RUBBER-STICHTING 1936

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Kees Burger and Hidde P. Smit

Prospects for natural rubber after the crisis in Asia

Introduction

The year 1997 was a turbulent year for the economies in south-east and east Asia. Key players in the NR market on the demand side and even more on the supply side were severely affected: substantially lower or even negative growth and dramatic declines in exchange rates. This article summarises a paper by the same authors in which they indicate to what extent this crisis has changed the outlook for NR. Is the fear of a future shortage a thing of the past and will prices remain low or can producers still look forward to higher prices and is a shortage still around the corner? The basis for comparison will be *The natural rubber market, review, analysis, policies and outlook,* by Burger and Smit, published by Woodhead in early 1997, well before the crisis became apparent. At the time of writing (April 1998) most data on consumption and production were available up to 1996 while 1997 data on prices and exchange rates were published.

The world economy - a simple analysis and a scenario for the future

The world rubber economy depends heavily on the world economy. The basis for the current analysis is developments in GDP. Future growth rates by country or region are derived using relatively simple models, where necessary adjusted to accommodate additional information. Growth rates for the world are given in Figure 1. Shown are the old projections and the new outlook, incorporating the effect of the Asian crisis. The differences may partly be caused by other factors as well. The years

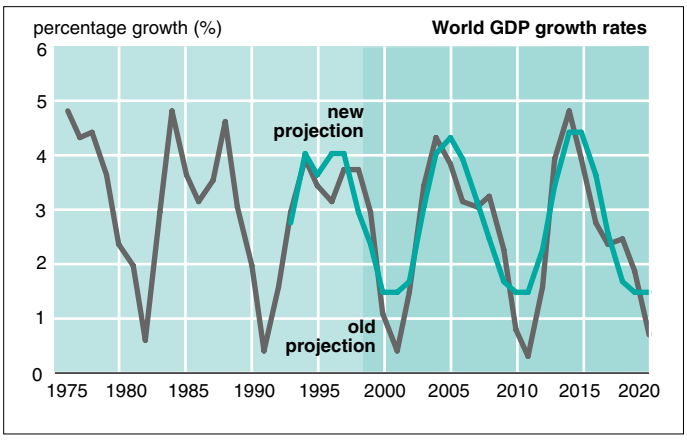

Figure 1. Data and projections for world GDP growth rates.

1996 and 1997 turned out to be slightly better than originally predicted, but 1998 is expected to be worse with the following projections: World 3%, Japan 0%, Indonesia -4%, Malaysia 2.5%, Thailand -3%, Korea -2.5%. Future peaks are anticipated to be roughly at the same level, but the troughs may not be as deep as originally projected. The next recession is till expected to occur around 2000-2002.

Consumption of rubber

Projections of total rubber consumption, without separating them into natural rubber and synthetic rubber are derived using a series of rather complicated models, starting at the country or regional level from GDP and then deriving total registrations and new registration of passenger cars and commercial vehicles, production of the two groups of vehicles as well as tyres for both groups. Results by country are aggregated to regional projections of total rubber consumption as shown in Figure 2. Consumption may rise to 17.4 and 28.1 million tonnes in 2000 and 2020 respectively. The former set of projections, derived before the crisis in Asia, and the new set are shown in Figure 3. The differences are small. The new projections for world rubber consumption tend to be marginally lower than the old set. Not shown are shifts between sectors, based on better data, estimates and models nor shifts caused by different economic developments of countries.

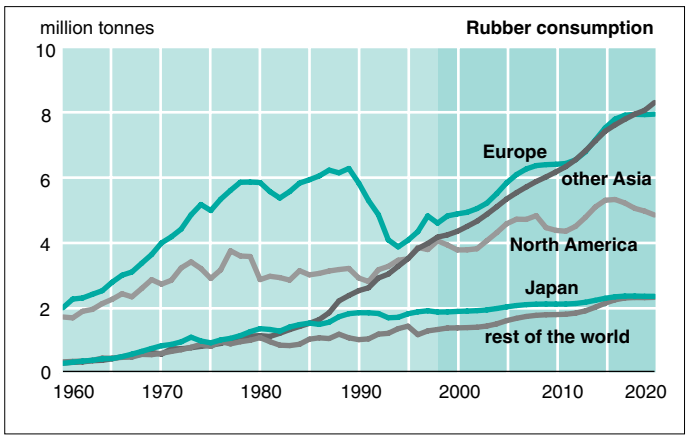

Figure 2. Data and projections for rubber consumption by region.

Call for papers

The December/January issue of 'Natuurrubber' will be a special on the the theme "Engineering". Please send your paper in before October 15, 1998.

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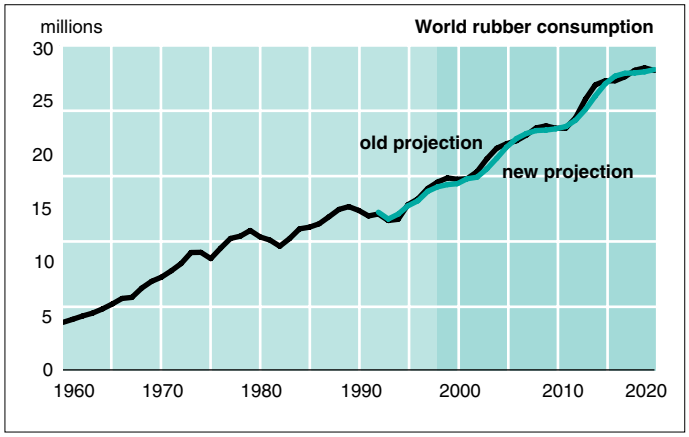


Figure 3. New and former projections of world rubber consumption.

Actual and projected normal production levels for natural rubber

Normal production levels are analysed using the vintage approach presented in Burger and Smit (1997). The basis is age composition of the area, yield profiles and technical progress. This leads to estimates without incorporating tapping intensity which is influenced by such short-term factors as price and weather. For some countries past 'production trends' are estimated using more simple models. Projections are based on likely new planting and replanting considering patterns in the past.

World production now stands at some 6340 thousand tonnes. This is somewhat higher than originally projected. An important deviation appears to lie in Malaysia, where both estates and smallholdings have produced more than expected, and in China that has produced much more than anticipated. The projections for the near future are for production to go up by approximately the same increase as we have seen in the last few years. But this depends on the effects that the changes in the East Asian exchange rates have on the local economies and therefore the demand for rubber in the region. By itself, the currency depreciation in the major Asian producing countries leads to substantially lower world market prices in US$ terms (now estimated at 40% lower due to the currency changes). But lower prices should trigger more demand, and a new equilibrium can only be found at the lower prices, if higher domestic prices induce the higher production that is needed to satisfy the demand. Total revised estimates for normal production in the world then come out somewhat higher as can be seen in the graph below.

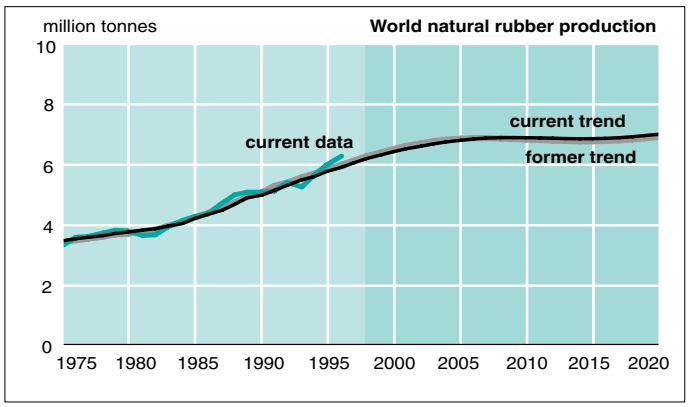


Figure 4. New and former projections of world normal natural rubber production.

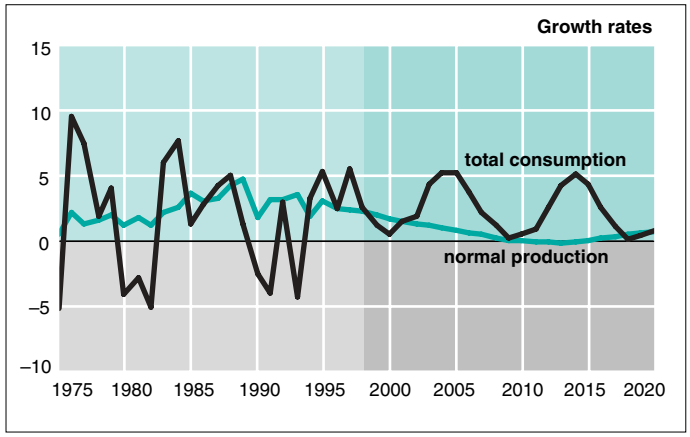


Figure 5. Growth rates normal production of NR and total rubber consumption.

Capacity utilisation, consumption shares and price formation for natural rubber

An early indication of possible future shortages or surpluses can be obtained comparing the trends in total rubber consumption and normal production of natural rubber. The two sets of growth rates, total rubber consumption on the one hand and normal production of natural rubber on the other hand are shown together in Figure 5. It is clear that in the near future growth in normal production is higher than growth in total rubber consumption. Not before the year 2003 can the opposite be clearly distinguished. This means a surplus of NR for a few years to come and a more tight market in the years thereafter. Below this is expressed in terms of projections of prices, NR consumption and NR shares.

The analysis for supply of NR is based on the assumption that the tapping intensity depends on prices. Tapping intensity is formulated as the ratio of actual production to normal production. While total consumption of rubber is supposed not to be influenced by relative prices, the share of NR is indeed affected by relative prices. The approach expressing how NR production and NR consumption respond to price changes is described in detail in Burger and Smit (1997). Developments in the end-use composition of rubber consumption are included in a recently developed completely new model.

Longer term price changes of NR are caused by three factors: other prices, demand and supply. Other price changes, including exchange rates, may have a direct effect on the world market prices. The exchange rate of the US dollar has a direct effect on price quotations in US dollars. In the longer term it is the NR price that should cause demand and supply to balance, based on the exogenous movements of consumer prices, SR prices and exchange rates. Thus the partial equilibrium approach has been applied. Especially the exchange rate has recently started to play a dramatic role.

In the past, the long-term trend of NR prices in nominal US dollars shows no upward or downward trend. This means that in general real NR prices have gone down and that farmers have produced more at lower costs. The technical changes in planting material and care applied in tapping have enabled them to produce more, but this has led to lower real prices, and left their incomes mostly unchanged. Thus, much of the technical progress has eventually benefited the final consumers. The direct consumers, the tyre manufacturers, have been able to keep up their demand for NR because of the price decline, which is in line with the decline in real SR prices.

The equilibrium price in the more distant future depends on more factors than are incorporated in our analysis thus far: new planting and replanting were assumed to follow scenarios that are not directly dependent on prices, while adoption of other technologies on the demand side is likewise not assumed to depend on NR prices. When total rubber consumption growth outpaces the growth in normal production, this would lead to very high prices. As such conditions cannot prevail for a long period, we have introduced two further responses in the longer term model that account for abnormally high price situations. On the demand side we incorporated an extra elasticity of about 0.7 by which demand falls if prices exceed a threshold of 1.7 times the SBR prices; on the supply side we introduced an approximate price elasticity of area-expansion of 0.3, that is invoked once prices exceed S$1.90 per kg. The extra production that is caused by this area expansion does not enter the market until seven years later.

The developments on the world market, as we now foresee it, is summarised in Figures 6 and 7. Singapore NR prices (RSS1) in US$ terms are expected to remain relatively low through the expected recession in the early years of the next century. The rise is not likely to start significantly until 2003. In the earlier study the forecast was that shortages in supply were expected to prevail sooner. The Asian crisis appears to have postponed this development with a few years. The prices are likely to increase steadily to levels close to US$3.- during the remainder of the following two decades. The US$ price projections are slightly lower than the earlier projections. The new S$ exchange rate induced the higher S$ price, which are then in line with the earlier projections (Figure 7). We kept the trend in SR prices as they were, resulting in NR becoming much more expensive than SR. This is mainly because of the levelling off in productive capacity. A comparison between the NR shares in consumption as they were projected in the former analysis and in the current analysis leads to conclusion that the share is slightly higher throughout the period because of lower prices.

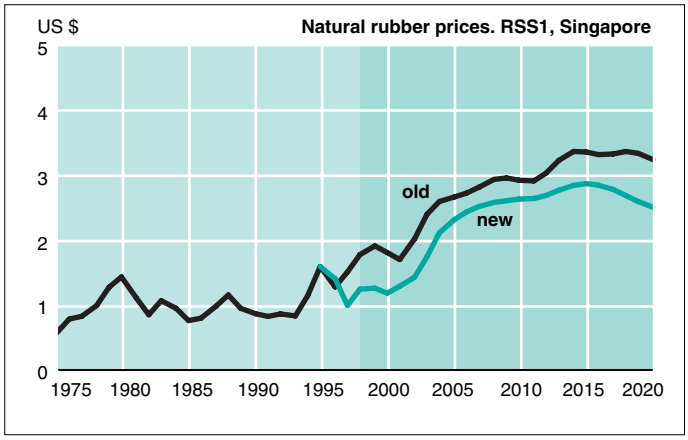


Figure 6. Projections of RSS1 prices in US$.

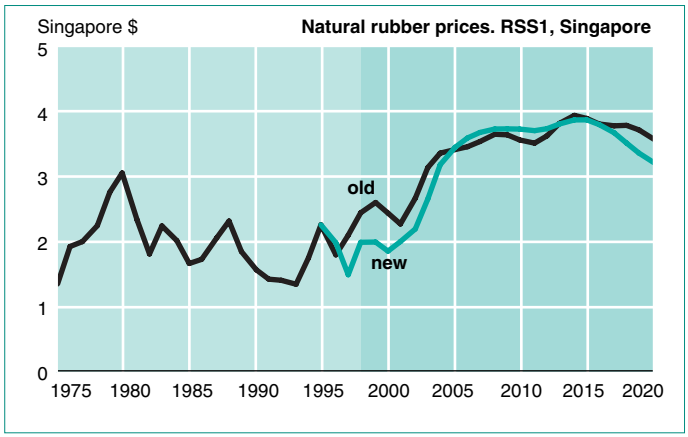
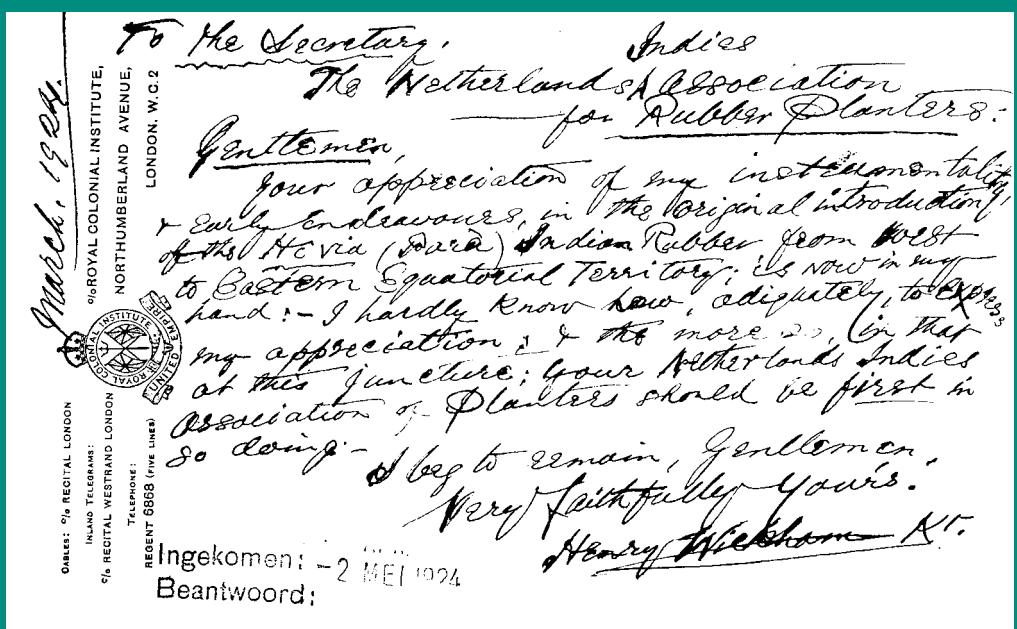


Figure 7. Projections of RSS1 prices in S$.

Kees Burger and Hidde P. Smit, Economic and Social Institute, Free University, Amsterdam, The Netherlands, Fax: 31-20-444 6127, E-mail: kburger@econ.vu.nl and hsmit@econ.vu.nl. The full report is available from the authors; the price is Dfl. 95,–

From the archives of the Rubber-Stichting

If Henry Wickham (and others) had not succeeded in introducing Hevea from Brasil to the Far East, probably today's Asia-turmoil should not affect NR at all. However, the Netherlands Indies Rubber Planters were gratefull to him, as his original handwritten text shows:



Earlier publications of the Rubber-Stichting

Influence of structure on polymer-liquid interaction. I: Relative and absolute values of swelling equilibria
G. Salomon and G.J. van Amerongen, 1946 (med. no. 62)

Influence of structure on polymer-liquid interaction. II: Influence of nitrile groups
G. Salomon, 1947 (med. no. 75)

Influence of structure on polymer-liquid interaction. III: Swelling and mechanical properties of some partly crystallized polymers
G. Salomon, 1947 (med. no. 81)

Kinetic analysis of rubber halides
G. Salomon and C. Koningsberger, 1948 (med. no. 82)

The hydrochlorination of rubber in latex
G.J. van Veersen, 1948 (med. no. 83)

Free retraction of elongated rubbers
B.B.S.T. Boonstra, 1948 (med. no. 84)

Preparation and properties of rubberlike high polymers. VI: Polymerization and dimerization of isoprene
G. Salomon and B.B.S.T. Boonstra, 1948 (med. no. 85)

Correlation entre la structure et les propriétés mécaniques des polymerers en chaine
G. Salomon, 1948 (med. no. 86)

2-Methylbuten-3-yl 2-methyl ether and 2-methylbuten-2-yl 4-methyl ether
A.J. Ultée Sr, 1949 (med. no. 90)

Latex. Haar wetenschappelijke grondslagen en haar toepassingen
1949 (med. no. 92)

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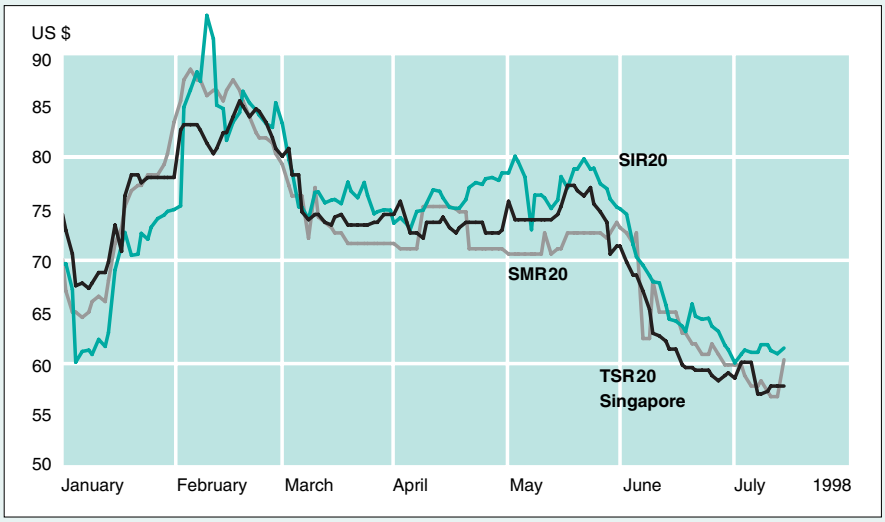
Economy

The Price of NR

(Alec F.S. McDougall, Director L. Wurfbain & Co. B.V.)



Over the past three months, as expected the prices of most grades have declined. The predominant factors for this being the further weakening of the Far Eastern currencies and economies, coupled with an over supply and low demand.
At the end of March, the Malaysian dollar was 3.65 against the US dollar, and today it is at 4.20, a drop of around 15 percent. The Indonesian rupiah was at 9,000 against the dollar, and is now at over 14,000, a drop exceeding 50 percent. The godowns in Indonesia and Thailand are all full of finished rubber, awaiting a possible INRO (buffer stock manager) intervention. But latest reports are that INRO firstly only has funds for around 25,000 tons, which is well below the current stocks, and also that as the current buffer stock manager has resigned, and no replacement has officially been found, the possibilities of them entering the market look bleak. Also should INRO intervene and run out of sufficient funds, then they will have the reverse effect, and prices could plummet.
Therefore to sum up, prices look set to slide further, and only a Far Eastern recovery, or another political crisis could stop the tide.

Graduations

University of Twente

On June 26 Mrs. Els Engelbert van Bevervoorde-Meilof graduated on her thesis "Improving Mechanical Properties of EPDM Rubber by Mixed Vulcanisation." The work was part of an IOP-project at TNO Institute of Industrial Technology and was promoted by Prof. Dr. A. Bantjes and Prof. Dr. Ir. J.W.M. Noordermeer.

SORK

Mr. A.H. Luiten (Dunlop-Enerka) passed on May 18 with credit the examination '*Hogere Rubbertechnologie - Graduate Rubber Technology (HRT),*' after being examined on his extended essay "Development of a Heat-Resistant Skim-compound Based on a Butyl Blend for Conveyor Belting."
Mr. G. van Doorn (Cabot) passed in May the examination '*Rubbertechnology (RT1).*'

The R-S Information Center for Natural Rubber

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