



Oryx Stainless research study stainless steel 2011:

## **Nickel market – playing field of speculators or driven by fundamentals?**

A study by JProf. Dr. Peter N. Posch, Ulm University/  
Institute of Finance on behalf of Oryx Stainless Group  
Mulheim an der Ruhr/Dordrecht, 2011



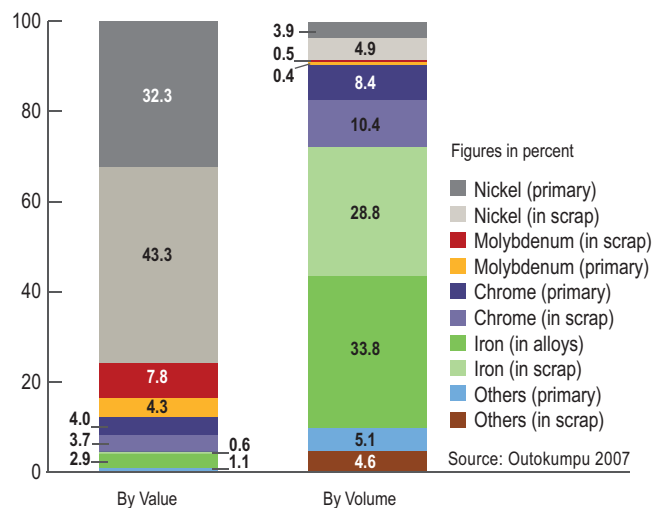
## Assignment



75% of the price for a ton of stainless steel are determined by the price of nickel. But what determines the price of nickel that saw peaks of more than 50,000 USD/t and bottom prices of less than 10,000 USD/t within a few years? Is it exclusively supply and demand? Fundamental factors like economic cycles? Or does speculation determine the price? Oryx Stainless commissioned the Institute of Finance at Ulm University to research these questions in the context of an empirical study regarding the pricing in the international nickel market.

There has only been minor scientific research on pricing mechanisms in the nickel market.

### Nickel – price factor No. 1 for stainless steel and stainless steel scrap



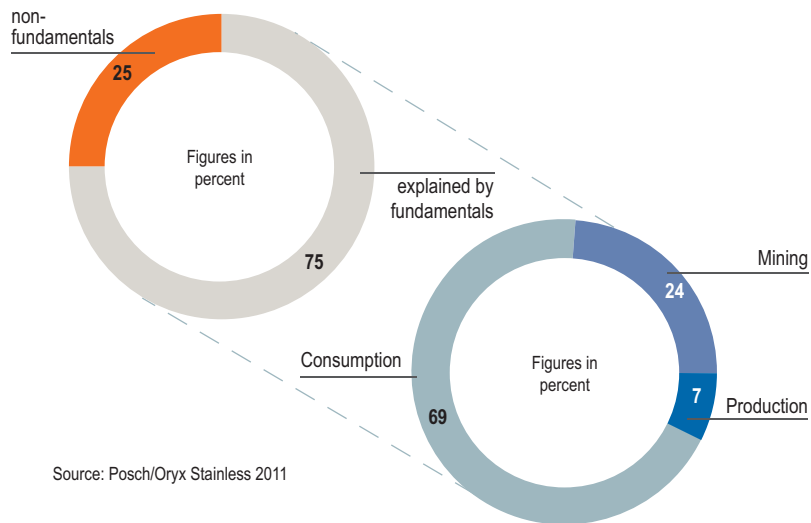
## Research methodology



The Institute of Finance at Ulm University researched pricing in the nickel market in a comprehensive empirical study. Suitable econometric and statistical methods were developed and applied to that end in order to evaluate the impact of speculation as a function of the market characteristics in particular. The scientific team utilized the fundamental model, residual analysis, the market and micro-structure model, and the time series model in that context.

The “unexpected result”, speculation, was systematically developed by means of different approaches.

**3/4 of the nickel price determined by fundamentals – driver consumption**



## Findings



The fundamental analysis showed that 75% of the nickel price are determined by supply and demand. Market information and macroeconomic factors only have a subordinate impact on the price. The nickel price to be expected can be derived with rational reasoning from the time series model. However, the market only sees part of the true resources when evaluating the available nickel as the entire scrap market is not registered statistically.

Special factor scrap – up to 50% of the nickel resources are statistically not registered.

**The unexpected nickel price - the speculation**



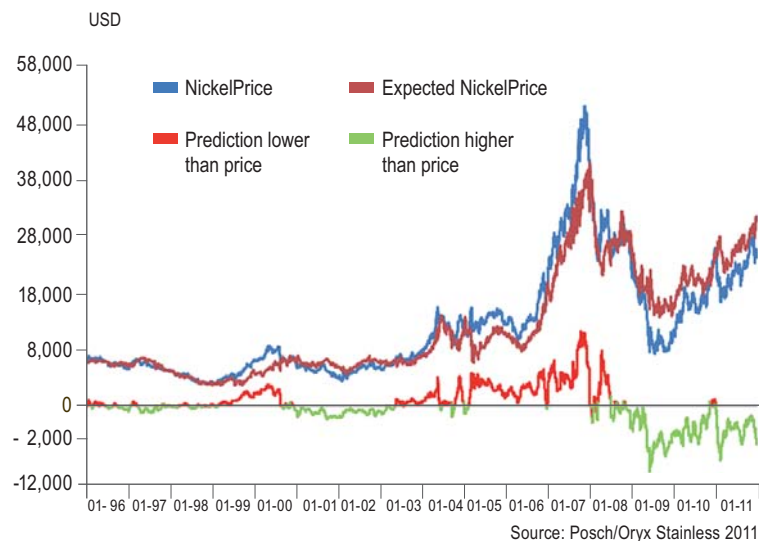
## Speculation



Even though the nickel price is primarily determined by fundamentals, the market is still not free from speculation. Speculation is a steady factor influencing the price of nickel. While it does not invent new trends, it substantially amplifies some existing ones as happened in 2007. The study also shows that speculation does not just act as driver in one direction. It causes both positive and negative exaggerations. In the course of a month, these may amount to 4,000 USD/t as happened in October 2008, but may also reach almost 12,000 USD/t and consequently constitute a substantial economic factor.

Forecast models that are based on time series and take fundamental data into consideration are less volatile.

### Non-speculative price vs. market price



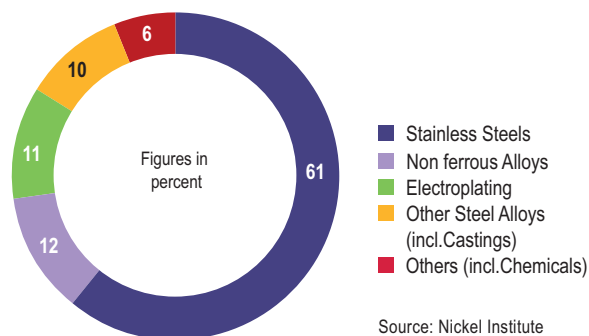
## Pleading



The stainless (scrap) industry needs comprehensive information as decision-making support and a strictly monitored market for safe trading. The nickel resource stainless steel scrap is to be statistically recorded to that end. An increased dialog among the market participants would assist in making the London Metal Exchange information, which is interpreted in a different manner because of different views on the entire market, more transparent. In addition, in-depth scientific nickel market research may also contribute to a better understanding of the market. The nickel market exhibits manageable market depth. The more important is strict monitoring of the market for critical trading positions for the purpose of facilitating the prevention of unnatural distortions.

**More transparency for high-quality research, better market understanding, and less volatility due to more information and market depth.**

### **Stainless steel (scrap) industry - main actor and hedger in the nickel market**



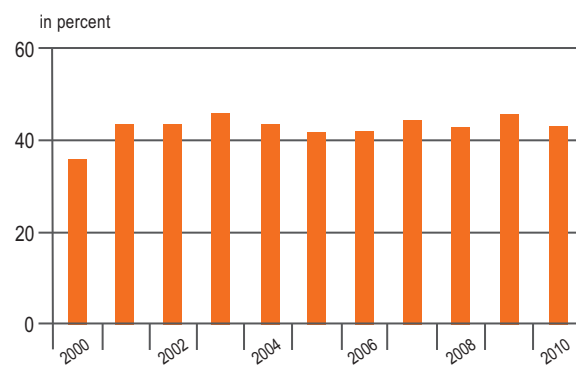
## Conclusion



The nickel market is no playing field for speculators. It is driven by fundamentals, exhibits sufficient market depth, and is regulated via the London Metal Exchange. Research ensures appropriate transparency. Speculation can only be determined in individual market periods. The fundamental character of the market increases the forecast reliability. However, a clear weakness is that there are no statistical details about the nickel resource scrap. At the same time, 50% of the nickel units for the stainless steel production are provided via stainless steel scrap. Stainless steel and alloy producers are the main consumers of nickel.

**Analysts and investors on a difficult mission:  
The unknown market factor scrap lowers  
the forecast reliability.**

### Forecast variable nickel resource scrap statistically unrecognized



Source: US Geological Survey

## Profile



**Oryx Stainless Group** Founded in 1990, Oryx Stainless is as partner of the stainless steel industry one of the world's leading trading companies for raw materials used in the production of high-quality stainless steel products. The business focus of the company with locations in Mulheim an der Ruhr in Germany and Dordrecht in the Netherlands is on the handling and processing of stainless steel scrap.

**Research team** JProf. Dr. Peter N. Posch has been teaching at the Institute of Finance at Ulm University since end of 2009. His research priorities are the fields of markets for raw materials and the analysis of global economic connections and credit risks. He is one of the founding members of the Center of Commodities in Ulm. JProf. Posch was supported by Samuel Pollege, a graduate economist and Ph.D. student at the Institute of Finance at Ulm University.

### *Oryx Stainless research stainless steel:*

*Intelligent recycling of stainless steel scrap to reduce CO<sub>2</sub>, 2010, in cooperation with Fraunhofer-Institute UMSICHT*

*Monthly newsletter on relevant developments and trends on the stainless steel market.*



ulm university universität  
**uulm**

JProf. Dr. Peter N. Posch  
Institute of Finance  
Helmholtzstr. 18  
89081 Ulm  
Phone: +49 731 50 23 595  
Fax: +49 731 50 12-235 95  
pn@posch.net  
www.posch.net



The partner of the stainless industry

Rheinstr. 97  
45478 Mulheim an der Ruhr  
Phone: +49 208 5809 0  
Fax: +49 208 5809 100

's-Gravendeelsedijk 175  
NL - 3316 AS Dordrecht  
Phone: +31 78 632 6230  
Fax: +31 78 632 6231  
info@oryxstainless.com  
www.oryxstainless.com