

Asia Pacific Softwood Log Markets

Supply-Demand Outlook for New Zealand & Australian Softwood Log Markets

Introduction

The rapid economic growth of China has made the Asia Pacific region a growing priority for timberland investors in recent years. Both Australia and New Zealand are significant producers of softwood timber, largely radiata pine. With over 100 years of experience in establishing and managing softwood plantations, the region has a solid track record of silviculture, genetics, and technical capacity. Both countries operate open economies and have been seen as preferred, low-risk regions for timberland investors seeking to diversify outside the United States. It should be noted that Australia has a population of approximately 22 million people, and approximately 1 million hectares of softwood plantation, whereas New Zealand has a population of approximately 4 million people but with 2 million hectares of softwood plantation. The result is that Australia has had a continuous need to import softwood lumber, while New Zealand is a major exporter of both softwood logs and lumber. Nevertheless, both countries operate in the context of a regional market that sets the pricing of logs and lumber.

A set of factors affecting the supply-demand balance of softwood log markets in the Asia Pacific region will be key determinants of the returns to investors in softwood plantations in New Zealand and Australia over the next 10 years. These factors include:

- A slow but steady shift in the source of the economic margin of softwood timber supply from natural forests to plantation forests
- The relative economics of softwood plantation establishment in Australia and New Zealand versus Latin America, Africa and North America
- The likely growth in Chinese and Indian softwood demand relative to their domestic supply outlook
- The outlook for Siberian and Russian Far East softwood supply
- The rate of recovery in the North American housing market and the resultant capacity to export logs and lumber to growing Asian markets.

This paper reviews each of these factors and considers how they may affect Asia Pacific softwood markets over the next five to ten years. It is not the intent or purpose of this article to make price projections or forecasts, but rather to consider the balance of supply-demand issues that may affect softwood plantation investment performance over the next decade.

Key factors affecting the supply-demand balance for softwood timber in the Asia Pacific region

1. *A slow but steady shift in the source of the economic margin of softwood timber supply from natural forests to plantation forests.*

The major limiting factor to private investment in softwood plantation forests has been the preponderance of natural forest timber supply, principally in Canada and Russia, that has had no 'cost of capital' in its origination and growth. Accessible, high value forests in these regions have been harvested preferentially to

remote, more costly forests, and regrowth of the harvested areas will take many decades to produce a second crop for harvest. If these forests had been managed on a truly sustainable basis, then higher harvest costs and stricter controls on harvest rate would have led to higher and probably more volatile timber pricing. However, as the lowest cost natural forest timber was cut first, the marginal cost of each additional unit of natural forest timber is rising. The most important question to the structure of the softwood log market is when the marginal cost of expanding softwood log supply from remote natural forests exceeds the cost of establishing fast growing softwood plantations in new areas, principally the southern hemisphere.

The demand for softwood timber is linked to the economic cycle, especially housing markets. In periods of recession where the US housing market has declined, softwood lumber prices have usually declined substantially and then rebounded along with the recovery. While cyclical, the overall global market for softwood has also grown steadily, but supply from natural forests has been able to keep pace with growth in demand. However, in periods of rapid demand growth or sudden supply withdrawal market prices for softwood logs and lumber can surge beyond normal long-term price ranges. For example, a softwood market shock occurred in the early-mid 1990s when the US Government decided to dramatically curtail natural forest harvesting in the US National Forest System in Washington and Oregon in response to the need for environmental protections for spotted owl habitat. Between 1991 and 1995, the annual timber harvest on National Forests fell from 66 million cubic metres per annum to 11 million cubic metres per annum. As the US economy came out of recession in the mid 1990s, log demand grew coinciding with the supply contraction due to the cut back in national forest harvesting, and prices spiked. The effect was global; New Zealand log prices rose in 1994 to levels never again seen as the supply-demand imbalance took time to equilibrate. Eventually, over the next two years, increases in private land timber production and expansion of the natural forest economic margin (e.g. logging in Canada extended into the Northwest Territories for the first time) took up the slack, and prices declined back towards a longer-term average. The spotted owl story is a clear demonstration of pricing response to a softwood supply-demand imbalance, and also spurred significant improvements in forest technology—better silviculture, more efficient harvesting and a switch from a large log to a small log economy – that have left lasting impacts on the global softwood markets.¹

The elasticity in softwood markets has likely declined over the last 15 years. The depletion of accessible coastal timber in British Columbia and the collapse of the Canadian boreal forest newsprint industry have stranded integrated logging operations for pulpwood and sawlogs. There is no more primary forest to log in the United States, and private land regulation of logging operations has been tightened. In Russia, the timber harvest initially fell dramatically after the collapse of the Soviet Union, but recovered over the last decade to meet growing Chinese softwood log demand. As we will see later, however, there are questions about whether the Siberian timber harvest can continue to rise to meet Chinese demand.

As accessible natural forests become limited, there must come a point where prices rise sufficiently to attract private capital to either intensify production and utilization in established softwood regions – most likely North America – or to establish new greenfield softwood plantations. Indeed, we have seen the recent demand growth in China increase prices for softwood logs from the softwood plantation regions of Latin America, Southern Africa, Australia and New Zealand. Much of the softwood plantations in these regions was established by government funding directly or via tax system inducements and did not reflect a true cost of capital. As these government plantations are privatized and tax inducements weakened, timber pricing will need to equilibrate with growing costs. As timber prices rise with Asian demand growth, investors are feeling more confident that investment in softwood plantations in higher productivity, lower cost regions will generate acceptable risk-adjusted returns.

¹ Pers. Comm. Jim Rinehart.

2. The relative economics of softwood plantation establishment in Australia and New Zealand versus Latin America, Africa and North America.

Greenfield softwood plantation investments are long-term, capital intensive undertakings. Even in the high-yielding southern hemisphere plantation areas the growth and harvest cycle will range from 18 to 30 years. The economics of softwood plantations are based on three main variables: the input cost of land and reforestation expenditure, which are largely up-front costs; the rate of growth of the trees; and the prices ultimately achieved for the forest products by the forest owner. Putting aside Africa, where there may be some opportunities for softwood plantation development (e.g. Mozambique), we might expect the main competition for incremental capital to be between the US, Latin America (e.g. Chile, Argentina, Uruguay and Brazil), and Australia-New Zealand. It should be noted that in the US, the marginal capital would be invested in the intensification of production rather than in expanded greenfield plantations.

Given that the discount rates for the valuation of existing operating forests in the US are currently estimated at 6-6.5% real,² this effectively sets a floor return on capital for incremental investments in more intensive forestry in the US. If we look to the southern hemisphere we need to 'risk adjust' the returns to set a cost of capital for expanding plantations as an alternative to intensifying production in the US. As a general rule the discount rates for existing forestry assets in Australia-New Zealand are in the 7-8% real range because of currency risk and lower market liquidity relative to US timberlands, and for greenfield plantations slightly higher, around 9% real, owing to the risks associated with deferred cash flows. In Latin America, investors generally seek an additional risk premium of 4-6% over US timberlands that accounts for sovereign risk, counterparty risk, credit risk and execution risk.³ This suggests real rates of return of between 12-14% should be necessary to attract capital to greenfield softwood plantation projects in South America.

If we believe that timber supply-demand dynamics are now evolving to the point where supply is limited by the availability of capital for new plantations, then investors in existing plantations may well view that there is going to be upwards pressure on log prices and, by extension, on the values of existing forestry assets. While some medium term enhancements to productivity from fertilization of existing forests could occur, and engineered wood products could expand supply from lower value timber, there is a 20-30 year lag in timber supply from new plantations, and therefore there are potentially longer delays in the ability of the market to re-equilibrate to rapid demand growth than there were in the 1990s. In fact some market commentators suggest that as US housing markets begin to recover over the next three or four years, a similar supply shortfall to 2011 will emerge in the Asia Pacific region.

3. The likely growth in Chinese and Indian softwood demand relative to their domestic supply outlook.

The impressive economic growth occurring in China and India has made these two countries the driver of an Asia Pacific export commodity boom, which has included rapidly growing demand for softwood timber. Softwood is used for construction material such as lumber, plywood, concrete forms, furniture and kraft pulp (e.g. paper bags, cardboard). China currently far exceeds India in softwood imports, although this may shift over time. Between 1997 and 2010, Chinese imports of wood products grew by 17% per annum, and in 2011, imports were on track to increase by a further 20%.⁴ Market analysts suggest that the Chinese government has forecast that wood demand will rise to 350 million cubic metres per annum by 2015, and that despite expanded reforestation programs, 150 million cubic metres of that supply will have to come from imports.⁵ Softwood log and lumber imports could rise from the current 75 million cubic metres⁶ to be in the order of 100 million cubic metres per annum of roundwood equivalent by 2015. This increment of 25

² Note that all return rates are quoted pre-tax.

³ Brookfield first quarter 2010 newsletter.

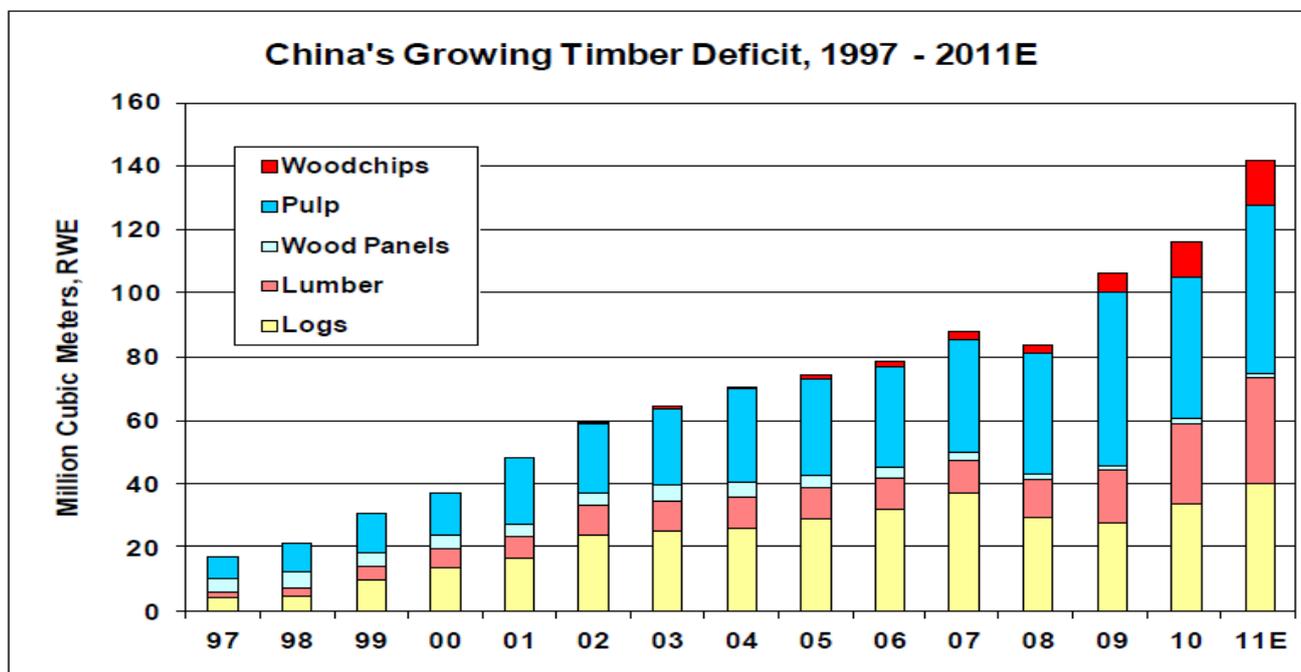
⁴ Bob Flynn, The Global Demand for Wood Fibre, presentation to Timber Invest Europe, October 25, 2011, London UK.

⁵ International Wood Markets Group, 2010 (www.woodmarkets.com).

⁶ RISI 2011. "Global Demand for Wood Fibre" presentation by Bob Flynn to Timber Invest Europe Conference, London.

million cubic metres would be expected to be roughly split between increases in log imports and lumber imports.

Figure 1 – Growing Wood Products Imports into China, 1997-2011



Source: RISI 2011. "Global Demand for Wood Fibre" presentation by Bob Flynn to Timber Invest Europe Conference, London.

Chinese softwood log imports in 2011 were close to 30 million cubic metres, with about 13 million cubic metres from Russia, about 8 million cubic metres from New Zealand, and 8 million cubic metres from the US and Canadian West Coast.⁷ While New Zealand may be able to expand timber production by about 10 million cubic metres per annum over the next decade, there is still potentially a large supply side challenge to meet the Chinese demand for timber, even if the Chinese real estate bubble has burst and Chinese GDP growth is beginning to temper. In addition Australian government studies suggest that India may have a timber import demand of 100 million cubic metres by 2015,⁸ with softwood representing 20% of imports. The existing softwood plantation estate in Australia currently produces 10 million cubic metres of sawlog and 5 million cubic metres of pulplog, and this is not forecast to increase until 2030, and even then modestly.⁹

Recent production in New Zealand has exceeded the Ministry of Agriculture and Forestry's forecasts (see Figure 3), with current annual harvest at 26 million cubic metres,¹⁰ and there is further potential for supply to 30 million cubic meters per annum over the next decade. If recent higher timber prices are sustained, this could spur investment in new plantation supply.¹¹ Unless Russia can dramatically increase Siberian timber supply on a sustainable basis and/or the US and Canada can continue to divert timber supply from the US housing market, we expect market conditions to be generally tight over the next decade. Substitution of other materials as an alternative—for example by steel framing or plastic forms—suffers from the same problem of an escalating price of commodities, including iron ore, coal and petroleum.

⁷ Agrifax Forestry Market Report, December 2011.

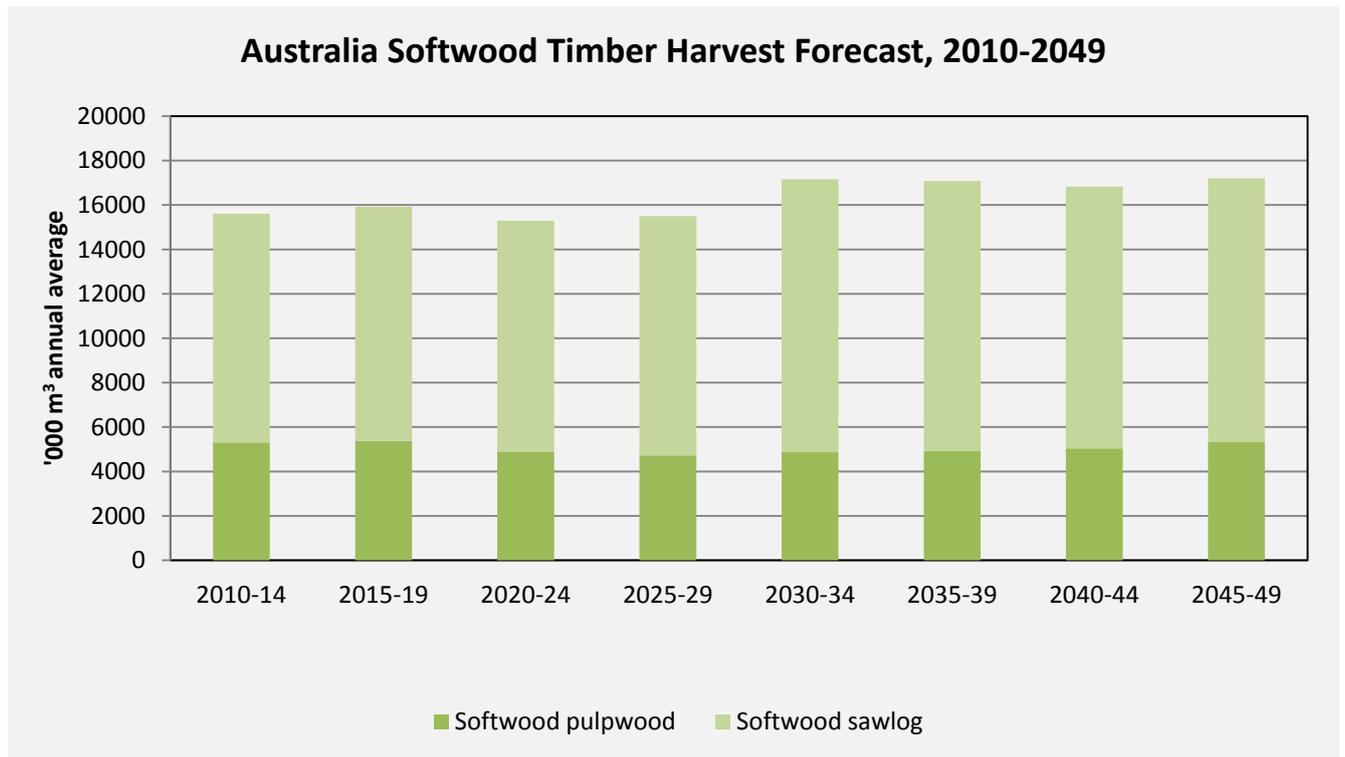
⁸ Midgeley, S et al. 2007. A strategy for developing market opportunities for Australian forest products in India.

⁹ Clare Howell, "Australia's forest resources at a glance," presentation at ABARES Outlook 2011, March 2011, Canberra, Australia.

¹⁰ <http://www.maf.govt.nz/news-resources/statistics-forecasting/forestry/quarterly-log-roundwood-removal-statistics.aspx>

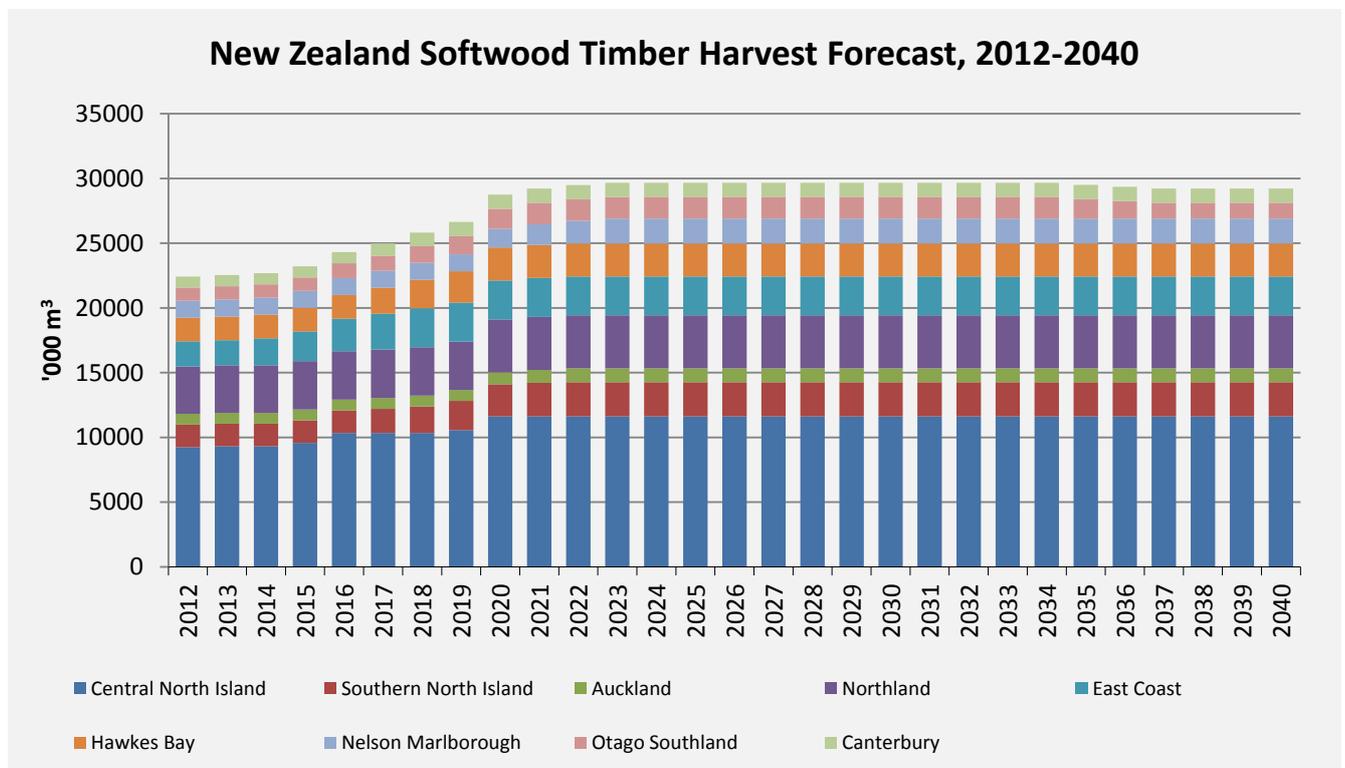
¹¹ Note that reduced shipping costs, a carbon price signal and currency fluctuation are among other factors that also affect timber values to investors.

Figure 2 – Australia Softwood Timber Harvest Forecast, 2010-2049



Data source: ABARES.

Figure 3 – New Zealand Softwood Timber Harvest Forecast, 2012-2040



Data source: MAF.

4. *The outlook for Siberian and Russian Far East softwood supply.*

Russia has 20% of the world's forest cover, and standing timber is estimated at 7.5 billion cubic metres, mostly of softwood species such as pine and larch.¹² The Soviet Union claimed timber harvest rates as high as 400 million cubic metres per annum, but there is skepticism about these figures and a belief that the Soviet timber harvest never exceeded 200 million cubic metres per annum – a level similar to the peak levels of Canadian timber harvest.

While statistics are scarce and unreliable, it appears from desktop studies that the sustainable timber harvest from Siberia and the Far East could be up to 250 million cubic metres per annum,¹³ while current harvest rates are much lower – between 50 and 100 million cubic metres, which may be a more realistic indicator of the available timber. Russian timber harvest appears to have declined by one-third over 2008 and 2009, with the decline being widely attributed to a log export tariff. However Russian sources suggest that the reasons behind the decline are more complex and include not only the direct effect of the tariff but also withdrawal of road building subsidies by the Russian Government, a crackdown on illegal export practices, the inability of the Russian forest sector to secure access to credit since the 2008-09 financial crisis, a dwindling of readily available timber stands and rising energy costs.

Even if these factors temper in the coming years, RISI¹⁴ projects that Russian log and lumber exports to China will not recover to their 2007 levels until 2015 or later. This means projected growth in timber import demand by China is unlikely to be met by a ramping up of Russian logging rates. Given capacity constraints in New Zealand and Australia, this has provided a significant short-term opportunity to Western Canadian lumber producers and Western US log exporters over the past two years. Ultimately over the next decade the timber pricing will be set by the interplay of three factors:

- the supply of timber from Russia, US, Canada, New Zealand and Australia;
- the demand from China and India; and
- the recovery of the US housing market.

5. *The rate of recovery in the North American housing market and the resultant capacity to export logs and lumber to growing Asian markets.*

US domestic demand is a core determinant of the global softwood timber trade balance, and that demand is currently very weak but showing initial signs of recovery. US housing peaked at 2.2 million starts in 2005, and has declined in the recession to as low as 500,000 starts per annum. Industry commentators suggest that the US housing market will not regain those pre-recession peaks and may only get back to 1.5 to 1.8 million starts by late in this decade. This could mean that excess timber stock from the US will be exported to Asia. It is estimated that the implied softwood sawlog harvest of North America was about 300 million cubic metres in 2004/2005 to support the 2.2 million unit peak in housing starts.¹⁵ If US housing starts return to a level by mid-decade of 1.5 to 1.8 million units per annum then that would suggest that about 40 million cubic metres per annum of softwood timber could be available for export.¹⁶

Another factor is the mountain pine beetle infestation. British Columbia is the giant of the Canadian forest industry, with harvest rates almost reaching 100 million cubic metres per annum at the peak in the 1990s. Since then the industry has declined but is now facing a further step downwards as the mountain pine beetle infestation runs its course, and timber salvage harvesting may peak around 2015. A recent study suggests

¹²Nelson, R. K.J. Ranson, G. Sun, D.S. Kimes, V. Kharuk, P. Montesano: 2009. Rem. Sens. Emt. Vol. 113:3

¹³ UNECE Russian Federation forest sector outlook study 2003

¹⁴ www.risiinfo.com

¹⁵ estimated by working backwards from lumber production figures

¹⁶ Pers. Comm. Clark Binkley

that 70% of the lodgepole pine timber in interior British Columbia will be killed by the beetle infestation. The expectation is that by 2018 British Columbia interior timber harvest will have declined from a pre-beetle Allowable Annual Cut (AAC) of 50 million cubic metres per annum to 40 million cubic metres or less. While there is a substantial amount of salvage timber currently going to China, there comes a point where the timber is no longer suitable for anything other than biomass energy. This might suggest that excess log supply from North America by mid to late decade will be less than 40 million cubic metres per annum – barely enough to fill the gap being created by demand growth in China and India (see Table 1).

Table 1. Expected Change in Global Softwood Supply/Demand Balance to 2020 (roundwood equivalent including logs and lumber)¹⁷

Country	Supply-Demand Balance (million cubic metres net change)
China	(50)
India	(25)
Japan	5
Korea	Neutral
Russian Siberia and Far East	15
Australia	(5)
New Zealand	10
Latin America	20
United States	40
Canada	(10)
Europe	Neutral
Balance	0 ¹⁸

Conclusions

As noted at the beginning of this piece any projection of the future is fraught with complexity and the interplay of multiple factors, many of which cannot be foreseen. However, there is certainly a case to be made that softwood timber markets in the Asia Pacific region could tighten over the next five to ten years if China and India continue their economic growth. Rises in the pricing of softwood logs and lumber tend to be a function of rapid increases in demand or withdrawal of supply. The price China pays for softwood timber spiked in 2011 because the demand growth was faster than the market could adjust to. However, once the price rose, excess supply in the US and Canada was able to rebalance the market. The main question for the next decade is whether the recovery of the US housing market will drive another price increase as China is forced to compete for access to softwood timber supply.

While a relatively small component of the global timberland asset pool, investment in softwood plantations in New Zealand and Australia may be an increasingly important part of a globally diversified timberland portfolio. On both a risk-adjusted return basis and a supply-demand outlook basis, there appears to be a good rationale for international investors to ensure that they have softwood plantations in Australia and New Zealand as a core part of their timberland portfolio allocation targets.

¹⁷ 'Ballpark' estimate of the changing supply demand outlook for global softwood sawlog supply for 2015-2020. Bracketed numbers are deficits.

¹⁸ It must be noted that markets equilibrate supply and demand, and therefore cannot have a deficit. This table should be seen as speculative and mainly sketching the rough direction and magnitude of export/import balance changes.

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More Information

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David Shelton
Director, Acquisitions
dshelton@newforests.com.au
+61-2-9406-4104

New Forests Pty Limited
The Zenith Center, Tower A
Suite 1901, Level 19
Chatswood, NSW 2067
Australia

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