of value chains and co-operation that has its branches worldwide obstruct the view of real aggregate demand ...

Economic cycles are experiencing more frequent and more pronounced fluctuations in all sectors. The economic system is swinging from massive over-demand directly into a severe sales crisis. Moreover, even experts appear to be surprised by such extreme swings. Are managers blind? No, they are merely looking at the wrong types of demand, namely the local demand that has been made visible for them, which today differs from the real aggregate demand significantly more than it did in the past. The reason for this lies in the increasing disintegration of value chains and globally networked co-operation. These trends obstruct the view of the real aggregate demand. Essentially each stage of industry concentrates on its direct competitors, customers or suppliers and not on the value chain as a whole. This is a strategic error.

Why does the mining giant Rio Tinto only discover in November 2008 that its sales of raw materials for the whole of 2008 will be ten percent less than expectations? Why didn't Arcelor Mittal order a single tonne of iron ore from Vale between October 2008 and March 2009? Why is Dow Chemicals temporarily closing a third of all of its production facilities? Why are Rieter and GF cutting shipments of their products to the car industry by 50 percent practically overnight? Why are Chinese ports suddenly full of iron ore carriers and American ports full to overflowing with vehicles from BMW and Mercedes? In order to answer these questions one has to analyse more closely the global value chains in these sectors and above all the changes they have undergone as a result of globalisation since the beginning of the 1990s.

The strategy of unlimited growth

Starting in the 1960s, our industrial system has experienced continual growth. Demand for all types of consumer goods far exceeded supply; during this period, production and supply was easy. Markets were, to a large extent, local and in part closed. Unemployment was practically unheard of. By the 1980s at the latest, this imbalance between supply and demand had shifted in the developed countries and no longer favoured producers; market segmentation and response to specific customer demands were called for in order to counter increased competition.

The end of the Cold War and the opening up of eastern Europe brought new opportunities and risks after 1990: not only was the market expanded by over 100 million potential new customers, there was additional competitive pressure with very favourable production costs in the eastern European countries. The globalisation in the West that took place at the same time and allowed companies to pursue new markets in the rapidly growing economies made it possible for companies to continue with their growth-oriented business strategies. The paradigm of unlimited growth was still embedded in the minds of managers – also urged on by short term oriented investors luring the managers with excessive bonuses (and salaries). These compensation packages are very strongly dependent on the size of the companies. In the meantime, there have been fundamental changes in the structure of the value chain, abetted not least by low transport costs and advanced means of telecommunication: a network of suppliers and sub-suppliers with branches worldwide is now striving – to a large extent in an uncoordinated manner – to achieve a supposed cost optimum within the value chain.

There began a parallel race to capture the new markets (market and cost leadership) while at the same time securing existing markets – directly by enormous investments in increasing capacity and indirectly by optimising capacity by means of mergers and takeovers, and spurred on by the megalomania of the managers. This strategy aimed at unlimited growth was financed by readily available liquidity and low interest rates. The target markets both for expansion of production capacity and increased turnover were mostly the upcoming BRIC countries, but in addition to Russia there were also other eastern European countries with favourable labour costs.

Unfortunately, all competitors had the same idea, that is to say the same business model. The managers appear not to want to think about where this might lead. A simple calculation of the additional overall capacities and the real growth would reveal the resultant imbalance in the market. Furthermore, the company takeovers and mergers have not only overstrained the organisations but also completely ruined healthy balance sheets – we are now seeing the results. A lack of farsightedness and inadequate systemic thinking? Not only that but also a sizeable portion of naivety and the lack of courage to prepare a Plan B in case there is a period of bad weather and to present it to the shareholders. But this is precisely what responsible management is all about.

The great disenchantment

What happens now when there is a small fall in demand? Distracted by increasing turnover and blinded by extrapolated business plans based on wrong assumptions, the managers suddenly and astonishingly discover that, oops, they are producing too much – supply is significantly greater than the real demand. It is interesting that this realisation was first triggered by the American subprime crisis and the overheated economy subsequently collapsed like a house of cards.

And it gets even worse because prices also go into free fall as a result of overcapacities, higher fixed costs and lower marginal costs. The effect of the fall in prices is thus significantly more serious than the reduced quantity because it brings the potential competitiveness of the company into question – there are indications →


Vimetco

...making it particularly difficult for industries detached from the end markets ...

of trouble ahead. The current crisis is far more pronounced than the consequences of the dotcom bubble bursting in 2000.

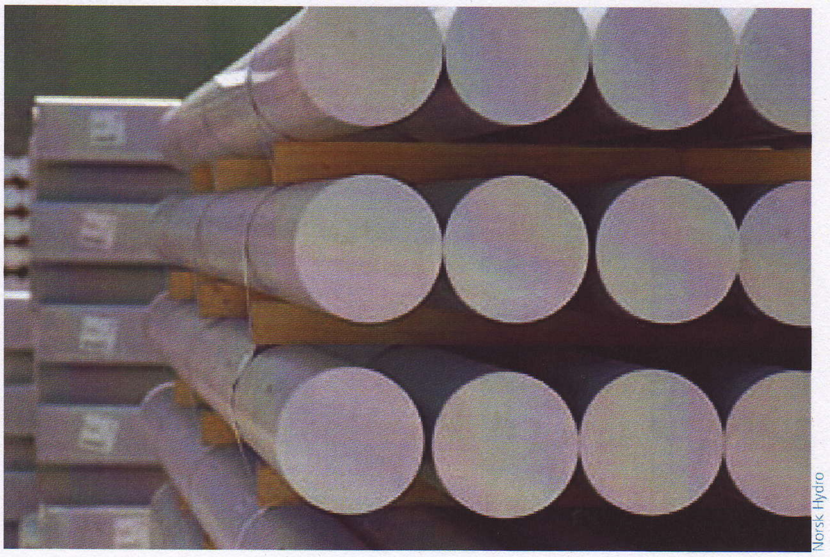
What has happened in the past few months is a consequence of the widely branched global value chain. The supposedly strong increase in turnover is mainly due to an ever-longer 'pipeline' (*see also: Dynamics of the 'pipeline filling' effect in the aluminium semis industry, ALUMINIUM, 5/2001, p. 336ff*). This building up of an intermediate stock, which was even strongly supported by increasing prices for raw materials, came to an abrupt end and was suddenly replaced by destocking. Thus as the aggregate demand fell, the producing companies were immediately affected – and the more so the further they were from the end market because the downstream demand was immediately met by the well-filled 'pipeline'.

In such a situation, an attempt is also made to compensate for liquidity losses resulting from reduced operative income by further cutbacks in stocks. In the present crisis, this phenomenon has increased drastically as a result of the financing of the net working capital becoming ever more difficult or even impossible because of the restrictions on giving credit. If the fall in production is unduly large compared with a company's fixed costs, restructuring and redundancies are inevitable. If the abrupt cut-back in production resulting from the emptying of the 'supply chain' is also superimposed on possible interest and capital repayments for short-sighted purchases of companies, it is no longer possible to rule out bankruptcies. And all of this because one has lost sight along the value chain of the end market. The question as to whether state aid and demand-stimulating spending programmes should be carried out at the taxpayer's expense is another problem in the making.

And nothing learned...?

If we fail to learn from this, we can paraphrase German dramatist Bertolt Brecht and say, "And when the whole shebang is over, it will start from the beginning again." As soon as the pipeline of intermediate stock is empty, the aggregate demand will again work its way along the value chain via the components to the semis and finally through to the raw materials suppliers. The pipeline is very long so considerable lead times are necessary before material reaches the final seller. That is why we are already hearing cries of "Can't you supply it tomorrow? Where are the goods, I need them immediately?" reverberating today ... and have not learned anything. There are unpleasant forms of feedback from dynamic systems that we gladly ignore. Actually, this phenomenon is known as the Forrester–Burbidge effect and was already being modelled 40 years ago on a small scale (using simple value chains). The time it takes to pass through the production stage means the effects on the stock quantities are limited to something of the order of several weeks or months by. Supposedly skilful negotiating on the part of the purchaser as a result of large quantity discounts exaggerates this effect still further. Everyone suboptimises his area and thus even damages the others by thinking lean. On top of the globalisation effects of a broadly branched value chain (which benefits from cheap production locations in far away places) there are the long transport times, in other words a warehouse that is on the move.

If we also take into account the increased investment activities on a global scale for installing additional production capacities, one recognises the dangerous multiplier again, but on a large scale. The throughput times for investments to expand capacity and open up markets – from the instant a decision is made, via the planning through to commissioning – is measured on a timescale of years. Whether the new capacities come on stream when the economic cycle is on a downward slope instead of on an upward one is to a large extent random. It is paradoxical that the decision to create new capacities is usually based on the maximum amplitude of the swing, which far exceeds the aggregate demand. The consequence is expensive overcapacity, which in the worst case is subsidised with taxpayers' money, and later on has to be reorganised again using taxpayers' money. The destruction of vertically integrated industrial concerns that can actually see the end market and their replacement by companies specialising in a single stage of the value chain, mostly accompanied by horizontal mergers, is particularly apparent in mature industries (*see also: Which globalisation for the aluminium industry?, ALUMINIUM, Part I in 1-2/2008, p. 16ff, Part II in 3/2008, p. 16ff*). The prospects have probably not improved.



Norsk Hydro

...to react in good time to imbalances in the real economy

What can be done?

The main problem is the distorted perception of the actual aggregate demand of the individual stages of the value chain. The momentum of the value chain, which is influenced by systemic feedback not directly linked to the actual aggregate demand, dominates more and more the further one gets from the end market. Three major, interrelated approaches to supply-chain management are necessary:

- Firstly, a shortening of the value chain by means of integration using an exchange of information and a reduction in the throughput time using lean techniques. In general, the lean approach, which means eliminating every possible source of wastage, will become even more important in future. The result will be a smaller amplitude with faster reaction time.
- Secondly, the reduced amplitude will allow better planning of the necessary production capacity, which is based on the real aggregate demand. This will not eliminate the expansion of overcapacities but it will at least reduce it.
- Thirdly, taking all value chains into account with which one is in competition, instead of only one's own stage. This applies to existing capacities as well as to planned extensions.

In addition, real-economy planning is necessary in order to avoid the serious socio-economic consequences that we are currently experiencing. Now this is consistent with the ideal world we know from theoretical books. In practice, this means that the modelling of scenarios should not remain an academic exercise and supervisory boards should insist on planning based facts; some shareholders (true company owners with social responsibility) and the employees will be grateful. The other shareholders (pure speculators) on the other hand will probably view the current crisis more as an opportunity to again get involved in the stock exchange in a big way. New opportunity for the one and possible unemployment for the other, who can actually do nothing for the mistakes of managers.

Authors

Bruno G. Rüttimann, Dr. Ing. MBA, studied at the Polytechnic Institute in Milan and the Bocconi School of Economics. As a Master Black Belt in Lean Six Sigma he is introducing Continuous Improvement techniques at Alcan Engineered Products. He is the author of Modeling Economic Globalization, Monsenstein & Vannerdat, 2006.

Urs P. Fischer, lic. rer. pol, studied Economics at the University of Bern. He worked for many years in various financial positions and as business unit president at Alcan/Alusuisse and is now an advisor to the managements of international groups. He is the owner of the management consultancy firm Lean Solution.