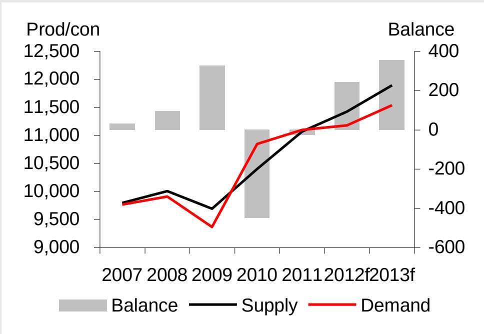
Macquarie
Commodities Research

The Global Commodities Specialist

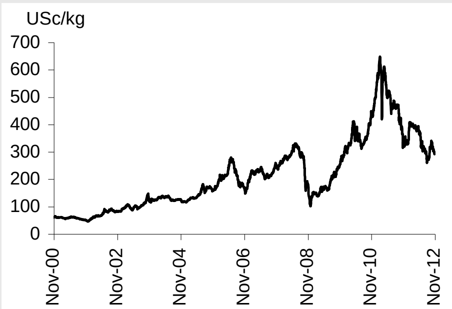
GLOBAL

Natural rubber: Global supply/demand forecasts ('000t)



Source: Macquarie Research, November 2012

Historical rubber prices: Singapore RSS3 futures (USc/kg)



Source: Macquarie Research, November 2012

Macquarie Agri-view

Where next for natural rubber prices?

Highlights

- Natural rubber prices have fallen by nearly 60% since peaking in Feb 2011, amidst negative pressure from the weak economic performance in key rubber consuming regions. Singapore listed RSS3 rubber futures currently stand at around $3.00/kg. **Previous concerns of tight supplies have waned as demand fell by more than expected, making the market overall more comfortable.**
- In this report we provide detailed analysis of supply and demand trends globally, which do not paint a constructive picture going forward. **The natural rubber market is expected to post a decent surplus** of around 240,000t during 2012, with an even larger one likely for 2013. In turn, the surplus production will result in the rebuilding of stocks. Globally, the stocks/use ratio should rise to 18% in 2013, which although not high in the historical context, is still more comfortable than the 13% seen at the beginning of 2011.
- **Demand growth next year will be slightly higher, from less than 1% this year to 3%** (driven by China and other emerging markets). But there are downside risks to the weakness in the EU and Japan, where tyre volumes in the sluggish automotive markets have been less than ideal.
- **As we move into 2013, the market is also entering the structurally expansive phase of the rubber production cycle**, whereby trees in Asia and Africa that were planted back in 2006-08 will enter their yielding phase. Although we are currently forecasting production to grow by 4% next year, **there are risks**. Firstly, given the weaker price outlook, the **incentives** for smallholders to tap at high rates will fall. Secondly, although there will be more new high-yielding young trees, quite a few of the existing **ageing** trees will become less productive, offsetting this – indeed, there is a replanting programme in many parts of Asia that would affect short term production.
- The third and most important supply-side risk is the intention of the three largest Asian producers to support falling prices by **withholding supply and keeping supply tight by burning older rubber trees**. Up to 450,000t of rubber could be cut back between Q4 2012 and Q1 2013, if the cartel is successful. In our analysis, such a scenario would lead to a global stock/use ratio staying tight at 13-14%, which in turn would support prices higher.
- **However, our base case assumes that the intervention cutbacks will not take place to the full extent,** as rubber production is highly fragmented (and from experience we know that Thailand's earlier intervention schemes have failed). **We forecast that prices will weaken in 2013 to an annual average of $2.80/kg.** In the short term prices will edge up during Q1, due to a seasonal dip in production (lower yields due to the wintering period), as well as psychological support from potential ITRC cutbacks. But thereafter, prices will resume lower. We are most concerned about demand side risks, which look fundamentally weak in the mature economies. **Macro risk-off moves will have a disproportionately larger (bearish) impact** on rubber prices than any potential short term supply moves. With the market entering the structurally expansive phase of the rubber production cycle, regardless of whether producers decide to tap or not, this too will weigh on the market.

Analyst(s)
Kona Haque
+44 20 3037 4334 kona.haque@macquarie.com
Chris Gadd
+44 203 037 1957 christopher.gadd@macquarie.com

14 November 2012
Macquarie Capital (Europe) Limited

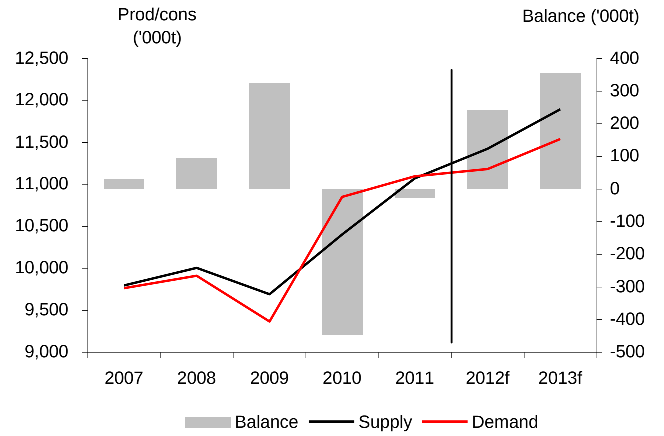
Natural Rubber – summary outlook

- **Natural rubber prices have drifted lower for much of 2012**, amidst negative pressure from the weak economic performance in key rubber consuming regions. Just like cotton, rubber, acts more like an industrial commodity, as opposed to a typical soft commodities. Rubber demand trends are closely aligned with economic and industrial performance, and show less of the inelastic consumption patterns depicted in the more staple typical agri/soft commodities.
- It should come as no surprise, therefore, that **both cotton and rubber prices have underperformed** this year – a year in which industrial and economic indicators have broadly suffered. With the economic outlook set to recover only modestly from current grim levels in 2013, we see little chance for a sustained recovery in prices.
- **Front month rubber prices have fallen to 232 ¥/kg**, on the Tokyo futures market, the lowest level since mid-September 2012, and nearly 60% below the peak it had reached back in February 2011. Prices fell heavily in the first eight months of 2012 amid worsening economic prospects in key markets. However, this lower price environment started to encourage some additional buying, with China stepping up its purchases in Q3 at the lowest price levels since 2008, injecting some life into the markets. Prices rallied further when QE3 was announced in September, but was short-lived, as adverse macro (risk-off) moves and faltering Chinese imports (on sluggish demand and high stocks) hit sentiment.

Fig 1 Rubber Tocom futures – directionally bearish

Source: Bloomberg, Macquarie Research, November 2012

Fig 2 Global natural rubber market balance*



*Assumes ITRC intervention cutbacks do not occur in full
Source: IRSG, Macquarie Research, November 2012

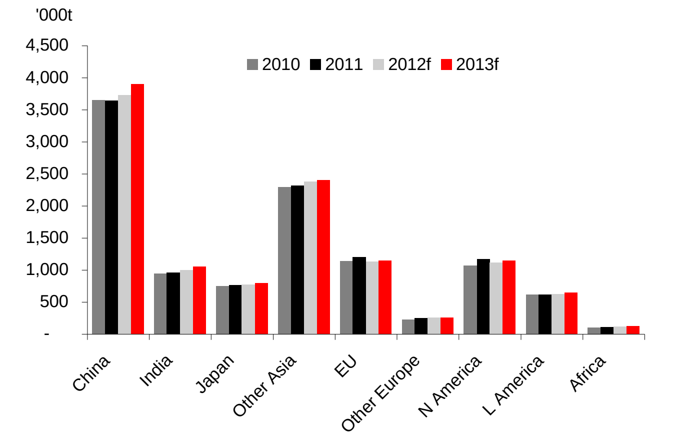
- The support we had seen in 2010/11, namely restricted supplies, has not quite disappeared – it's just that the demand **side has weakened so much more**, that the market looks much looser. The fall in prices is encouraging producers to restrict supplies further in response, with the three large South-east Asian producers, continuously sending out market announcements about their intention to provide support for prices by **withholding supply and keeping supply tight by burning older rubber trees**. Export cutbacks of 180,000t are set to take effect this quarter.
- Assuming the three producers, also known as the International Tripartite Rubber Council (ITRC) are successful in engineering a tighter supply picture, **this could help prices a little in 2013**, which would coincide with the seasonally low period of production (during the final and first quarters of the year, rubber trees enter the wintering period, when yields fall sharply).

  But with global conditions only a little better there will be no significant rebound. Moreover, into 2013, we start entering the period of higher structural supply when the large amount of trees that were planted back in 2007/08 in response to higher prices, start coming into fruition and yielding rubber. **This greater supply picture, coupled with still weak demand, will keep prices under pressure.**

Demand outlook – weak IP growth weighs

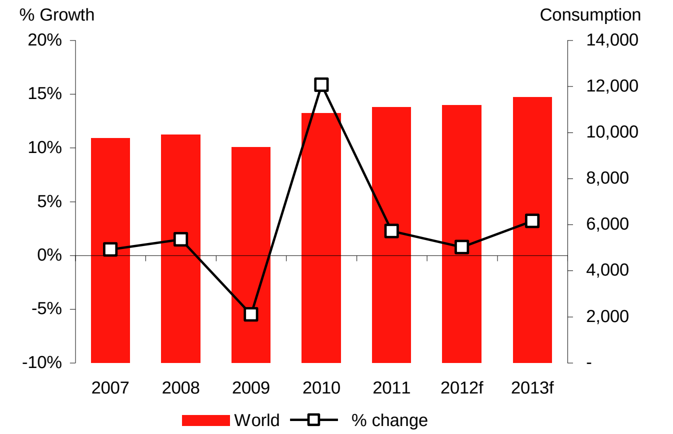
- Global natural rubber consumption in 2012 will likely rise by less than 1% compared to the 2.3% growth recorded in 2011. Contractions in both EU and US consumption in the first half of 2012 were only partially offset by increased Chinese and other Asian consumption, so that total natural rubber consumption fell by 0.7% YoY in the first six months of the year. Prospects are only a little better for 2013 and growth will average 3.2%, driven by the emerging markets. Global economic conditions will improve but remain challenging, thus limiting a faster pick-up in demand growth.

Fig 3 Natural rubber consumption by region



Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

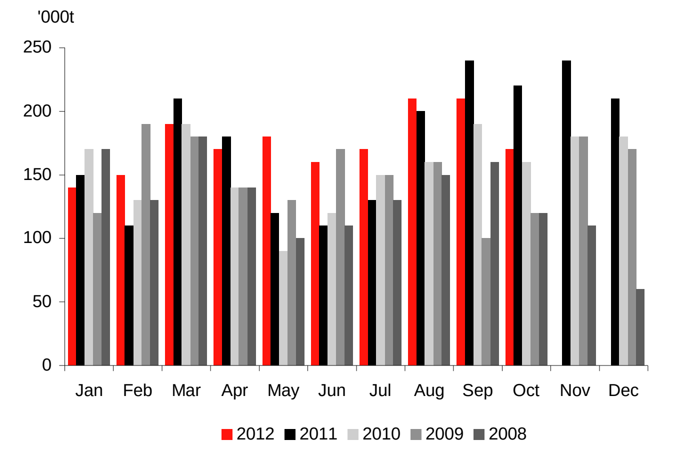
Fig 4 Global natural rubber consumption and growth



Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

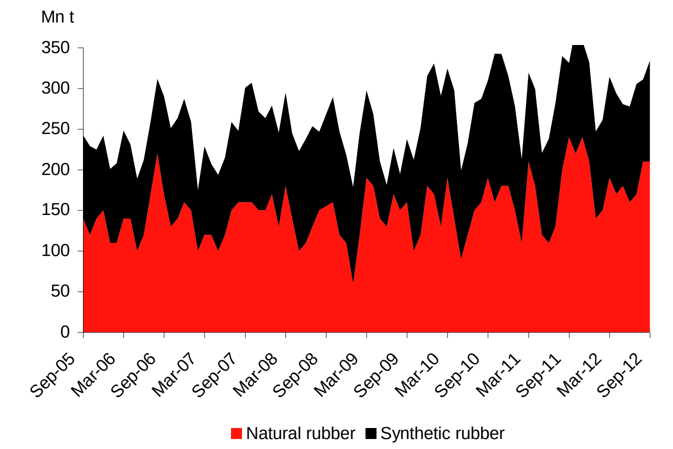
- **Natural rubber consumption in China**, by far the world's largest consumer, expanded by 8.5% YoY in H1 2012 to 1.68mt, according to the International Rubber Study Group (IRSG), while imports of natural rubber expanded by 19.3% YoY over the same period. However, this bounce-back was off a very low base in Q1 2012, when consumption dropped by 20.3% from Q4 2011. A sharp slowdown in vehicle sales was a major contributor to a 1.2% decline in natural rubber consumption in China in 2011. Disruptions in supply lines, the expiration of incentives, tighter credit conditions and greater substitution of natural rubber with synthetic rubber owing to the growing price differential also contributed to the slowdown.

Fig 5 Chinese monthly natural rubber imports – lately they have been falling behind last year's pace



Source: Bloomberg, Macquarie Research, November 2012

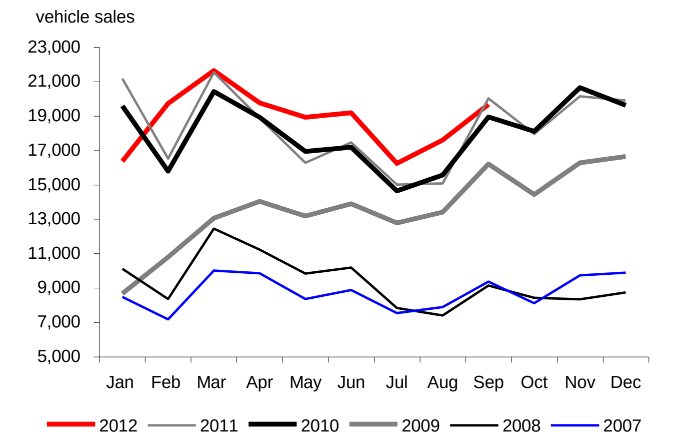
Fig 6 Chinese monthly imports of natural and synthetic rubber



Source: Bloomberg, Macquarie Research, November 2012

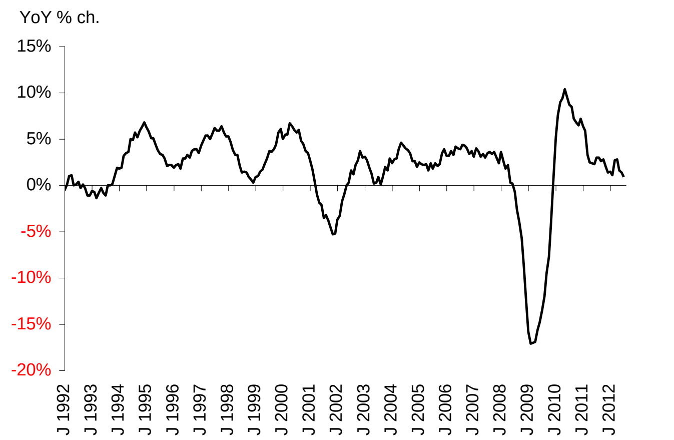
- Many of these issues have remained during 2012, compounded by a slowdown in China's economic growth. **Indeed, after a surge in imports up until Q3 2012, China's imports of natural rubber in Oct 2012 plunged 22.7%** from a year earlier to 170,000t. That was down 19% from the previous month, according to just released China customs data. Total car sales in the first 9 months of 2012 increased by 7% on a year earlier as demand for passenger cars remained relatively robust (offsetting commercial vehicles, especially large trucks, which has been falling).
- However, considering the strong performance in the first half of the year and improvements expected in the final quarter as China carries out infrastructure investment, we forecast that Chinese consumption of natural rubber will grow by 2.3% this year, and by 4.7% next year. **China's tire output over the first 10 months of 2012 totalled 729.32m units, up almost 4% year on year.** Real GDP growth is forecast to improve in 2013, as the relaxation of policy to support growth in 2012 pushes up investment and could well benefit the critical automotive sector, and in turn, rubber demand.

Fig 7 Chinese vehicle sales – still healthy



Source: Bloomberg, Macquarie Research, November 2012

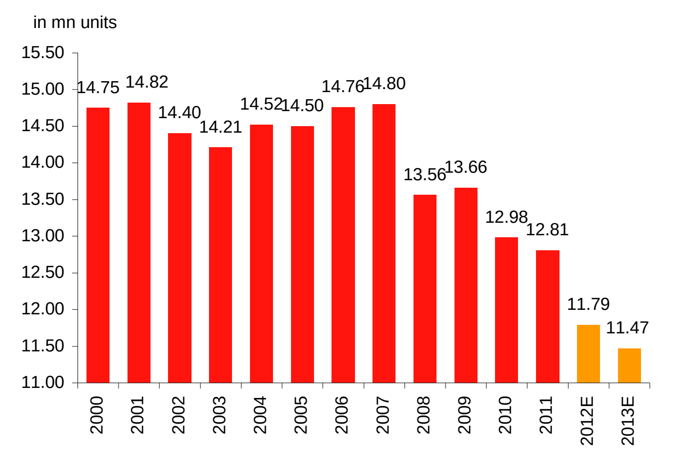
Fig 8 OECD industrial production growth – shaky



Source: Bloomberg, Macquarie Research, November 2012

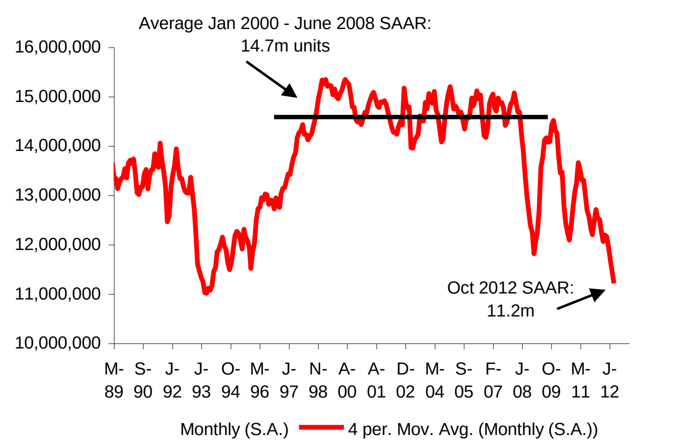
- **EU rubber demand continued to suffer in 2012 as the region's economic woes drag down consumption levels**. YoY, EU demand for natural rubber shrank by nearly 15% in the first six months of 2012, carrying on a slowing trend from the mid-point of 2011. Demand will likely fall 6-7% in 2012 as a whole. It should improve in 2013, but will not return to its pre-crisis level. Furthermore, the risks remain on the downside as any escalation of the sovereign debt crisis would undermine the euro zone economy for longer than currently expected. The proportion of rubber demand satisfied by **natural rubber vs synthetic rubber appears to have stabilised in 2011**, but given the recent fall in natural rubber prices, it could increase.

Fig 9 Western Europe car sales 2000-2013e



Source: Macquarie Research, November 2012

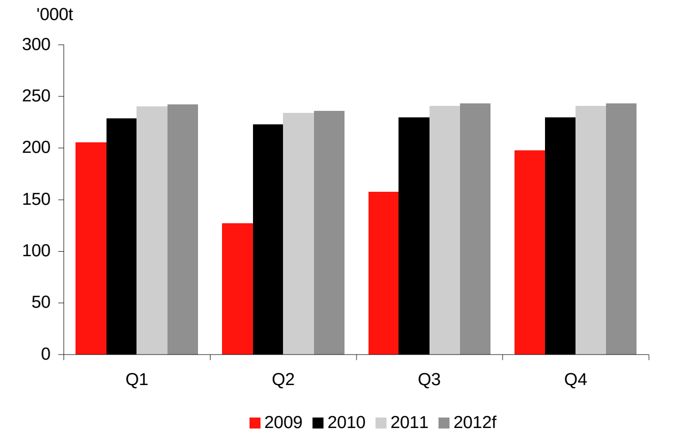
Fig 10 Western European car sales – SAAR (units)



Source: JD Power/LMC Automotive, Macquarie Research, Nov 2012

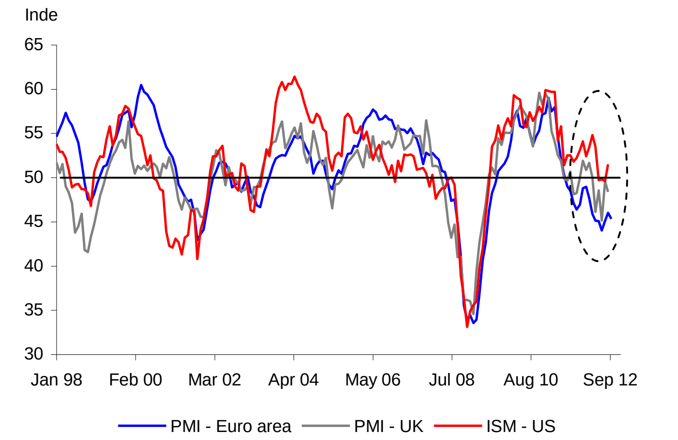
- Ultimately, the fortunes of the rubber market in Europe depend much on the health of the automotive industry. **Western European car sales in the year to October 2012 are down 7.5%** year-on-year. Despite rising incentives across the continent, on a seasonally adjusted annualised selling rate (SAAR) basis, demand for cars in Western Europe is likely to end about 9% down in 2012, at 11.8m units. By contrast, China's October 2012 SAAR reached 16.5m units. The LMC Automotive consultancy forecasts 2013 to fall a further 2.7% in Western Europe. For more analysis, please refer to our automotive team's report on European Autos: Focus on Western European Car Sales in October 2012 (7 November 2012).
- **Japan's economy was slow to recover from the natural disasters of March 2011,** causing rubber demand to rise by just 0.5% in 2011, according to the IRSG. Given that Japan is the world's fourth-largest consumer of natural rubber, this weighed heavily on global demand. In 2012 a 2% rebound in Japanese demand is likely, as production of commercial vehicles has recovered. Bridgestone reported that in the first 9 months of 2012, sales of replacement tyres for passenger cars and light trucks in Japan fell year on year, but sales of tyres for new vehicles increased – with total tyre sales in the year-to-September down 2.3%. Another small recovery is expected in 2013, but there will be no sustained period of accelerating growth, as Japan's long-term economic prospects are not encouraging, with only moderate growth expected in the vital automotive sector.

Fig 11 US quarterly natural rubber demand – tiny increases on the year in 2012



Source: IRSG, Macquarie Research, November 2012

Fig 12 PMI data shows modest rebound in the US, but still weak in the Euro area



Source: Bloomberg, Macquarie Research, November 2012

- **After strong growth in 2011, North American natural rubber demand fell** by 9.7% in the first half of 2012. This was despite strong US automotive production, which was up by 25% YoY from January to August. US households still have a long way to go in their deleveraging cycle, and still high levels of unemployment in the US and a shaky economic recovery are weighing on the outlook. Goodyear reported that consumer replacement tyre demand has been falling below trend for a while. But this could be positive for the longer term, as it suggests pent up demand which will translate into higher consumption later on.

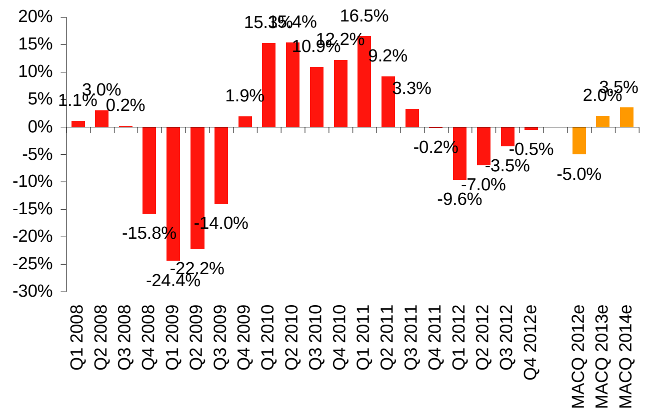
Fig 13 Global natural rubber consumption ('000t)

	2007	2008	2009	2010	2011	2012f	2013f
China	2,690	2,680	3,384	3,646	3,640	3,725	3,900
India	851	881	905	944	957	1,000	1,053
Japan	950	878	636	750	760	775	790
Other Asia	2,100	2,146	2,045	2,292	2,315	2,375	2,400
EU	851	1,228	831	1,135	1,206	1,130	1,150
Other Europe	240	255	176	228	250	255	260
N America	1,420	1,179	790	1,071	1,165	1,110	1,150
L America	544	579	485	613	615	625	645
Africa	118	83	93	101	108	115	120
Others	71	45	20	70	80	70	70
World	9,764	9,909	9,365	10,850	11,096	11,180	11,538
% change	0.5%	1.5%	-5.5%	15.9%	2.3%	0.8%	3.2%

Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

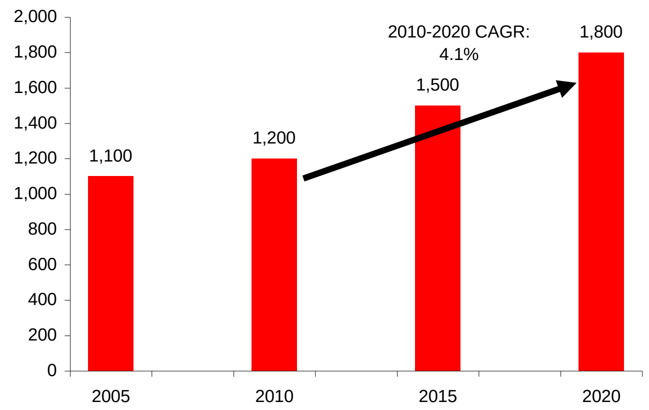
- **India's consumption of natural rubber** in the first half of 2012 stayed broadly similar to the pace recorded at the end of 2011, growing by just 1.9% compared with the same period a year earlier. Wider economic growth in India has slowed, impacting demand for natural rubber, with growth estimated to remain weak at 3%. The outlook is a little more favourable in 2013 as stronger economic growth promotes higher private consumption, which should drive up demand for cars, especially passenger cars.
- **Longer term:** While the outlook for 2013 is just a little better than 2012, we should emphasise that the longer term demand picture for rubber remains very healthy. Emerging markets' demand for automotive tyres and other industrial uses will more than offset any slowdown in the OCED markets, as more passenger cars and light tucks are owned.
- In a recent Michelin Investor day, Macquarie automotive and tyre analyst, Jens Schattner, reported that the company had a positive long-term outlook for tyres in the global passenger car & light truck division, which is expected to grow by around 4% per annum over the period 2010-2020. This growth will be predominantly driven by the **passenger car park expansions in the BRIC countries, especially in China**, which – according to Michelin – is expected to contribute more than 50% to the global annual passenger car & light truck tire vehicle growth over the period 2010- 2020.

Fig 14 Quarterly global tyre volume growth of Michelin and Macquarie forecasts



Source: Michelin, Macquarie Research, November 2012

Fig 15 Global passenger car & light truck market (in millions of tires)



Source: Michelin, Macquarie Research, November 2012

Supply – responding to weaker prices and weather

- Natural rubber supply should improve during 2013, following a mixed picture in 2012. The Association of Natural Rubber Producing Countries (ANRPC) is optimistic about production prospects and predicts supply growth of over 5% within its members. We are more cautious, at 3% and 4%, respectively, for this year and the next. This is predicated on poor tapping incentives (lower prices), uncertain weather (it was too rainy in Indonesia, and a mild El Niño that has led to dry Asian weather could impact yields next year), and the recently introduced cap on exports from some of the major producers in an attempt to boost prices (which may deter producers).
- **The three largest natural rubber exporters, Thailand, Indonesia and Malaysia (which control 70% of the world's supply), have recently agreed to cut supply from the market by a total of 450,000t** over six months from October 2012. The latest plan by the so-called ITRC involves total export curbs of 300,000t. Thailand will cut 150,000t, Indonesia around 100,000t and Malaysia up to 50,000t. The mechanics of the scheme have not been announced. The three nations will also cut down rubber trees on a total 16,000 hectares to take supply, equivalent to 150,000t of rubber, off the market. The area will be replanted but rubber trees take around seven years to mature and produce latex.

- The export restriction is an attempt to put a floor under recent price falls in the sector. In our base case forecasts (depicted in Fig 16), we have assumed that the intervention does not necessarily take place, as producers will "cheat" (as often seen in cartels). Production is extremely fragmented, and the unconsolidated nature of smallholders will result in supplies slipping out as they seek cash revenues. **Although the scheme officially began last month, the bearish price action in the Q4 to date appears to reflect little restraint in exports has taken place so far.**
- Our scepticism further arises also from announcements earlier this year from main producer, Thailand, whose go**vernment announced plans for an intervention scheme in the domestic rubber market** in mid-January 2012 (later postponed to March). Under the scheme, the government offers a soft loan to cooperatives to buy up to 200,000t of rubber from farmers and keep it in stocks to support prices, with the aim of pushing USS3 grade above 120 baht per kg (US$3.88/kg). But there has been little evidence of this taking place in a concerted manner (we understand that only 50,000t or so was bought by the government to date), and indeed, Thai prices since March have actually fallen well below this support price (see Fig 20).
- **But we also look at the scenario whereby the cutbacks do take effect.** For this we have assumed that of the proposed 450,000t, some 225,000t will be taken off the export market in Q4 2012, with the remainder in Q1 2013. It is as yet unclear how the three governments will enforce the cap on exports, but the frequency of farmers' tapping could be monitored or stocks could be built up domestically. The impact that this would have on global supplies are illustrated in the penultimate row of the below table.

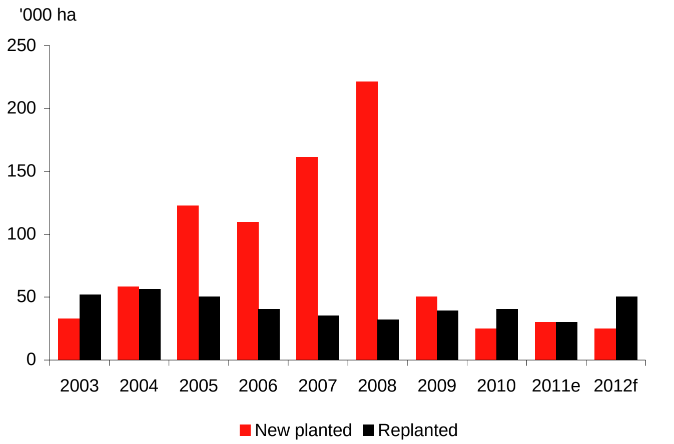
Fig 16 Global natural rubber production ('000t)

	2007	2008	2009	2010	2011	2012	2013
Thailand	3,056	3,090	3,164	3,252	3,470	3,585	3,750
Indonesia	2,755	2,751	2,440	2,736	2,980	3,050	3,200
India	811	881	820	851	893	920	960
Malaysia	1,200	1,072	857	939	996	1,000	1,025
Vietnam	602	660	724	755	812	860	900
China	588	548	644	665	700	765	785
Cote d'Ivoire	183	195	203	227	234	243	253
Brazil	116	123	129	132	135	140	144
Others	484	685	710	844	850	860	875
Total world	**9,794**	**10,005**	**9,691**	**10,401**	**11,070**	**11,423**	**11,892**
% change	0.9%	2.2%	-3.1%	7.3%	6.4%	3.2%	4.1%
With the ITRC intervention cutbacks	**9,794**	**10,005**	**9,691**	**10,401**	**11,070**	**11,198**	**11,667**
% change	0.9%	2.2%	-3.1%	7.3%	6.4%	1.2%	4.2%

Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

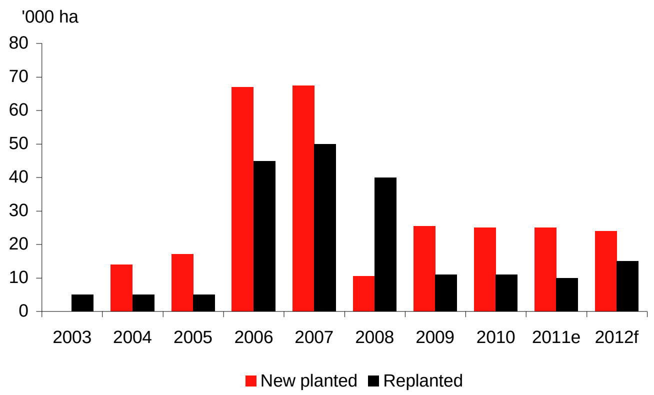
- **Thailand**: The world's largest producer of natural rubber appears to have shrugged off the impact of heavy rain at the start of 2012, with production of natural rubber up by 4.7% YoY in H1 2012. Production in the final quarter of the year could be reduced to a certain degree by the planned tripartite export reduction. Yielding area in Thailand this year, is believed to have expanded by 115,000 ha according to ANRPC. This takes into account that 173,000 ha of trees planted during 2005 and a small portion of 149,900 ha planted during 2006 that likely started yielding this year. Offsetting this, however, are trees in at least 50,000 ha that were ready to be uprooted this year for replanting.
- **Indonesia**: Total Indonesian production grew by a negligible 0.9% YoY in the first six months of 2012. After the strong growth of 9% in 2011, adverse weather in the first half of 2012 have constrained this year's output. According to the Rubber Association of Indonesia overall production in the key rubber-producing areas of Sumatra and Kalimantan has been affected by heavy rainfall in Q1. In addition, farmers have also reduced tapping in reaction to falling prices, further depressing output. In line with its commitment to limit exports with Thailand and Malaysia, production may be reduced further in the last quarter of 2012 as farmers tap trees less frequently (but much of the reduction will also be down to exporters building up stocks domestically).
- Indonesia's government plans to **replant** around 300,000 ha of the national rubber crop with higher-yielding trees. The move is intended to increase productivity by 44.5% by 2015, but given that the replanting will cover an area equivalent to around 9% of the crop, this will be at the cost of production during 2013 and 2014, when the process takes place. Therefore, we forecast average production growth of 4-5%, up on a poor 2012, but well below the surge in production seen in recent years.

Fig 17 Thai natural rubber area – restrictions aside, there is potential for considerable supply growth from 2013



Source: ANRPC, Macquarie Research, March 2012

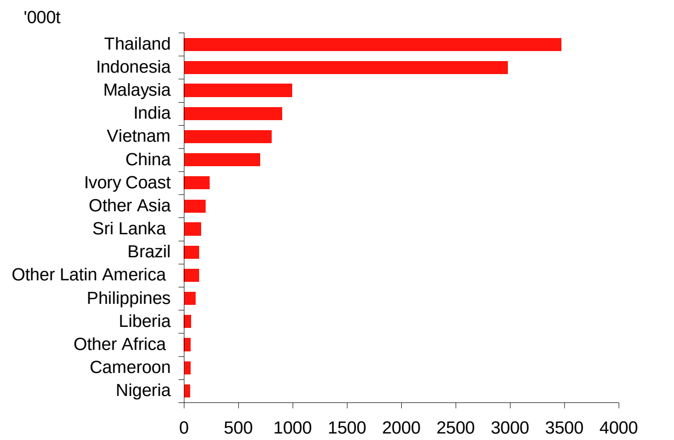
Fig 18 Indonesia natural rubber area – lack of funding has prevented greater replanting in recent years



Source: ANRPC, Macquarie Research, March 2012

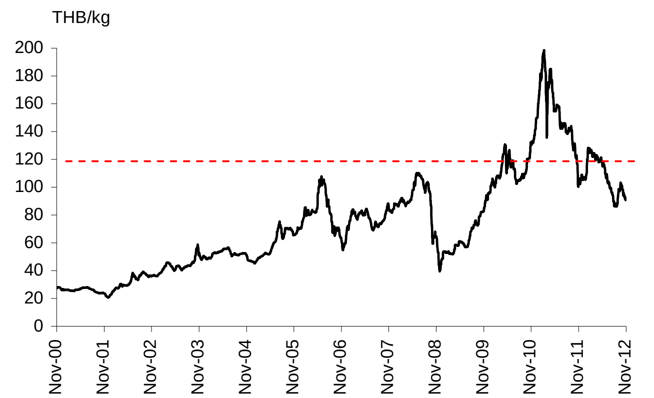
- **Malaysia**: Production in Malaysia continues to remain well below 2008 levels as the impact of adverse weather and labour shortages take their toll. Tapping is generally less remunerative than industrial employment, and rubber farming is more labour-intensive than palm oil production. Production fell almost 10% in Q1 2012 due to heavy rain in Feb-Mar, but the decline in Q2 was much less. Malaysia's natural rubber production in 2012 will remain weak, dragged down by export restrictions that came into effect from October and the weak first-half performance. Assuming more favourable weather conditions, production growth should be stronger in 2013, aided by ongoing government assistance for replanting and other production-boosting efforts.

Fig 19 World production of natural rubber in 2011



Source: IRSG, Macquarie Research, November 2012

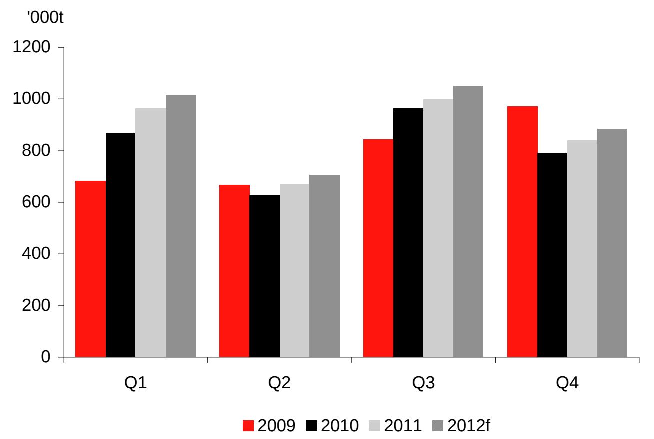
Fig 20 Thai fob prices of RSS3 rubber



Source: Bloomberg, Macquarie Research, November 2012

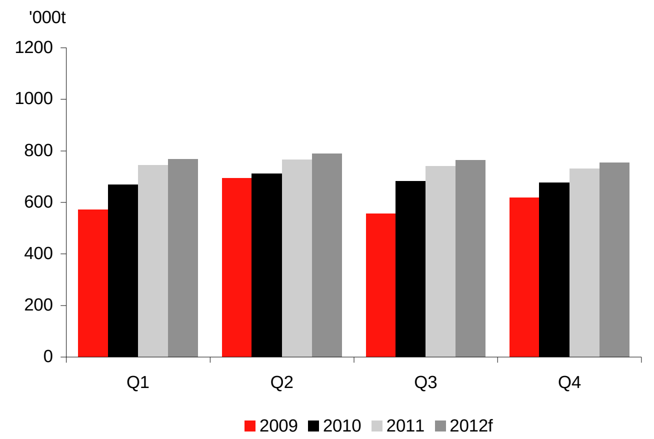
- **Vietnam:** A rising star in world rubber production, Vietnam's expanding output has made it an increasingly important producer and exporter of natural rubber. So much so, that the current top three global producers have asked it to join their cartel. According to the ANRPC, Vietnam will produce 955,000t of natural rubber this year, an increase of 17.6%, which would rank it third globally among producers. The rubber industry received a lot of investment in recent years, with exporters targeting the Chinese market; exports in the first six months of 2012 were 34.8% higher YoY. Production in Vietnam could rise by an annual average of 5–6% in 2013–14. However, there are issues affecting Vietnam's potential growth. In particular, at the end of 2011 the Ministry of Finance imposed an export tax on natural rubber of 3% to try and encourage local processing. The continued growth in exports in the first half of 2012 implied that the tax was not having too much of a constraining effect, but with prices falling during 2012, producers are now complaining that it is becoming unprofitable to export while local prices are still low. This is likely to affect growth in output in the early part of 2013, while prices remain subdued.

Fig 21 Thailand quarterly natural rubber production



Source: IRSG, RCMA, Macquarie Research, November 2012

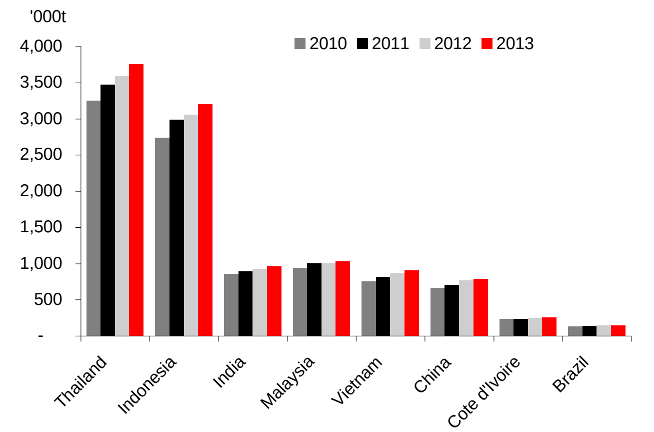
Fig 22 Indonesian quarterly natural rubber production



Source: IRSG, RCMA, Macquarie Research, November 2012

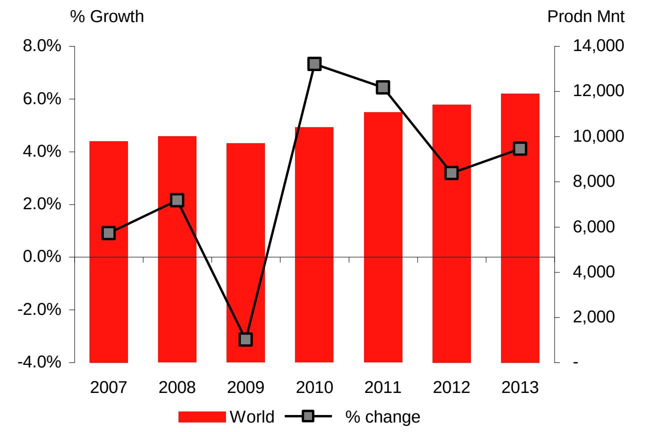
- **India**: First-half production of natural rubber in India, the fourth largest producer, grew by 2.1% YoY. Heavy rains in the country's main rubber-producing areas have disrupted production, as have farmers' concerns over low prices. After expected growth of 3% in 2012, production growth in 2013 should be higher, as ongoing improvements to productivity start to yield results. According to the Indian Rubber Board, 14,000 ha of rubber trees, which were planted seven years ago, are now becoming productive. Medium-term prospects for Indian rubber production are promising, partly because the government is committed to expanding the country's rubber-producing capacity. By the end of the government's 12th Five Year Plan (2012-17) it hopes to bring an additional 60,000 ha under cultivation.
- **Africa**: Rubber production in Côte d'Ivoire continues to be an attractive crop for small holders to make money out of, despite the political crisis that engulfed the country in early 2011. Production growth in 2012 has apparently been affected by a shortage of available labour, since many workers fled rubber-producing areas during the post-election violence. The IRSG puts growth at 25.3% YoY in the first half of 2012, but this was from a very low base a year earlier. Production should grow at an average of 4% a year in 2013–14. The medium-term growth prospects are promising. The government is aiming to renew 300,000 ha of existing plantations and plant another 300,000 ha by 2018.

Fig 23 Natural rubber production by country



Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

Fig 24 Global natural rubber production and growth



Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

- **Longer term:** A long term study conducted by the IRSG a few years ago noted a dramatic increase in total new planting in the eleven main producer countries during 2005–2008. In 2008 total new planting was estimated to have reached around six times the level of 2000. The total area expansion devoted to rubber totalled more than 1 million hectares during this period. Given that on average it takes 7 years for rubber trees to grow, the impact of this planting surge will be noted in 2013, when we expect to see a much larger expansion in production. But we caution that this growth may be affected by reduced yields from current ageing trees or indeed, the felling of old trees. Furthermore, if prices remain weak, this will discourage full capacity tapping.
- **The high rubber prices of 2010/11 have also led to a second surge in planting rubber** similar to what we saw in 2005–2008, when new areas in Africa (especially the Ivory Coast), Laos, Cambodia and Vietnam took to rubber farming. Each of these regions still enjoy cheap access to labour. A similar move is being felt now, with China looking at planting 60,000 ha in Ivory Coast, and Vietnam planting more rubber in Laos and Cambodia. Even Guatemala is looking to plant rubber because of the high returns. But the yields from these planting efforts will only be felt from 7-8 years from now.

Stocks and prices

- Taking stock of the above supply and demand dynamics, **the natural rubber market is expected to post a comfortable surplus during 2012 of around 240,000t**. Another similar sized surplus is likely for 2013, on account of sluggish demand growth and higher production. In turn, the surplus production will result in a build-up of stocks.

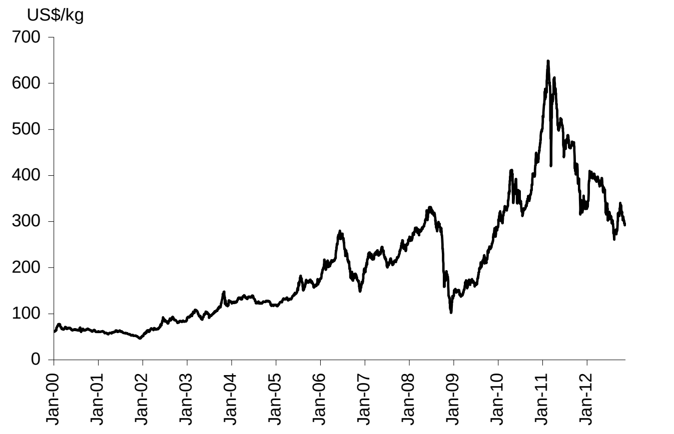
Fig 25 Natural rubber supply/demand balance – with and without the ITRC intervention

	2007	2008	2009	2010	2011	2012f	2013f
Supply	9,794	10,005	9,691	10,401	11,070	11,423	11,892
Less ITRC intervention	*9,794*	*10,005*	*9,691*	*10,401*	*11,070*	*11,198*	*11,667*
Demand	9,764	9,909	9,365	10,850	11,096	11,180	11,538
Balance	30	96	326	- 449	- 26	243	354
Balance after intervention	*30*	*96*	*326*	*- 449*	*- 26*	*18*	*129*
Stocks	2,154	2,250	1,775	1,509	1,483	1,726	2,080
Stock/use (S/U)%	22%	23%	19%	14%	13%	15%	18%
Stocks after intervention	*2,154*	*2,250*	*1,775*	*1,509*	*1,483*	*1,501*	*1,630*
S/U % after intervention	*22%*	*23%*	*19%*	*14%*	*13%*	*13%*	*14%*

Source: EIU, IRSG, RCMA, Macquarie Research, November 2012

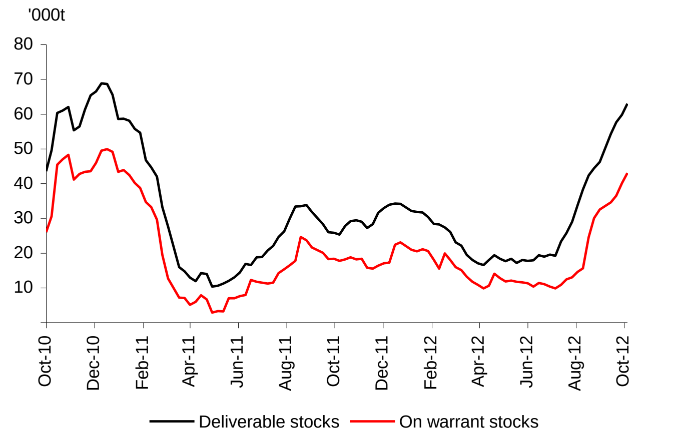
- Historically speaking, though, rubber stocks are not terribly high or burdensome. But compared to the last two years, it is clear that the market will be more comfortably buffered against supply disruptions. Indeed, as a share of the total consumption, **stocks will be around 15%, rising to 18% in 2013**, as we see in Fig 25**.** This is well down on the historical average (which was over 22% prior to 2009). In 2013, as global economic prospects are likely to be slightly more favourable, such a tight level of stocks could provide some support to prices.
- **China has taken advantage of recent low prices by purchasing and building up stocks** that had fallen to quite low levels. At warehouses monitored by the Shanghai Futures exchange, rubber stocks are now getting closer to the more comfortable levels of late 2010, at around 63,000t (Fig 27). However, we estimate that China's state reserve stocks are at a more hefty level of over 200,000t. This has been putting pressure on Shanghai rubber futures lately.
- Figs 26 and 27 below, on forecast stocks and supply/demand balances, are based on supply continuing **without the supply restrictions** from the ITRC. But for an analysis on what the impact would be with the full 450,000t cutback from the three Asian producers during the current quarter and next, please refer to the relevant rows in Fig 25. We see here that should the full restriction be enforced, stocks could fall to 13% of global consumption this year, presenting a much tighter picture.

Fig 26 Singapore RSS3 rubber futures have been trending lower despite the start of the intervention



Source: IRSG, Macquarie Research, November 2012

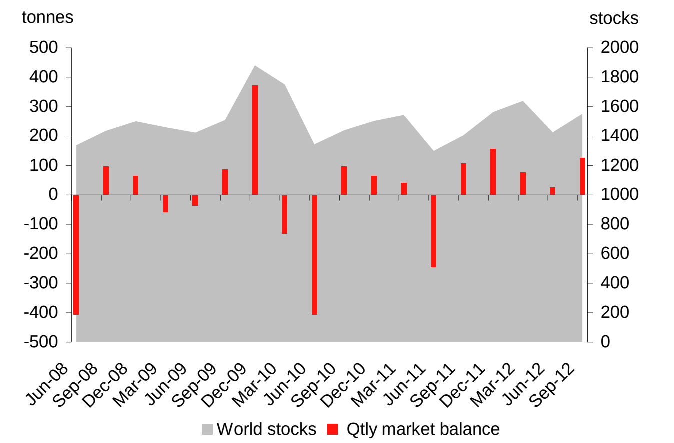
Fig 27 Chinese rubber stocks in Shanghai futures exchange warehouses – trending up



Source: Bloomberg, Macquarie Research, November 2012

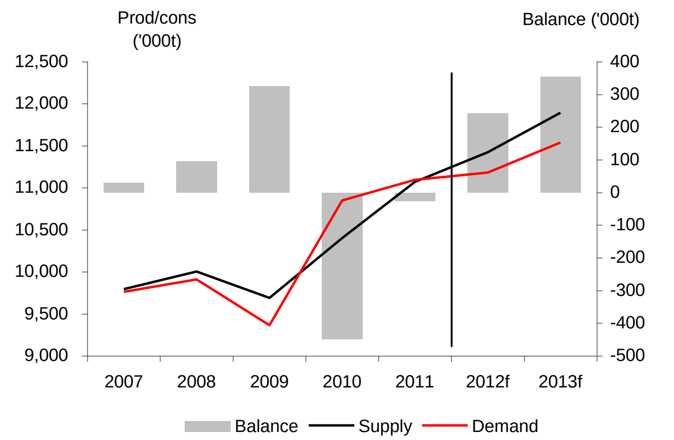
- As mentioned above in the Supply section, **we are not convinced that the ITRC will successfully restrict supplies** (the recent continued fall in prices being testament to this, despite the programme officially having started in October 2012). Natural rubber prices have fallen by nearly 60% since peaking in Feb 2011. Singapore listed January RSS3 rubber futures currently stand at $2.96/kg. Our detailed analysis of supply and demand trends globally do not paint a constructive picture going forward.
- We are most concerned about the demand side, which looks fundamentally weak in the mature economies. **Macro risk-off moves will have a disproportionately larger (bearish) impact** on rubber prices than any potential short term supply moves. As we move into 2013, the market is at any rate entering the **structurally expansive phase of the rubber production cycle**. And whether producers decide to tap or not, this too will weigh on the market.
- **Our base case assumes prices weaken further in 2013 to an annual average of $2.80/kg.** We believe in the short term that prices will edge up during Q1, due to a seasonal dip in production (lower yields due to the wintering period), as well as support from potential ITRC cutbacks. But thereafter, prices will resume lower, as supply peaks. Our base case price forecasts are presented in Fig 30. A successful supply-side cutback by the ITRC members would provide upside risks to the prices published below.

Fig 28 Quarterly natural rubber stocks and balance



Source: IRSG, Macquarie Research, November 2012

Fig 29 Natural rubber supply/demand balance*



*Assumes ITRC intervention cut back will not be successful

Source: IRSG, Macquarie Research, November 2012

Fig 30 Singapore exchange (RSS3) rubber futures prices and base case forecasts (USc/kg)

	2008	2009	2010	2011	2012f	2013f
1 Qtr	273	146	318	567	385	315
2 Qtr	303	167	374	530	360	290
3 Qtr	300	208	337	466	298	270
4 Qtr	160	257	432	361	308	245
Year	**259**	**195**	**365**	**481**	**338**	**280**
% change	-1.60%	-25%	88%	32%	-30%	-17%

Source: Bloomberg, Macquarie Research, November 2012 *Assumes ITRC intervention cut back will not be successful

Important disclosures:

Recommendation definitions

Macquarie - Australia/New Zealand
Outperform – return >3% in excess of benchmark return
Neutral – return within 3% of benchmark return
Underperform – return >3% below benchmark return

Benchmark return is determined by long term nominal GDP growth plus 12 month forward market dividend yield

Macquarie – Asia/Europe
Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie First South - South Africa
Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie - Canada
Outperform – return >5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return >5% below benchmark return

Macquarie - USA
Outperform (Buy) – return >5% in excess of Russell 3000 index return
Neutral (Hold) – return within 5% of Russell 3000 index return
Underperform (Sell)– return >5% below Russell 3000 index return

Volatility index definition*

This is calculated from the volatility of historical price movements.

Very high–highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30–40% in a year.

Low–medium – stock should be expected to move up or down at least 25–30% in a year.

Low – stock should be expected to move up or down at least 15–25% in a year.
* Applicable to Australian/NZ/Canada stocks only

Recommendations – 12 months
Note: Quant recommendations may differ from Fundamental Analyst recommendations

Financial definitions

All "Adjusted" data items have had the following adjustments made:
Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense
Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit / efpowa*
ROA = adjusted ebit / average total assets
ROA Banks/Insurance = adjusted net profit /average total assets
ROE = adjusted net profit / average shareholders funds
Gross cashflow = adjusted net profit + depreciation
*equivalent fully paid ordinary weighted average number of shares

All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

Recommendation proportions – For quarter ending 30 Sept 2012

	AU/NZ	Asia	RSA	USA	CA	EUR	
Outperform	50.00%	56.85%	61.54%	41.38%	63.19%	44.15%	(for US coverage by MCUSA, 7.35% of stocks covered are investment banking clients)
Neutral	36.62%	25.14%	27.69%	52.13%	30.77%	30.57%	(for US coverage by MCUSA, 9.31% of stocks covered are investment banking clients)
Underperform	13.38%	18.02%	10.77%	6.49%	6.04%	25.28%	(for US coverage by MCUSA, 0.00% of stocks covered are investment banking clients)

Company Specific Disclosures:

Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/disclosures.

Analyst Certification:
The views expressed in this research accurately reflect the personal views of the analyst(s) about the subject securities or issuers and no part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this research. The analyst principally responsible for the preparation of this research receives compensation based on overall revenues of Macquarie Group Ltd ABN 94 122 169 279 (AFSL No. 318062) (MGL) and its related entities (the Macquarie Group) and has taken reasonable care to achieve and maintain independence and objectivity in making any recommendations.

General Disclaimers:
Macquarie Securities (Australia) Ltd; Macquarie Capital (Europe) Ltd; Macquarie Capital Markets Canada Ltd; Macquarie Capital Markets North America Ltd; Macquarie Capital (USA) Inc; Macquarie Capital Securities Ltd and its Taiwan branch; Macquarie Capital Securities (Singapore) Pte Ltd; Macquarie Securities (NZ) Ltd; Macquarie First South Securities (Pty) Limited; Macquarie Capital Securities (India) Pvt Ltd; Macquarie Capital Securities (Malaysia) Sdn Bhd; Macquarie Securities Korea Limited and Macquarie Securities (Thailand) Ltd are not authorized deposit-taking institutions for the purposes of the Banking Act 1959 (Commonwealth of Australia), and their obligations do not represent deposits or other liabilities of Macquarie Bank Limited ABN 46 008 583 542 (MBL) or MGL. MBL does not guarantee or otherwise provide assurance in respect of the obligations of any of the above mentioned entities. MGL provides a guarantee to the Monetary Authority of Singapore in respect of the obligations and liabilities of Macquarie Capital Securities (Singapore) Pte Ltd for up to SGD 35 million. This research has been prepared for the general use of the wholesale clients of the Macquarie Group and must not be copied, either in whole or in part, or distributed to any other person. If you are not the intended recipient you must not use or disclose the information in this research in any way. If you received it in error, please tell us immediately by return e-mail and delete the document. We do not guarantee the integrity of any e-mails or attached files and are not responsible for any changes made to them by any other person. MGL has established and implemented a conflicts policy at group level (which may be revised and updated from time to time) (the "Conflicts Policy") pursuant to regulatory requirements (including the FSA Rules) which sets out how we must seek to identify and manage all material conflicts of interest. Nothing in this research shall be construed as a solicitation to buy or sell any security or product, or to engage in or refrain from engaging in any transaction. In preparing this research, we did not take into account your investment objectives, financial situation or particular needs. Macquarie salespeople, traders and other professionals may provide oral or written market commentary or trading strategies to our clients that reflect opinions which are contrary to the opinions expressed in this research. Macquarie Research produces a variety of research products including, but not limited to, fundamental analysis, macro-economic analysis, quantitative analysis, and trade ideas. Recommendations contained in one type of research product may differ from recommendations contained in other types of research, whether as a result of differing time horizons, methodologies, or otherwise. Before making an investment decision on the basis of this research, you need to consider, with or without the assistance of an adviser, whether the advice is appropriate in light of your particular investment needs, objectives and financial circumstances. There are risks involved in securities trading. The price of securities can and does fluctuate, and an individual security may even become valueless. International investors are reminded of the additional risks inherent in international investments, such as currency fluctuations and international stock market or economic conditions, which may adversely affect the value of the investment. This research is based on information obtained from sources believed to be reliable but we do not make any representation or warranty that it is accurate, complete or up to date. We accept no obligation to correct or update the information or opinions in it. Opinions expressed are subject to change without notice. No member of the Macquarie Group accepts any liability whatsoever for any direct, indirect, consequential or other loss arising from any use of this research and/or further communication in relation to this research. Clients should contact analysts at, and execute transactions through, a Macquarie Group entity in their home jurisdiction unless governing law permits otherwise. The date and timestamp for above share price and market cap is the closed price of the price date. #CLOSE is the final price at which the security is traded in the relevant exchange on the date indicated.

Country-Specific Disclaimers:
Australia: In Australia, research is issued and distributed by Macquarie Securities (Australia) Ltd (AFSL No. 238947), a participating organisation of the Australian Securities Exchange. **New Zealand**: In New Zealand, research is issued and distributed by Macquarie Securities (NZ) Ltd, a NZX Firm. **Canada**: In Canada, research is prepared, approved and distributed by Macquarie Capital Markets Canada Ltd, a participating organisation of the Toronto Stock Exchange, TSX Venture Exchange & Montréal Exchange. Macquarie Capital Markets North America Ltd., which is a registered broker-dealer and member of FINRA, accepts responsibility for the contents of reports issued by Macquarie Capital Markets Canada Ltd in the United States and sent to US persons. Any person wishing to effect transactions in the securities described in the reports issued by Macquarie Capital Markets Canada Ltd should do so with Macquarie Capital Markets North America Ltd. The Research Distribution Policy of Macquarie Capital Markets Canada Ltd is to allow all clients that are entitled to have equal access to our research. **United Kingdom**: In the United Kingdom, research is issued and

Auckland Tel: (649) 377 6433	**Bangkok** Tel: (662) 694 7999	**Calgary** Tel: (1 403) 218 6650	**Denver** Tel: (303) 952 2800	**Frankfurt** Tel: (069) 509 578 000	**Geneva** Tel: (41) 22 818 7777	**Hong Kong** Tel: (852) 2823 3588
Jakarta Tel: (62 21) 515 1818	**Johannesburg** Tel: (2711) 583 2000	**Kuala Lumpur** Tel: (60 3) 2059 8833	**London** Tel: (44 20) 3037 2000	**Manila** Tel: (63 2) 857 0888	**Melbourne** Tel: (613) 9635 8139	**Montreal** Tel: (1 514) 925 2850
Mumbai Tel: (91 22) 6653 3000	**Munich** Tel: (089) 2444 31800	**New York** Tel: (1 212) 231 2500	**Paris** Tel: (33 1) 7842 3823	**Perth** Tel: (618) 9224 0888	**Seoul** Tel: (82 2) 3705 8500	**Shanghai** Tel: (86 21) 6841 3355
Singapore Tel: (65) 6601 1111	**Sydney** Tel: (612) 8232 9555	**Taipei** Tel: (886 2) 2734 7500	**Tokyo** Tel: (81 3) 3512 7900	**Toronto** Tel: (1 416) 848 3500		

Available to clients on the world wide web at www.macquarieresearch.com and through Thomson Financial, FactSet, Reuters, Bloomberg, CapitalIQ and TheMarkets.com.

Macquarie
Commodities Research

MACQUARIE

EMEA Research

Heads of Equity Research

John O'Connell (Global)	(612) 8232 7544
Shai Hill (Europe)	(44 20) 3037 4232
George Brits (South Africa)	(2711) 583 2223

Consumer Staples

Food & Beverages

Wynand van Zyl (Johannesburg)	(2711) 583 2323
Sreedhar Mahamkali (London)	(44 20) 3037 4016

Consumer Discretionary

Luxury Goods

Wynand van Zyl (Johannesburg)	(2711) 583 2323

Retailing

Sreedhar Mahamkali (London)	(44 20) 3037 4016

Energy

Jason Gammel (Global)	(44 20) 3037 4085
David Farrell (London)	(44 20) 3037 4465
Mark Wilson (London)	(44 20) 3037 4466
Marc Kofler (London)	(44 20) 3037 1909

Alternative Energy

Shai Hill (Europe)	(44 20) 3037 4232
Robert Schramm-Fuchs (Europe)	(44 20) 3037 4559

Financials

Diversified Financials

Elan Levy (Johannesburg)	(27 11) 583 2165
Neil Welch (London)	(44 20) 3037 4272

Banks

Edward Firth (Europe)	(44 20) 3037 4077
Charles Russell (Johannesburg)	(27 11) 583 2326
Benjie Creelan-Sandford (London)	(44 20) 3037 4081
Thomas Stoegner (London)	(44 20) 3037 4532
Piers Brown (London)	(44 20) 3037 4044

Insurance

Hadley Cohen (London)	(44 20) 3037 4078
Neil Welch (London)	(44 20) 3037 4272

Industrials

Capital Goods

Peter Steyn (Johannesburg)	(2711) 583 2337

Industrials – cont

Autos

Christian Breitsprecher (Frankfurt)	(49 69) 50957 8014
Jens Schattner (Frankfurt)	(49 69) 50957 8026
Moritz Steigertahl (Frankfurt)	(49 69) 50957 8129

Transportation – Infrastructure

Robert Joynson (London)	(44 20) 3037 4240
Sam Dobson (London)	(44 20) 3037 1901
Peter Steyn (Johannesburg)	(2711) 583 2337

Materials

Chemicals/Containers, Packaging/Paper & Forest Products, Construction Materials

David Smith (Johannesburg)	(2711) 583 2248
Peter Steyn (Johannesburg)	(2711) 583 2337
Christian Faitz (Frankfurt)	(49 69) 50957 8017
Jürgen Reck (Frankfurt)	(49 69) 50957 8024

Global Metals & Mining

Jeff Largey (London)	(44 20) 3037 4359
Alon Olsha (London)	(44 20) 3037 2637
Michael Bogusz (Perth)	(618) 9224 0607
Gareth Neilson (Johannesburg)	(2711) 583 2318
Kieran Daly (Johannesburg)	(2711) 583 2208
James Oberholzer (Johannesburg)	(2711) 583 2367
Lee Bowers (Sydney)	(612) 8232 9834

Pharmaceuticals

Aadil Omar (Johannesburg)	(2711) 583 2305

Real Estate

Property Trusts & Developers

Leon Allison (Johannesburg)	(2711) 583 2209

TMET

Telecommunications

Guy Peddy (London)	(44 20) 3037 4509
Alex Grant (London)	(44 20) 3037 1964
Aadil Omar (Johannesburg)	(2711) 583 2305

Media

Aadil Omar (Johannesburg)	(2711) 583 2305
Angus Tweedie (London)	(44 20) 3037 4099
Tim Nollen (New York)	(1 212) 231 0635

Technology/IT/Internet

Marcus Sander (Frankfurt)	(49 69) 50957 8025

Utilities

Shai Hill (London)	(44 20) 3037 4232
Atallah Estephan (London)	(44 20) 3037 4356
Matthias Heck (Frankfurt)	(49 69) 50957 8018

Commodities & Precious Metals

Colin Hamilton (Global)	(4420) 3037 4061
Jim Lennon (London)	(44 20) 3037 4271
Duncan Hobbs (London)	(44 20) 3037 4497
Ryan Belshaw (London)	(44 20) 3037 2732
Kona Haque (London)	(44 20) 3037 4334
Chris Gadd (London)	(44 20) 3037 1957
Bonnie Liu (Singapore)	(65) 6601 0144
Graeme Train (Shanghai)	(86 21) 2412 9035

European Macro Group

Economics & Strategy

Daniel McCormack (Europe)	(44 20) 3037 4276

Strategy

George Brits (South Africa)	(2711) 583 2223

Quantitative

Gurvinder Brar (Global)	(44 20) 3037 4036
James Murray (London)	(44 20) 3037 1976
Inez Khoo (London)	(44 20) 3037 2640
Josiah Rudolph (Johannesburg)	(2711) 583 2210

Find our research at

Macquarie:	www.macquarie.com.au/research
Thomson:	www.thomson.com/financial
Reuters:	www.knowledge.reuters.com
Bloomberg:	MAC GO
Factset:	http://www.factset.com/home.aspx
CapitalIQ	www.capitaliq.com
TheMarkets.com	www.themarkets.com

Contact Gareth Warfield for access (612) 8232 3207

Email addresses

FirstName.Surname@macquarie.com

eg. **john.oconnell@macquarie.com**

Equities

Stevan Vrcelj (Global Head)	**(612) 8232 5999**
Julian Wentzel (Europe)	(44 20) 3037 4274
Robert Fabbro (Europe)	(44 20) 3037 4865
Sarah-Jane Wagg (Johannesburg)	(2711) 583 2000

UK Trading

Richard Bateson (London)	**(44 20) 3037 4821**
Julian Parmenter (London)	(44 20) 3037 4826
Thorsten Ackermann (London)	(44 20) 3037 4908
Robert Tappin (London)	(44 20) 3037 4827
Wayne Drayton (London)	(44 20) 3037 4980
Marc Crome (London)	(44 20) 3037 4778

UK Sales Trading

Mike Keen (London)	**(44 20) 3037 4905**
Drew Hendrickson (London)	(44 20) 3037 4784
James Buckley (London)	(44 20) 3037 4750
Jim Dixon (London)	(44 20) 3037 4949
KC O'Rourke (London)	(44 20) 3037 4910
Edward Robinson (London)	(44 20) 3037 4779
Danny Want (London)	(44 20) 3037 4847
Peter Homan (London)	(44 20) 3037 4740

US Sales Trading

Chris Reale (New York)	**(1 212) 231 2555**
Guy Devereux (New York)	(1 212) 231 2555

EU Cash Sales

Charles Nelson (London)	**(44 20) 3037 4832**
Richard Alderman (London)	(44 20) 3037 4875
Sam Bygott-Webb (London)	(44 20) 3037 4767
Luke Ahern (London)	(44 20) 3037 4960
Matthew Camacho (London)	(44 20) 3037 4972
Ed Reekie (London)	(44 20) 3037 4957
Charles Lesser (London)	(44 20) 3037 4771
James Lumby (London)	(44 20) 3037 4846
Will Fairley (London)	(44 20) 3037 4787
Richard McGlashan (London)	(44 20) 3037 4824
Karl Filbert (Frankfurt)	(49 69) 50957 8651
Markus Geisbuesch (Frankfurt)	(49 69) 50957 8709
Holger Hoepfner (Geneva)	(41 44) 564 0220
Martin Pommier (New York)	**(1 212) 231 8054**
Jan Halaska (Boston)	(1 617) 598 2503
Chris Carr (New York)	(1 212) 231-6398
Doug Stone (New York)	(1 212) 231 2606

South Africa Sales

Franco Lorenzani (Johannesburg)	**(2711) 583 2014**
Carleen Sobczyk (London)	(44 20) 3037 4988
Gregory Khodara (London)	(44 20) 3037 4836
Nazmeera Moola (Cape Town)	(2721) 813 2725
Marco Casas (New York)	(1 212) 231 0937
Russell Fryer (New York)	(1 212) 231 2504

South Africa Sales Trading

Harry Ioannou (Johannesburg)	**(2711) 583 2015**
Jesse Ushewokunze (Johannesburg)	(2711) 583 2017
Keith Thompson (Johannesburg)	(2711) 583 2058
Martin Hughes (Johannesburg)	(2711) 583 2019
Marcello Damilano (Johannesburg)	(2711) 583 2018
Roland Wood (Cape Town)	(2721) 813 2611