

A strategic review of New Zealand log exports

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New Zealand wood availability is projected to increase to 35 million cubic metres by the early 2020s (MAF 2010, Woodco 2012). This will require marketing an additional seven million cubic metres of logs without compromising the returns and expectations of investors and stakeholders. It is well known that an increase in supply without a commensurate increase in market demand leads to weaker prices.

Owners and stakeholders are therefore interested in knowing how New Zealand's industry is positioned in relation to future market trends. Given that recent growth has mainly been in log exports, it means that first we need to assess the potential of log exports as a destination for future harvests and New Zealand's ability to compete in the face of supply from other regions. It also means identifying areas of risks and whether there are problems which need to be looked at to ensure future success.

The current growth in forest harvests has been brought about by the steady rate of planting that took place from 1980 to mid-1990. These new plantings have started to reach maturity, which has given rise to increased wood availability. Based on national yield tables, we estimate that between 2007 and 2012, the volume of standing timber in age classes 26 years and older increased by approximately 7.1 million cubic metres. This has contributed to the rise in harvests from 20.3 million cubic metres in 2007 to 27.5 million cubic metres in 2012 (MAF 2013). This increase has been predicted since at least as early as 2000 (MAF 2000), but there has been limited interest in processing this resource domestically. Faced with limited domestic demand, forest growers took advantage of opportunities offshore.

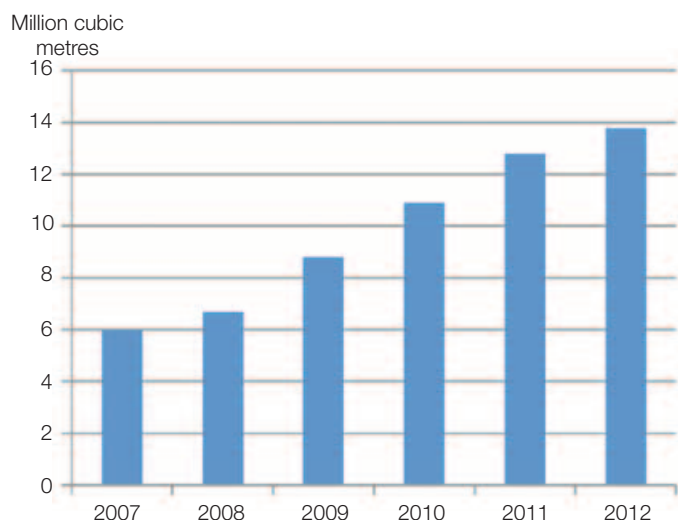


Figure 1: Growth in New Zealand log exports

Log exports have grown significantly over recent years, from 6.7 million cubic metres in 2008 to 13.7 million cubic metres in 2012. Based on recent performance, indications are that exports will increase further this year.

The value of log exports has increased even more than volume, at rates of 17 per cent a year. Average unit values increased from \$102 a cubic metre in 2007 to \$115 in 2012, when the total value reached \$1.58 billion (MPI, 2013). Despite this large increase, prices were able to be sustained, indicating that the expansion was driven by demand as much as supply. This may seem at odds, considering that this period saw the biggest economic downturn in major economies since the depression of the 1930s.

However, the New Zealand industry benefitted from being heavily involved in the few countries which remained mainly unaffected by the crisis. The strongest growth in log exports was to China, where volumes have increased at average rates of 34.4 per cent a year since 2007, and India at 22.9 per cent growth each year. Only Korea and the remaining markets for New Zealand wood, principally Japan, saw reductions in imports of New Zealand logs.

	Volumes in 2012 Cubic metres	Average annual growth Per cent
China	9,122,000	34.4
India	1,412,000	22.9
Korea	2,326,000	-4.7
Others	900,000	-3.0
Total	13,761,000	15.4

Table 1: Growth in New Zealand log exports from 2007 to 2012

The strength in these markets has been attributed to the strength of their economies, especially compared to other countries which are important to New Zealand forest products. The International Monetary Fund forecasts strong economic growth in China and other Asian countries to continue until at least 2018, and probably beyond.

Log exports have benefitted from their exposure to the world's fast growing economies. Sawn timber exports have, in contrast, been more heavily exposed to slower growing economies. However, the share of sawn timber in fast growing economies increased from 17 per cent in 2007 to 34 per cent in 2012. This may have been in response to weaker markets elsewhere, as well as emerging opportunities in China. We can take from

this that sawn timber exports are not yet sufficiently well positioned to be able to market the future harvest.

GDP per cent
change on
previous year

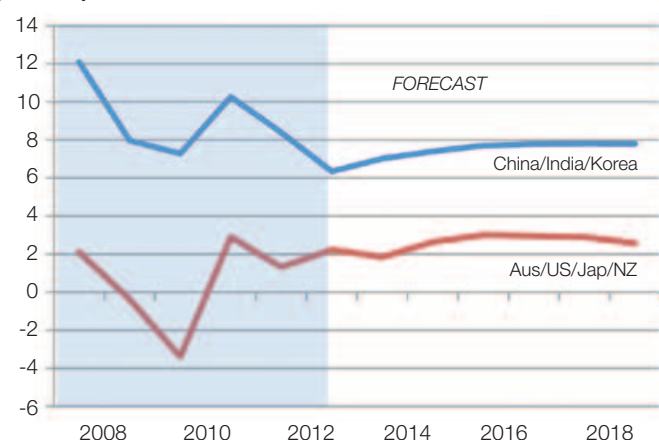


Figure 2: GDP growth by country group

Economic grouping	Logs cubic metres	Sawn wood cubic metres	Allocations	
			Logs	Sawn wood
China/India/Korea	12,861,000	715,000	93%	34%
Aus/US/Japan/Others	900,000	1,302,000	7%	66%
Total	13,761,000	2,113,000	100%	100%

Table 2: New Zealand's exports by country group and product for 2012

Market growth and performance

The main uses for timber in China, India and Korea are for construction in concrete formwork and scaffolding, along with manufacturing for interiors, furniture and pallets. Construction companies require reliable supply, often to their own specifications and short lead times. In general, locally sawn timbers receive less processing and do not have the tight specifications required of sawn wood in New Zealand, Australia, the United States or Japan where, to a large extent, it is used in permanent and structural applications.

Construction activity is increasing globally. In a recent report by Oxford Economics, construction was forecast to increase 70 per cent by 2025, with most of the growth occurring in emerging markets and with China and India accounting for the largest share (Oxford Economics, 2013). China built 1,300 million square metres of new residential units in 2012, which was up from 800 million square metres in 2008. The increase alone dwarfed the total of 39 million square metres of new construction started in Korea. In Figure 3 the forecast figures for 2013 are based on six months to June and annualised.



Figure 3: Residential construction started

This growth in China should not be considered a credit-fuelled bubble, but was driven by the need to accommodate the massive flow of people migrating from rural to urban areas (Katz 2011), and which continues to proceed at the rate of 15 to 20 million people annually. A recent analysis by the Reserve Bank of Australia projected that residential construction will increase to 1,700 million square metres by 2017, or 30 per cent above 2012 levels, before returning to current levels by 2023 and reducing to 1,100 million square metres by 2040 (RBA, 2012).

The bank's projection took account of additions and replacements as the demand for larger and more modern dwellings increases with rising incomes. It can be assumed that construction will remain at high levels for the next 20 to 30 years, and in the process consume significant amounts of timber and other resources. We would expect India to follow a similar growth pattern, but at a slower rate. In Korea it is not expected that construction will increase, but instead for it to fluctuate around current levels.

Conversion rates

Sawmills in Asia compete in the same market as imported sawn timber. Estimating market size becomes problematic because it requires some knowledge of the rate at which logs are converted to sawn timber. In China and India, which have smaller and manually operated saws, anecdotal information suggests mills recover much higher volumes of sawn wood, usually 70 to 75 per cent.

This compares to recoveries of 45 per cent to 55 per cent in high wage countries, such as Korea and Japan as well as in New Zealand, Russia and North America, which use heavier equipment and a significant degree of automation to save on expensive labour. The large number of Chinese mills which have set up operations in Russia in recent years are more typical of the types used in China.

We can convert the quantity of imported sawn wood to a round wood equivalent basis at the rate of

1.4 cubic metres of log per cubic metre of sawn wood for China and India, and at 1.8 cubic metres for Korea and Japan. This implies that, to supply one cubic metre of sawn wood to end-users in China, would require 1.4 cubic metres of logs if processed locally, but 1.8 cubic metres if processed in New Zealand. This is one of the factors that favours log exports over sawn timber.

China was the largest softwood market in Asia, having imported 47 million cubic metres of logs and sawn timber in 2012, followed by Japan and Korea, with India a distant fourth as shown in Table 3. The Chinese market grew at an average annual rate of 11.5 per cent between 2007 and 2012, and New Zealand exporters were able to grow their market share by 13.8 per cent.

	China	India	Korea	Japan
Market size all sources in 2012 million cubic metres	47.0	2.3	9.1	15.5
Average annual growth 2007 to 2012	11.5%	23.1%	4.0%	-3.8%
NZ share 2012	19.6%	84.6%	36.9%	5.8%
Of which logs	92.5%	98.4%	90.1%	79.9%
Change in NZ market share 2007-2012	+13.8%	+0.5%	-9.3%	+7.2%

Table 3 Size, growth and change in market share for logs and sawn wood combined 2007 to 2012

The fastest-growing market was India with 23.1 per cent of annual growth. Here New Zealand was also able to attain its highest market share obtaining slightly over 84 per cent of the market for imports. This indicated, perhaps, that India is the market where New Zealand supply has its greatest competitive advantage. However, because the Indian market is still relatively small, India would rank below China as a prospective market for future supply.

Korea, once the largest and most important market for New Zealand logs, declined in importance with New Zealand's market share slipping by 9.3 to 36.9 per cent. The Korean market grew at an annual rate of 4.0 per cent between 2007 and 2012, but this was driven by cyclical factors rather than through any real growth in end use activity. Prospects for growth are limited to growing market share rather than growth in the overall market. Korea will, however, continue to be an important part of New Zealand's export mix.

Japan remains the second largest market for imported softwood timber, but this market has been declining at an average rate of 3.8 per cent each year. New Zealand supply decreased from 1.1 million cubic metres in 2007 to 0.9 million cubic metres in 2012 and now makes up only a small portion of this country's log exports. In Japan, New Zealand exporters have also the smallest market share. Exports are unlikely to grow, as radiata pine is not competitive in meeting the strict requirements of this market.

Log products

Logs are the raw material for a number of industries which process and manufacture wood for a range of end uses. Due to the heterogeneity of logs produced from typical harvest operations in New Zealand, a number of log specifications have been developed (Katz 2005) to reduce variability and provide customers with information on log characteristics. Customers usually buy logs of different specifications and alter their consumption patterns according to particular requirements and relative price.

There are applications where wood properties such as stiffness and appearance are important, limiting the type of logs which can be used. However, the bulk of demand in Asia is sufficiently general that logs from different sources and species are treated interchangeably. Purchase and consumption is governed mainly by availability and price as opposed to features. Manufacturing logs to customer specific requirements has so far been cost-prohibitive and impractical. Suppliers therefore have had limited ability to differentiate and develop opportunities in specific market segments and niches. In some areas suppliers are able to differentiate on service.

Logs shipped from New Zealand are subject to the quarantine requirements of the importing countries. Most markets require logs to be debarked or treated with methyl bromide if shipped above deck, and phosphine if below deck (MPI, 2013). There are international initiatives underway to reduce and eliminate the consumption of methyl bromide as it has been widely recognised as an ozone-depleting substance.

To date, its use in quarantine and pre-shipment has been exempted from this phase-out, allowing continuation of this treatment option for at least the foreseeable future. However, continued acceptance of these agents over the longer term is not assured. Debarking as an alternative has not been found to be cost-effective except for high-value pruned logs.

Pricing

The markets for New Zealand logs are commodity markets, despite logs from different sources and species having different characteristics. New Zealand logs tend to be substantially lower priced than those from North America. In China, for example, New Zealand logs are priced approximately US\$51 a cubic metre less than logs from the United States, as reported by Chinese Customs.

Despite this difference, the pricing patterns of different logs are closely related. The New Zealand log substantial price difference gives them a unique competitive advantage. Radiata pine's prices are only matched by a limited volume of small diameter Russian logs shipped from far eastern ports, and spruce-pine-fir sawn wood, much of which come from mountain pine beetle infested stands in Canada. In the graph the timber price was converted using 1.4 cubic metres of log per cubic metre of timber.

US dollars per
cubic metre

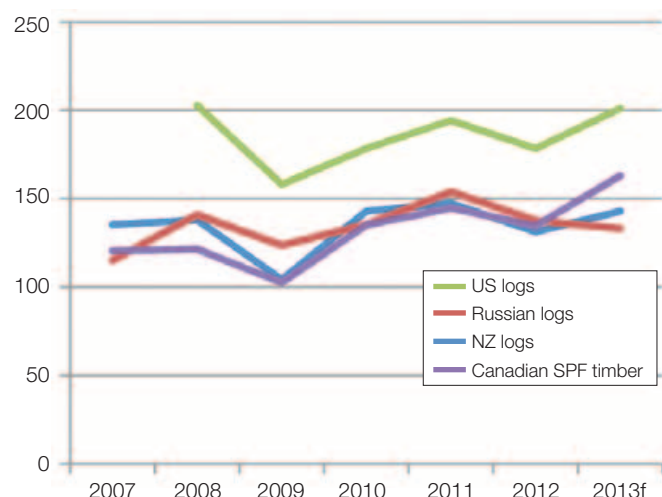


Figure 4: Average import prices for softwoods in China

New Zealand exporters aim to achieve price parity as measured at the New Zealand wharf gate, after adjusting for differences in specifications between markets. As exporting has become very competitive, there is little scope for differential pricing between markets as any arbitrage opportunities are exploited by other exporters.

Dollars per
cubic metre

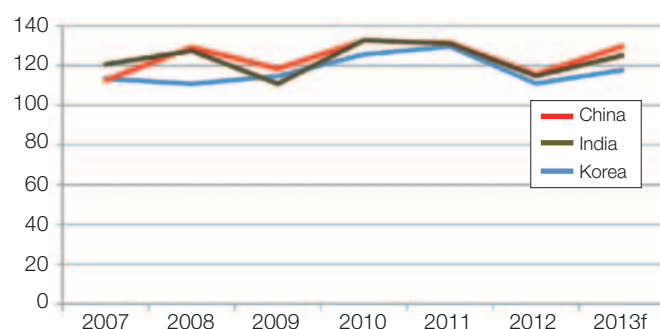


Figure 5: Average values for New Zealand log exports

Returns have averaged between \$123 and \$125 a cubic metre for logs exported to China, India and Japan over the period since 2007, while returns from the Korean market have averaged \$119 a cubic metre. This reflects the smaller sizes of logs shipped to Korea. Log prices have remained relatively level when adjusted for inflation, fluctuating between \$111 and \$130 per cubic metre as shown in Figure 5.

The competitive environment

New Zealand exports face competition from three other major regions. Siberia and the Russian Far East have significant areas of softwood forests, a large forest industry and small domestic markets. From Siberia, wood flows east and south, as well as to markets in the west, while the forest areas in the Far East are almost fully focused on Asia. The wood travels by rail south

into China across any of a number of border crossings to supply the interior of the country down as far as the Yangtze River, or are railed across to the Far East ports to be shipped to Korea, Japan and the eastern coastal regions of China.

On the other side of the Pacific, extensive forests in British Columbia supply North American markets and most other major markets across the globe including Asia. South of British Columbia, the Pacific Northwest region also ships logs and sawn timber for export, targeting mainly Asian markets.

Before 2007, Russian exports to China had been growing rapidly as Chinese demand grew, peaking in 2007 and gaining 85 per cent of the Chinese import market for softwoods. But during 2007 and 2008, Russia brought in new log export taxes, increasing initially to 20 per cent and subsequently to 25 per cent, with the intention of increasing to 80 per cent by 2009. However, this was unable to be implemented.

Since that time the Russian supply to Asia has reduced significantly. Total log and sawn timber exports declined by 9.4 million cubic metres, half of which was to China as shown in Figure 6. This was during a time when consumption of imported softwood logs and sawn timber in Asia increased by over 17.5 million cubic metres as shown in Table 4.

Million cubic
metres
roundwood
equivalent

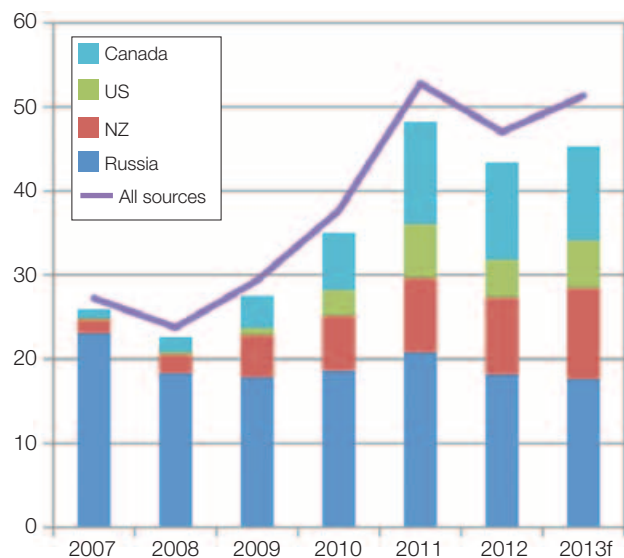


Figure 6: China Imports of logs and sawn wood by major supplier

The decreases came about for a variety of reasons. Following the imposition of these tariff increases, Russian suppliers saw their Chinese customers beginning to diversify their supply sources, reducing their exposure to what they considered to be an unreliable supplier. Suppliers also faced inconsistent and increasingly murky administration of export quotas, coupled with harsher penalties, so that log exports became more risky.

Exporter	Exports cubic metres	Market share	Change 2007 to 2012	
			Exports cubic metres	Market share
Russia	20,735,000	29%	-9,423,000	-26%
US	7,979,000	11%	4,667,000	5%
Canada	18,468,000	25%	11,434,000	13%
NZ	14,792,000	20%	8,371,000	9%
Other	10,706,000	15%	2,495,000	3%
Total	72,681,000	100%	17,545,00	0%

Table 4. Volume and market share by supplier for China, Korea, Japan and India for 2012

There were also problems with availability of skilled labour, infrastructural problems such as a lack of roads to access outlying old growth forests, low volume of softwoods in second growth forests, and limited capital, which made log sourcing difficult (Van Leeuwen 2013). These problems are not readily solved, so it is difficult to see any scope for increasing production and exports to Asia over the medium to long term. In essence, there is significant likelihood that production and exports will continue to decline.

Log and sawn timber exports from British Colombia increased from 7.0 million to 18.5 million cubic metres on a roundwood equivalent basis. The rise in China's demand came at a time when demand from the United States housing market had seriously declined, with housing starts dropping from 2.1 million units in 2005 to a low of 600,000 units in 2009. This resulted in a dramatic decline in Canadian sawn timber exports to the United States, from 49.2 million cubic metres in 2005 to 19.5 million cubic metres in 2009.

Forest harvests in British Colombia declined from 85 million cubic metres in 2005 to 73 million cubic metres in 2007, and by 2009 to a low of 49 million cubic metres. In addition to the loss in demand from the United States, there was a growing need to use the large areas of forests killed by the mountain pine beetle before the timber deteriorated. It was fortuitous that a ready market was found in China's emerging construction industry.

This saw Canada's exports to Asia increase by 11.4 million cubic metres on a roundwood equivalent basis between 2007 and 2012. Over the next decade we can expect a return in demand from the United States housing market, with housing starts projected to increase from their anticipated 2013 levels of one million units to a long run average of 1.7 million units by 2017. At the same time the volume of 'pine kill' timber will decline as the epidemic runs its course and the dead timber ages past its utility.

This could see British Colombia interior's allowable cut decline from approximately 60 million cubic metres in 2012 to 42 million cubic metres by 2020 (Hall, 2013).

Not only will the supply in British Colombia become more constrained, but also in eastern Canada where suppliers are facing more constrained production under Quebec's Bill 57 (Sustainable Forest Development Act 2010). With the recovery in North American demand and limited capacity to increase supply, Canada's exports to Asia are therefore expected to reduce.

The forest industry in the Pacific Northwest was also heavily affected by the downturn in housing in the United States. Harvests declined from 6.3 billion board feet in 2005 to 4.9 billion board feet in 2012. This downturn stimulated growth in exports to Asian markets. Volumes to China, Korea, Japan and India increased from 3.3 million cubic metres feet in 2007 to 8.0 million cubic metres roundwood equivalent in 2012.

Most of the increase was in log exports which increased from 0.8 to 5.9 million cubic metres, to account for 74 per cent of exported volume roundwood equivalent basis. Over the next decade harvesting should recover to 6.3 billion board feet as a result of the recovery in the United States housing market. At the same time, exports should decrease as more logs are processed for the domestic market.

China has significant production of logs from high yielding forest plantations that compete with New Zealand logs. The main softwood species are Mason pine and Chinese fir, also hardwoods such as eucalypts and poplars which are used in construction for timber and plywood. Mason pine suffers from poor form, and eucalypts are mainly suitable for veneer and pulpwood.

Chinese fir is popular where available, but plantations are lower yielding compared to New Zealand plantations and often replaced with eucalypts, especially in the south. In general, plantation logs are small and better suited for core veneer or low end uses such as medium-density fibreboard or flooring. Successive five-year development plans have promoted expanding forest planting, but recent reports suggest that most of the new planting is for protective rather than commercial use.

Shipping and exchange rates

Shipping is a major cost in New Zealand log exports. Usually it can account for a third of the price of logs arriving in overseas markets. Freight rates have always been cyclical, but over the past 10 years have been particularly volatile, varying by over US\$20 a cubic metre between peaks and troughs. Market evidence suggests that the cost of shipping has been generally absorbed by buyers. In a recent example, between 2009 and 2010, shipping rates and delivered log prices both increased by US\$18 a cubic metre.

From 2010, shipping rates have begun to trend downwards as global economic conditions have weakened, but log prices in China have not been affected. This has widened the margins between price and shipping to more than any time since the late 1990s. Taking historical trends, it appears that current

rates of US\$30 a cubic metre are US\$10 lower than their longer-term average, suggesting there is upside risk on shipping costs. These rates compare favourably with those reported for logs shipped from the Pacific Northwest to Asia (Leeds 2012), which were US\$50 a cubic metre for break bulk and containers.



Figure 7: Shipping rates and China import prices

Exchange rates, which can be quite volatile, are critical to exporters due to their effect on competitiveness in export markets and returns. After 2010, New Zealand exporters had to face the New Zealand dollar increasing by 15 per cent against the US dollar as measured on an inflation-adjusted basis, as in Figure 8. High inflation causes currencies to depreciate in response to maintaining the price relativities between countries. This reduced returns and made New Zealand logs less competitive than logs from the United States. The New Zealand dollar has also appreciated 10 per cent against the Canadian dollar.

The Russian rouble has trended above the New Zealand dollar. While in nominal terms the rouble has depreciated, Russia's high inflation has meant that by the first half of 2013 the rouble was five per cent stronger relative to the dollar in real terms. The yuan has steadily appreciated against the US dollar, averaging 4.3 per cent a year in real terms since 2007. For the first half of 2013, the yuan was 32 per cent higher than in 2007, more than double the increase compared to the New Zealand dollar. This has increased the relative cost of Chinese logs compared to imports.

The yuan is likely to continue to appreciate against the US dollar, but probably at a slower rate as central government continues its efforts to rebalance the economy in favour of domestic consumption. Some commentators see the yuan still undervalued by five to 15 per cent (Bloomberg 2013, quoting the IMF).

The Indian rupee gained a similar amount against the US dollar. At the time of writing the rupee had dropped by 10 per cent compared to the latest data. The exchange rate between the New Zealand dollar and

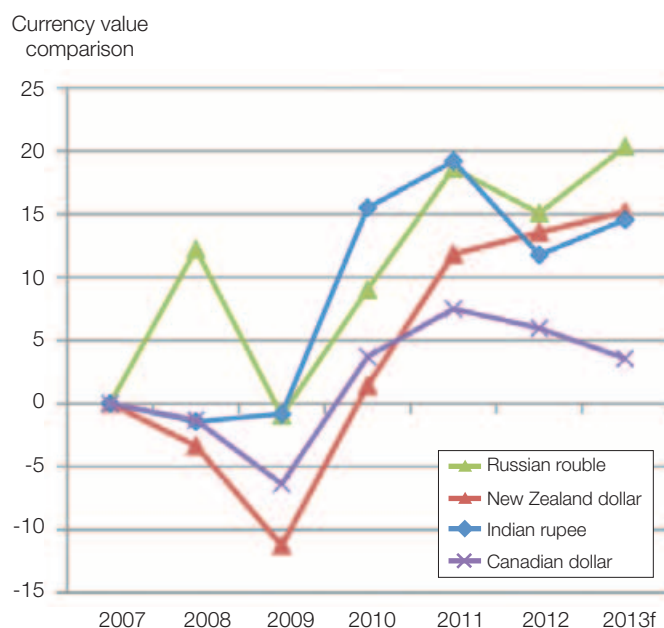


Figure 8: Trend in currency values against the US dollar inflation adjusted

Indian rupee therefore remained relatively constant, which neither advantaged nor disadvantaged New Zealand exporters to India when compared to locally grown wood. The trends in the Korean won and Japanese yen are of lesser importance, as these countries are to a much larger extent dependent on imports from Russia, Canada, the United States and New Zealand.

Summary and conclusions

New Zealand log exporters have built a leading position in high growth economies which have significant markets for softwood logs and sawn timber. It has developed a clear sustainable competitive advantage in producing logs at a competitive price. Log exports allow the forest industry to take advantage of the low processing costs in Asia, where mills are able to create superior value for customers with flexible production, producing to order and on short lead times. New Zealand suppliers have a portfolio of markets including –

- Mature markets that provide a consistent base demand such as Korea and Japan
- Markets which significantly contribute to value but are still growing in scope and size such as China
- Newly emerging markets with large potential such as India.

New Zealand's particular strengths are in its ability to supply to these markets on a sustainable basis. As with many other suppliers, log exports follow the cycles of international commodity markets. New Zealand exporters have little control over pricing, especially as the log exporting industry has become highly competitive. Prices for New Zealand logs depend on the volumes of wood flowing from Russia, North

America or the expanding Chinese plantations, as well as the demand for new building and manufacturing in Asia.

While current prices satisfy most timber owners, they may not be enough to stimulate new forest investment, placing New Zealand at risk of further attrition in forest area. Therefore the industry needs to continue to find strategies for increasing returns. As volumes supplied for export increase, there are risks that costs are likely to increase further due to lack of port space, resulting in additional handling of logs in off-site facilities. The strong focus on exports has resulted in a domestic market which has been somewhat neglected, reducing the potential of an important area of diversification and increasing the risk profile of forest investments in New Zealand.

International efforts to eliminate the use of methyl bromide could put log exports at risk. Most other options such as heat treatment are more costly. While it seems unlikely that it will be completely banned before cost-effective alternatives are in place, the New Zealand industry will need to monitor the situation and represent its interests with government and at international meetings to ensure it is not faced with additional costs. Testing of other treatment options is desirable and should continue.

The strong dependence on one single market has made the forest industry vulnerable to shocks. Growth has slowed in China and there has been little real evidence that the Chinese economy is managing the transition from investment to consumption-led growth, and the level of debt and quality of lending are also of concern (BNZ, 2013). Risks are also developing in emerging markets such as India (The Economist, 2013), which would only increase New Zealand's dependence on China.

Over the next 10 years the opportunities in log export markets could be greater than at any time in the last 20 years. New Zealand exporters should continue to build on their image of being the most sustainable and consistent suppliers to Asia. Russian supply suffers from poor governance and arbitrarily applied taxes and quotas, creating a perception in the market of inconsistency and unreliability.

Both Canadian and United States suppliers have limited, and in some places decreasing, resource availability and exports may be at risk once the latter's housing market fully recovers and the mountain pine beetle epidemic has run its course. North America supplied over 16 million cubic metres of log and sawn timber to China on a roundwood equivalent basis. A 50 to 60 per cent reduction in exports to China, which is not improbable, would create enough of a shortfall in the market to accommodate all of New Zealand's incremental production over the next 10 years. At the same time, the rapid rate of urbanisation in China is set to continue, which should support their construction programme for the next decade or more.

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