

# MBIE SPOTLIGHT PAPER

Forest Economic Advisors LLC (“FEA”), a US-based forestry consulting company with offices in four countries, has been engaged by the Ministry of Business Innovation and Employment (“MBIE”) to provide an overview paper on the NZ forestry and forest products sector including a series of brief Spotlight Papers targeting a key theme. The theme of this Spotlight Paper is...

## **Impact of Russia/China lumber trade on international log/lumber trade and implications for New Zealand.**

### **1.0 Introduction**

This Spotlight paper has been excerpted and summarized from the just released FEA publication “China’s Import Demand for Softwood Logs and Lumber to 2023 • The Changing Supply Chain in China with a Focus on Russia’s Industry/Export Potential”.

The Russian sawmilling industry has, in recent years, become markedly more competitive and now features a wider and more diversified product line from a larger manufacturing base. Three factors have contributed to these changing dynamics:

1. A log tax imposed by the Russian government in 2007 and subsequent log export quota system that successfully resulted in significantly greater amounts of domestically produced lumber at the expense of log exports.
2. The devaluation of the ruble in late 2014 lowered domestic costs and was the catalyst for major capital investments into logging, sawmilling, value-added processing and logistics.
3. More recently, Russia is strategically placed within the Chinese government’s BRI program to take advantage of improved logistics costs to inland China.

The combined impact of these factors and another recent (smaller) devaluation of the ruble means that Russian mills should continue to gain lumber market share in China, especially as they increase their volume of kiln-dried and higher-grade product. Furthermore, Chinese mills on both sides of the border are adding sawmill and value-added equipment to process Russian logs and produce high-value kiln-dried lumber that can be shipped much further afield. Russian producers, with FSC-certified timber and lumber, are learning fast about the economic returns of providing customers with the sizes and grades of lumber they need and want — a vast change from a mere ten years ago.

## **2.0 Background to the Russian forestry sector**

Russia is one of the world's dominant log and lumber producers and exporters. Due to its immense land mass, roughly half of which is forested, Russia accounts for nearly 20% of the world's standing forest resource — nearly 82 billion m<sup>3</sup> out of a global standing stock of roughly 434 billion m<sup>3</sup>. With this tremendous resource, Russia ranks as one of the world's major players in the global trade of timber and wood products. Some key statistics include:

- Russia harvested 157.6 million m<sup>3</sup> in 2017, representing a 14.4% share of global softwood timber (log) production after having passed Canada in 2014 as the second-leading producer (behind the U.S.);
- Russia is the third-largest softwood lumber producer (37.8 million m<sup>3</sup>), representing 11.1% of worldwide production;
- Russia ranks second in log exports at 11.9 million m<sup>3</sup> (14% global market share, ranking behind New Zealand); and
- Russia is the second-largest lumber exporter with 28 million m<sup>3</sup> (22% global market share, ranking behind Canada).

The Russian industry is heavily concentrated in Western Russia as well as key cities in mid-Russia, Siberia and the Far East as shown in Figure 1.

**Figure 1. Four key forestry operating zones in Russia.**



Source: FEA reports

### **2.1 Log Tax and Quota System**

An export tax on Russian softwood logs introduced in 2007 augmented by a quota system introduced in 2012 has been a major financial incentive for Russian companies to process sawlogs in their own sawmills. In turn, this has driven investments aimed at processing more logs with a greater throughput to lower milling costs (see below).

Table 1 gives a summary of the taxes and quotas for softwood sawlogs > 15 cm. Softwood logs of lower diameter (i.e. pulp logs) are exempt. From 2007 to 2012 a standard export tax was applied to all softwood log exports increasing to 25% in 2009 through to early 2012. In 2012 a quota system was implemented for Western Russia and Siberia as part of the WTO negotiations. To understand how this quota system operates, consider the Russian government's new ministerial ordinance with respect to log exports from its Far East regions. Starting in January 2018, the ordinance stated that companies reaching a certain volume of wood processing in Russia could export logs at a 6.5% duty rate under a quota system. However, companies that do not meet this threshold of domestic wood processing will not receive an export quota and will pay higher duties. The log export duty rate for companies without quota will be raised from 25% in 2018 to 40% in 2019, 60% in 2020 and 80% in 2021. This policy is aimed at reducing roundwood supplies to China from the Russian Far East by some 3.5 million m<sup>3</sup> (50% of current volumes). This reduction will likely show up at the end of 2018, as the 40% export tax commences in January 2019.

**Table 1. Summary of log taxes and quota system introduced by Russian government**

Softwood sawlogs >15 cm		Jun. 1 2006	Jan. 1 2007	Mar. 1 2007	Jul. 1 2007	Apr. 1 2008	Jan. 1 2009
Rate	%	6.5%	6.5%	10%	20%	25%	25%
Minimum Amount	Euro/m <sup>3</sup>	€2.5/m <sup>3</sup>	€4/m <sup>3</sup>	€6/m <sup>3</sup>	€10/m <sup>3</sup>	€15/m <sup>3</sup>	€15/m <sup>3</sup>

Softwood sawlogs >15 cm	SIBERIA & WEST RUSSIA	RUSSIAN FAR EAST				
	Sep. 2012 ongoing	2013	2018	2019	2020	2021
Red Pine - QUOTA	15%	n/a	6.5%	6.5%	6.5%	6.5%
Spruce - QUOTA	13%	n/a	6.5%	6.5%	6.5%	6.5%
Larch - QUOTA	25%	n/a	6.5%	6.5%	6.5%	6.5%
Red Pine -NO QUOTA	80%	25%	25%	40%	60%	80%
Spruce - NO QUOTA	80%	25%	25%	40%	60%	80%
Larch - NO QUOTA	25%	25%	25%	40%	60%	80%
QUOTA VOLUME	12.7 MMm <sup>3</sup> ----->					
QUOTA VOLUME		4.0 MMm <sup>3</sup> ----->				

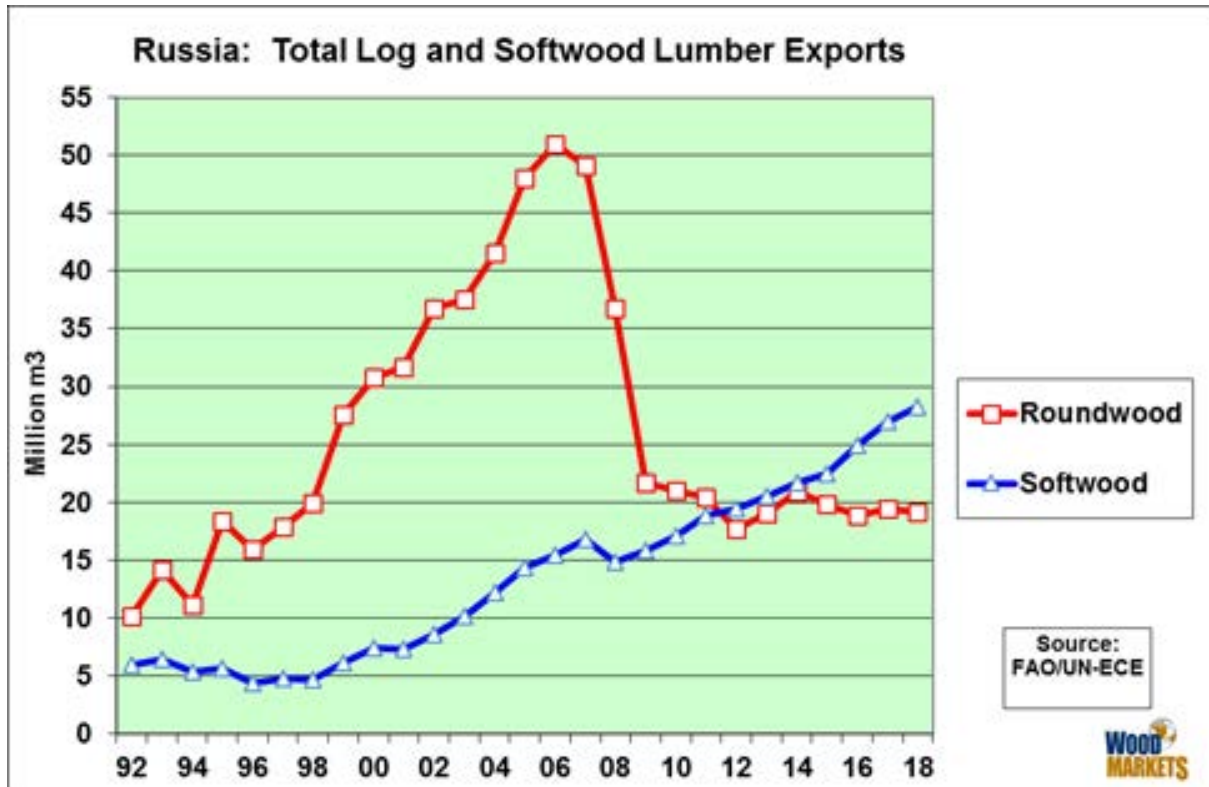
Source: FEA analysis

Figure 2 shows the dramatic fall of export logs (about 30 million m<sup>3</sup> reduction from 2007 to 2018) amid a sizeable increase in softwood lumber exports (about 13 million m<sup>3</sup> sawn timber = 28 million m<sup>3</sup> roundwood equivalent from 2007 to 2018) that has resulted from these Russian government policies.

The Russian log export tax and quota system was the initial stimulus which, along with the other factors discussed below, has created an improved and more efficient sawmilling industry that is processing more sawlogs within Russia into lumber and exporting fewer (to flat) logs.

Total log exports from Russia to China have dropped from a peak of more than 25 million m<sup>3</sup> in 2007 and have remained near the 10 million m<sup>3</sup> level since 2011. This level represents the export volume quota allowed to be exported to China at the lower (13%–15%) tariff rate. This volume is projected to decline further given the greater tariffs now on out-of-quota logs exported from the Russian Far East.

Figure 2. Total log and softwood lumber exports from Russia

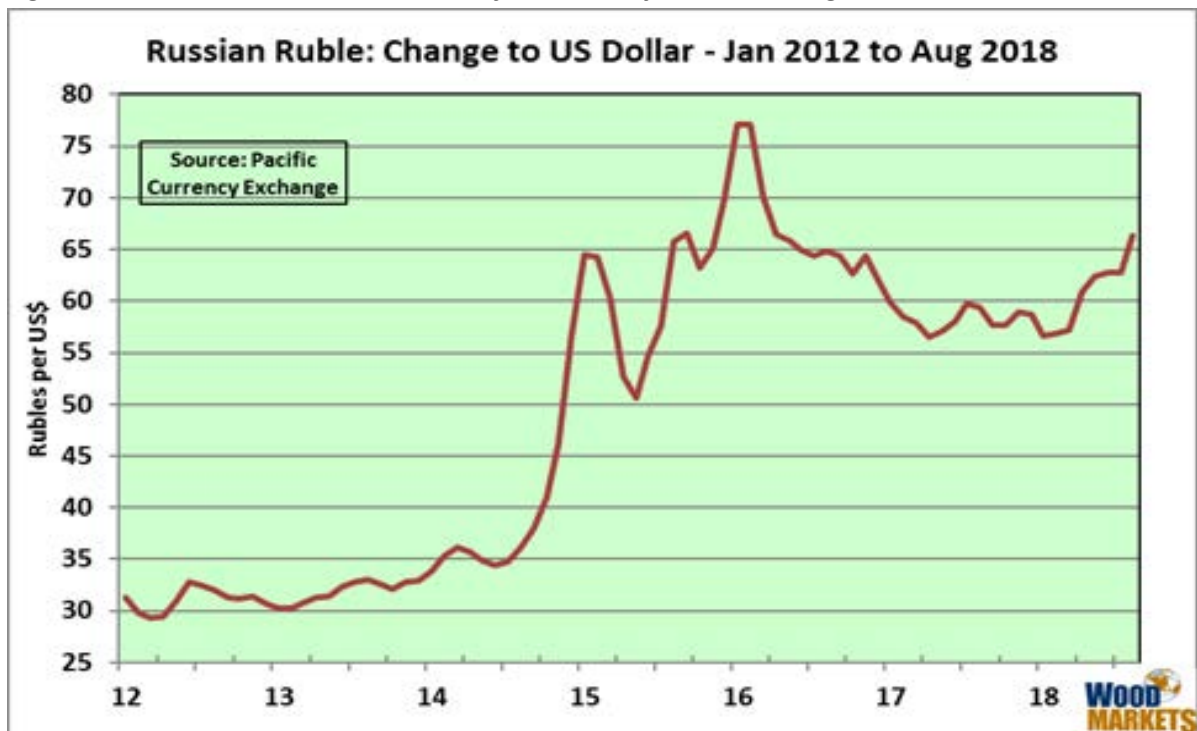


Source: FEA reports

2.2 Capital investments due to ruble devaluation

The graph in Figure 3 shows the recent exchange rate trend for the Russian ruble versus the US dollar.

Figure 3. Russian ruble versus US dollar from January 2012 until August 2018.



Source: FEA reports

Despite the government tax and quota interventions discussed above, the cost competitiveness of the Russian industry was considered bleak back in 2012-2014 when high costs, constrained road and rail infrastructure, and prevailing poor forest logistics were responsible for an inability to access economic timber. With many Russian forests comprising a mixture of hardwood and softwood (particularly in Siberia), the lack of markets for low-grade hardwoods (particularly aspen/poplar) hampered the economics of processing mixed stands and led to escalating logging and road costs. The outlook was also dimmed by the lack of new investments in sawmilling during the early 2010s.

In late 2014, however, the weakening of Russia's currency significantly brightened the picture for investing in the forest products sector, ultimately leading to peak earnings in 2015 and early 2016 when the ruble's devaluation was most extreme. The subsequent strengthening of the ruble, however, worked in combination with increased log prices to create a state of inflation in 2016 and 2017 that eroded Russian exporters' competitiveness. Nevertheless, the considerable investments made by many companies to lower logging and sawmilling costs were able to improve the sector's overall financial and export market position. The good news for Russian producers today is that the ruble began to weaken again early this year, being around 66 to the U.S. dollar at the time of writing this report.

All of this has manifested in imports of wood processing equipment into Russia increasing by 61% in 2017 as 316,600 pieces of new equipment were declared. These modernization efforts have resulted in a greater volume of kiln-dried, planed and higher grades of lumber being shipped from Russia to China for further processing. In addition, there have been some huge investments (kilns, planers, remanufacturing equipment) with an eye to producing increased volumes of higher-grade dry/planed product on the Chinese side of the border. This enables Chinese companies to ship higher-valued lumber much further inside China (at a cost savings over heavy/lower-valued logs or green lumber).

### 2.3 China's one belt, one road initiative ("BRI")

One of China's largest and most progressive programs is the One Belt-One Road Initiative or "BRI" that is creating massive infrastructure disruption as it looks to shift overproduction to inland China and abroad to take advantage of lower labour costs and capacity.

One major development under the BRI is an ongoing expansion of "block trains" (dedicated container trains from one origin to one destination) from Europe, western Russia and Siberia into Chinese land ports. These trains continue to alter the flow of forest products and other goods to and from China, facilitating rising exports of logs and lumber from Siberia over land. Today there are more container trains terminating directly in central China as opposed to the traditional routes where goods arrived by vessel from originating countries (into Chinese ocean ports) and were then moved on by inland transportation. The transit time for block trains ranges from 15-30 days, while ocean-based containers and inland freight require 45-60 days. There are currently 48 Chinese cities operating China-Europe block trains to connect with 42 European cities (in 13 different countries). There are also three separate train (container) routes to Europe and key rail hubs in China where cargo can clear China Customs (at Chengdu, Wuhan and Wuhu).

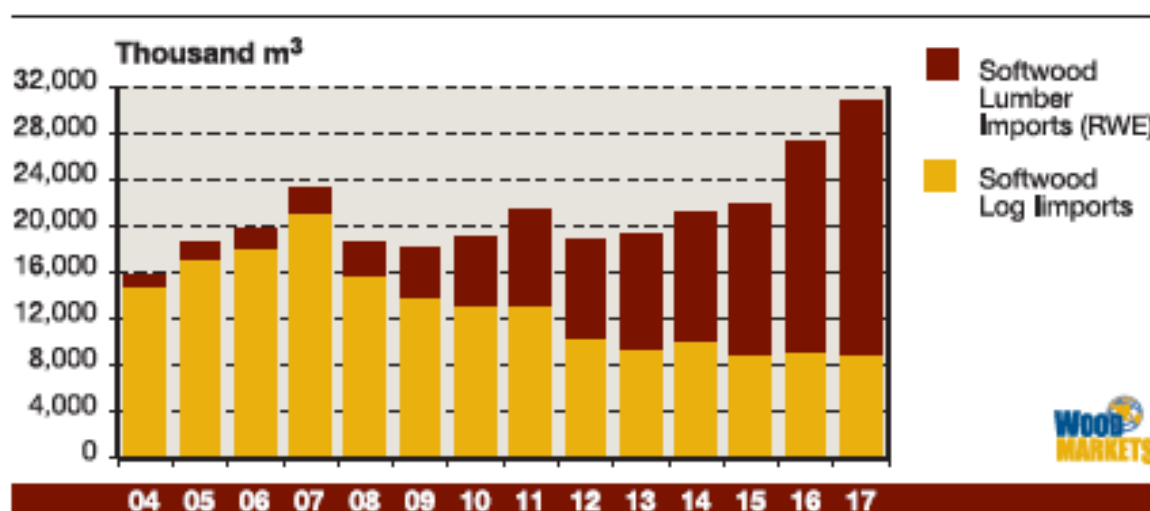
There will be a about 1-1.5 million m<sup>3</sup> of lumber transported by block trains from Russia (and Europe) to China in 2018. A growing number of Chinese distributors and processing companies are tapping into the supply chain from Chinese mills (both those in Russia and in China at the border) as a means to access Russian spruce and red pine lumber. This is becoming more evident in the furniture sector as improvements are made (at the expense of other exporters) to the quality and competitiveness of Russian spruce and pine.

### **3.0 Future Developments in Russia - International Log/Lumber Implications**

China has been the key growth market for global log and lumber exporters in recent years. New Zealand log exporters have been a major beneficiary of this Chinese surge in timber demand. In terms of international log/lumber trade, it would be reasonable to say that “as China fares, so do the countries importing to China”. In this context, it is equally important to understand what impact Russian exports to China will have on other global players.

Chinese imports from Russia on a roundwood equivalent basis (RWE) are shown in Figure 4. This shows both a growth in total RWE exported to China in recent years and exports shifting from logs to lumber for all the reasons discussed above.

**Figure 4. China imports: Russian log and lumber (RWE basis)**



Source: FEA reports

### **3.1 Timber harvest**

Key to the Chinese growth that has been seen in the last few years will be Russia’s ability to expand its timber harvesting. On a regional basis, timber harvests are greatest in northwestern Russia and Siberia, followed by mid-Russia and the Far East region. In recent years, harvest volumes in northwestern and mid-Russia have been flat to lower, reflecting declining (economic) timber availability. Forest depletion has resulted in a sharp shortage of coniferous sawlogs in northwestern areas, forcing large sawmills to consider using small-diameter timber with a minimum butt diameter of 14 cm (5.5 inches) as raw material; investments in new wood-processing lines have also been required. Typically, logs of this size serve as inexpensive raw material for the pulp and paper industry, but the installation of appropriate equipment is now allowing for their use as sawlogs.

While harvest volumes in the western regions of Russia have stagnated, timber harvest levels in Siberia have continued to rise, increasing steadily by an average of 6.3% per year since 2010. The region's proximity and access to Chinese markets is the primary factor behind the growth. By contrast, harvest growth in the Russian Far East has been more modest. The lack of infrastructure there has been a limiting factor despite the area's shared border with China.

Another common problem for the Russian industry has been increased procurement distances. In the northwest, average transportation distances have been estimated at 450 km for some operations. In Siberia, some average haul distances reach 500–600 km, with producers indicating that only a moderate portion of their timber needs can be harvested within 200–300 km of their mills.

Looking ahead, expanded demand for timber in Russia to supply a growing forest products sector will push harvest rates higher. However, given the challenges involved, the increases are likely to be quite modest relative to historical norms — and come at higher costs. Expanding the timber harvest will also likely require new, innovative approaches (such as more intensive forest management), more capital investments into harvesting and road-building equipment, and improved utilization/market development in terms of the pulpwood component.

### 3.2 Log and Lumber exports

Log exports from Russia to China are largely capped by the quota system and unlikely to grow significantly beyond current annual levels of 10 million m<sup>3</sup> due to higher export taxes required outside the quota limits. Total log exports to all countries from Russia at about 20 million m<sup>3</sup> per annum have also been flat since 2008 again a result of the Russian government interventionist measures.

Russian lumber exports to China are quite a different story: they've soared due their improving cost-competitiveness, while exports to other markets have simultaneously remained flat or declined. Russia is continuing to take advantage of booming Chinese demand and in 2017, China represented 57% of Russia's total lumber exports.

Today, Russian lumber enjoys a substantial cost advantage over other suppliers on a delivered basis to the Shanghai area, and is considered even more competitive along China's northeastern coast (via ocean vessel or rail), and in central and western China (due to rail cost advantages). With more kiln-dried/value-added products and better rail logistics, Russia is expanding its economic reach to become a formidable competitor in the China market.

Looking to the future, major players in the Russian lumber industry are planning new investments that will further expand overall processing capacity. It is estimated that these investments will raise Russian lumber output by 2 million m<sup>3</sup> by 2019, with greater increases in subsequent years. On a regional basis, planned capacity increases to 2020 are significant: northwestern Russia, +3.0 million m<sup>3</sup>; Siberia, +600,000 m<sup>3</sup>; and the Far East, +500,000–700,000 m<sup>3</sup>. Besides that, the rate of utilization of existing sawmill capacity will improve, while more and more Chinese sawmill investments will be made in Russia.

These proposed sawmill projects will require an additional 5 to even 10 million m<sup>3</sup> of sawlogs (expected to be secured based on up to eight pulp and paper projects and/or expansions that will add roughly 1.3–2.0 million tonnes of softwood pulp and 300,000 tonnes of tissue/containerboard capacity). With new pulp production, this will require incremental pulpwood and sawmill by-products for pulp mills, with higher value sawlogs going to sawmills. This will create an efficient industrial cluster, something only a few Russian centres have enjoyed in the past.

### 3.3 Summary

Looking at Figure 4 again and the discussion above, it would seem reasonable to assume that while the levels of total RWE imported from Russia to China (at around 30 million m<sup>3</sup>) will likely remain similar in the near term (until harvest constraints are removed), the ratio of lumber/log imports is only going to grow as even the quota logs are more cost-effectively processed in Russia.

However, if some of the big forest product projects, e.g., pulp mills, or other projects, e.g., mining, do eventuate and underpin new infrastructure development, then timber that is currently uneconomic to harvest becomes available and the supply/demand balance changes such that even more lumber may be produced for the Chinese market. This will then extend the current total RWE levels beyond the 30 million m<sup>3</sup> shown for 2017 in Figure 4.

## **4.0 Implications for the New Zealand Industry**

This question is considered in the context of Chinese demand for New Zealand logs and lumber, in light of the foregoing discussion on developments in Russia.

### 4.1 Log exports to China

New Zealand is currently the largest supplier of softwood logs into the Chinese market as shown in Figure 5. From a total volume of 38.102 million m<sup>3</sup> of logs imported to China in 2017, NZ supplied 14.056 million m<sup>3</sup> or just under 37% of the total. These logs are delivered by ocean vessels into key cities on the eastern coastline of China at Qingdao, Shanghai, Nanjing and Xiamen where they are processed locally in small sawmills. However, the Chinese government's environmental crackdown on polluting and low technology mills has caused many sawmill closures, reducing the demand for sawlogs near ocean ports. As a result, increased logistics costs will be required to transport New Zealand logs (and other log sources) from ocean ports to inland areas where more of the sawmilling industry is moving. There will be some impact of these changes on usage of Radiata pine.

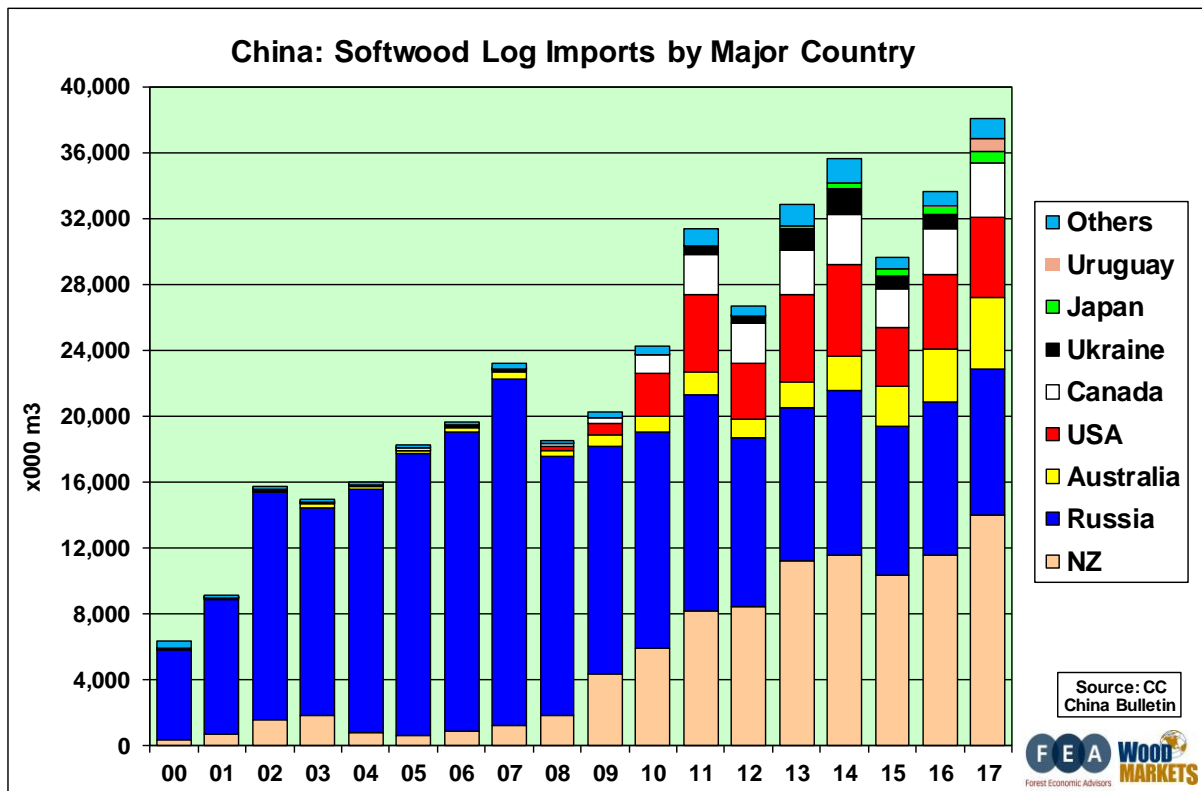
However, more than offsetting this are two key factors discussed above:

- The Russian log tax and quota system will make it too costly to ship unprocessed logs into China beyond the current threshold of about 10 million m<sup>3</sup> per year.
- The increasing log export duty rate for companies without quota in the Russian Far East which will result in a reduction of log exports by some 3.5 million m<sup>3</sup> (50% of current volumes) starting in January 2019 when the export tax is raised to 40%.

In the next few years, the net effect of these changes on Russian log shipments are seen as highly favourable for New Zealand log imports to China, allowing further growth in New Zealand's share of the Chinese log import market. However, more New Zealand log customers will be located further away from ocean ports and some incremental logistics costs may need to be absorbed by exporters.



Figure 5. Softwood log imports into China by major country

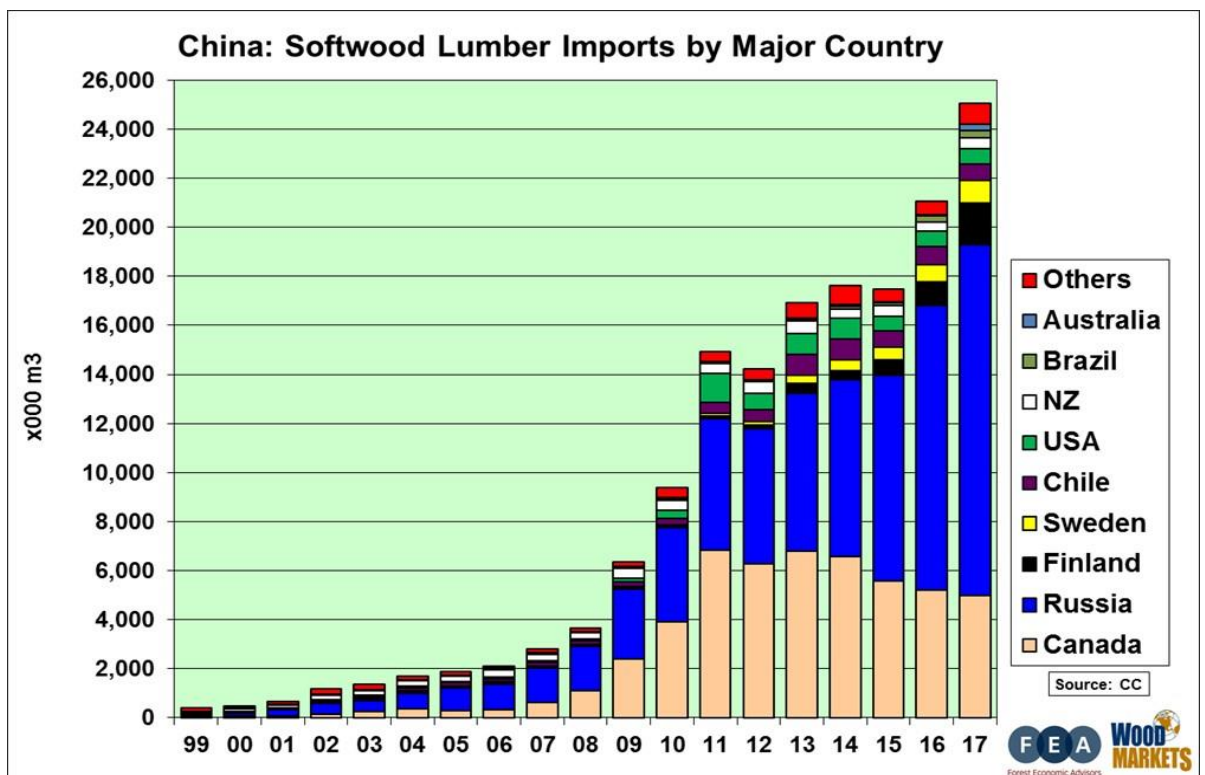


Source: FEA reports

#### 4.2 Lumber exports to China

Figure 6 shows total softwood sawn timber imports by country into China.

Figure 6. Softwood sawn timber imports into China by major country



Source: FEA reports

In 2017, Russia (14.284 million m<sup>3</sup> = 57%) was the single largest importer of softwood lumber into China. Canada (4.997 m<sup>3</sup> = 20%) was second. By contrast New Zealand exported only 0.427 million m<sup>3</sup> of sawn timber or just 1.7% of Chinese softwood sawn timber imports.

There is no doubt that, over time, there will be an impact on other global lumber importers to China, as the Russian timber harvest increases given:

1. the current investment in the Russian wood processing industry reducing costs;
2. the production of more semi-finished or finished wood products in Russia;
3. the investment in component manufacturing for furniture, doors and flooring manufacturer either at the Russian border at places like Manzhouli and Suifenhe or in inland and southern China; and
4. access to efficient logistics through block trains.

There will likely be some impact on New Zealand lumber imports to China, but this is “buffered” to some extent given total lumber imports to this market are only around 400,000 m<sup>3</sup> per year.

More critically, the New Zealand government’s ambitions around establishing new sawmills in regional New Zealand to convert more of the available A/K grade sawlogs (currently exported to China) into lumber for the Chinese market are threatened by these developments in Russia as well as at the Chinese border. This re-iterates the need to fully understand the opportunities and competitiveness in the Chinese market in terms of wood species preference by Chinese end users, e.g., Radiata pine versus red pine or spruce, pricing, logistics, fashion, workability, risk mitigation, etc., to ensure the business case for further greenfield New Zealand processing has merit.

## **5.0 Conclusions**

The Russian sawmilling industry has become more competitive since 2014 and now have a wider and diversified product line from a larger manufacturing base. As well, Russia is strategically placed within the Chinese government’s BRI initiative to take advantage of improved logistics costs to inland China. A weaker ruble has lower domestic log and operating costs, and coupled with major capital investments into logging, sawmilling, value-added processing and logistics, Russian mills should continue to gain lumber market share in China, especially as they increase their volume of kiln-dried and higher-grade lumber. Also, of note, Chinese mills on both sides of the Russian border are adding sawmill and value-added equipment to process Russian logs and produce higher value kiln-dried lumber that can be shipped much further afield. Furthermore, with FSC-certified timber and lumber, Russian producers are learning about the economic returns of providing customers with the sizes and grades of lumber they need/want — a big change from ten years ago.

The simple fact is that Russia poses a growing threat to all other countries exporting lumber to China. The country’s influx of investment into forestry and sawmill capital improvements has greatly enhanced its cost-competitiveness, and it would be perilous to underestimate the extent to which this once-slumbering behemoth could rise to achieve global lumber dominance.