2016 Economic State of the B.C. Forest Sector

May 2018

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Economic Services Branch

Updated from November version to reflect revisions to historic manufacturing sales and 2016 lumber exports

Outline

- Overview
- Products
- Markets
- Sector Indicators
- Conclusions and Outlook
- Appendix *(additional slides for all topics)*

Ministry Economic Reports

- **Weekly Prices**: Tracks weekly prices relevant to the B.C. forest sector.
- **Monthly Exports**: Export values by major market and product groups, including some quantity information.
- **Annual Mill Report and Quarterly Mills Status Reports**: Summary outlining B.C'.s harvest and timber processing activity during the year and of quarterly openings, closings, and investment.
- **Log Exports**: Summary of permit information (Permit Report on right side).
- **Economic State of the BC Forest Sector**: Year in review for the B.C. forest sector.

Overview of B.C. Forest Sector

- **Includes** forest management, harvesting, reforestation, wood product manufacturing, and pulp and paper product manufacturing.
- **Plays a key role in the provincial economy** with a significant presence in the Lower Mainland, and as an essential contributor to communities outside the Lower Mainland.
- **Is export-oriented**, depending heavily on global markets and exchange rates, and foreign competition.
- **Is cyclical**, affected by the global forest commodity markets and general performance of the world economy.

Overview of 2016

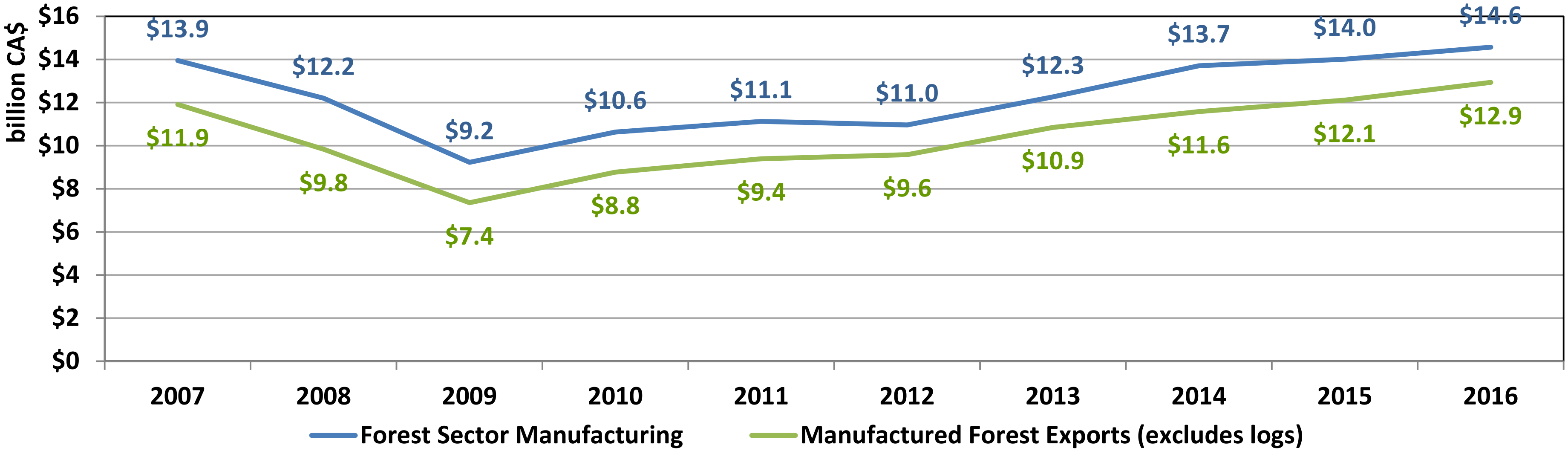
- **In sales terms, 2016 was an improvement over 2015**, but sales by product varied. Wood products tended to do well (+10%) while paper products saw downward pressure (-7.5%).
- **B.C.'s forest sector exports increased** substantially in 2016, though export gains were solely from solid wood products.
- **The U.S. market** continued to gradually improve, as seen in the U.S. housing market and higher B.C. forest sector exports to the U.S.
- **China*** continued as the second largest export market for B.C.'s forest sector. Most product types saw declines in exports, probably due to the strength of the U.S. market mixed with strong competition from Russia.
- **Employment decreased** in 2016 according to the Labour Force Survey**.
- **The B.C. forest sector continues to recover** from 2009, the sector's worst year of the recession, and one of the worst years for B.C. forestry in recent history.

*All references to China in this report include Hong Kong.

**According to the Survey of Employment, Payrolls and Hours employment was relatively unchanged, and the System of National Accounts showed a slight increase. See Appendix.

Note: Numbers may not add properly to totals, or always be the exact same on each slide due to rounding.

B.C. Manufactured Forest Product Sales and Forest Exports

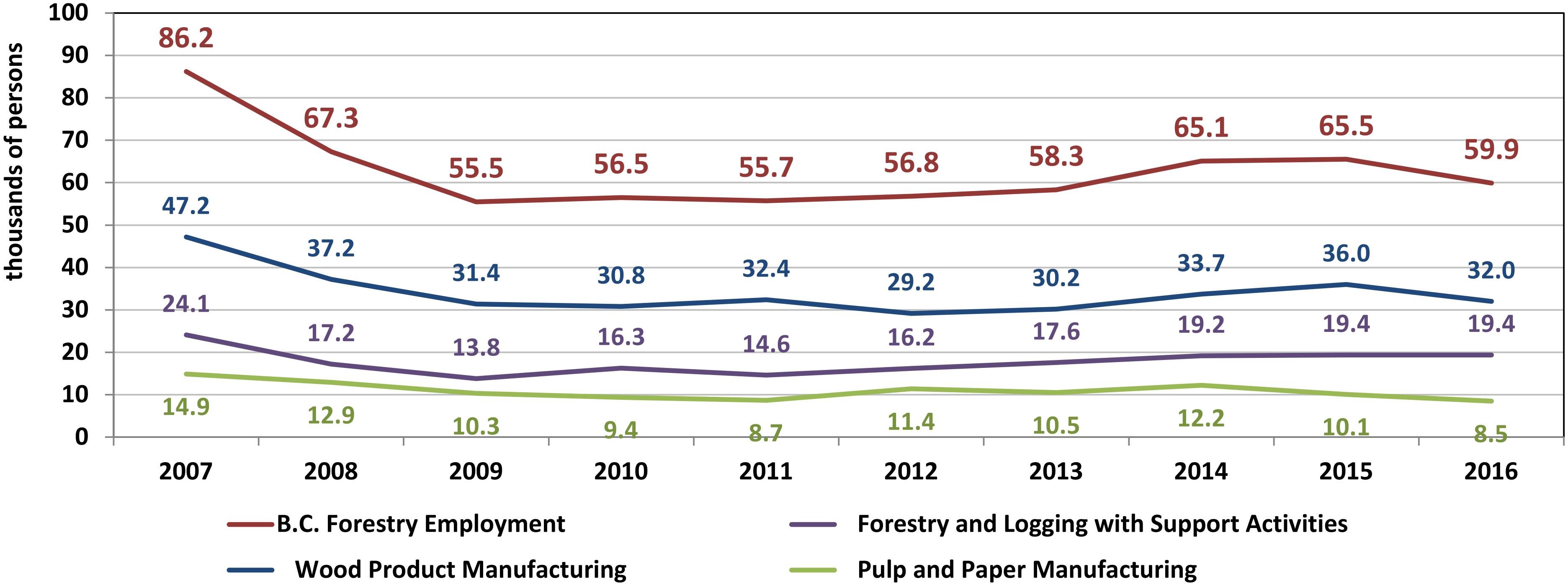


Data source: Statistics Canada; CANSIM 304-0015, and Canadian International Merchandise Trade Database (CIMTD) or via BC Stats. Note historic data is subject to revisions.

Overview Indicator 1 **– B.C. forest sector manufacturing sales in 2016 were up 4% from 2015 and accounted for 31% of B.C. total manufacturing sales. Exports were up 7.3% from 2015, accounting for 35% of B.C. total merchandise exports. During the U.S. Housing boom, 2004 was the peak in forest sector manufacturing sales and exports (CA$18.2 and CA$15.1 billion). Note: There were two significant revisions to these series. There was a 1.56 million m^3 reduction of BC lumber exports to the U.S. in 2016 (-$252 million). This was very similar to our estimate for a correction, and was a major driver of the narrowing gap between manufacturing and export values in the original 2016 Annual Report.**

Additionally, manufacturing sales were revised upwards from 2014-2016 by $500-800 million. Sawmilling sales went up by $700-800 million in each year, and converted paper sales were revised downward $233 million in 2015. This also served to increase the gap between manufacturing and exports in the updated version of this report.

B.C. Forest Sector Direct Employment Estimate



Data source: Statistics Canada via BC Stats; Labour Force Survey. For further discussion of employment estimates please see slide 54 in the appendix.

Overview Indicator 2 **– B.C. forest sector direct employment was 59,900 in 2016, down 8.5% from 2015, but up 7.9% from 2009. In 2016 there was a decrease in Wood Product employment (-11%) and in Pulp and Paper (-16%). Forestry and Logging with Support Activities was unchanged.**

Products Overview

- **Wood Products, especially Lumber:** In 2016, B.C. produced 31.2 million cubic metres of lumber, or 48% of Canada's total softwood lumber production. B.C. sawmill* sales (primarily lumber) were CA$6.3 billion in 2016, or 61% of total Wood Product Manufacturing sales in B.C.

- **Pulp and Paper Products, especially Market Pulp:** B.C. pulp mills** had sales of CA$2.4 billion in 2016, or 56% of total Paper Manufacturing sales in B.C.

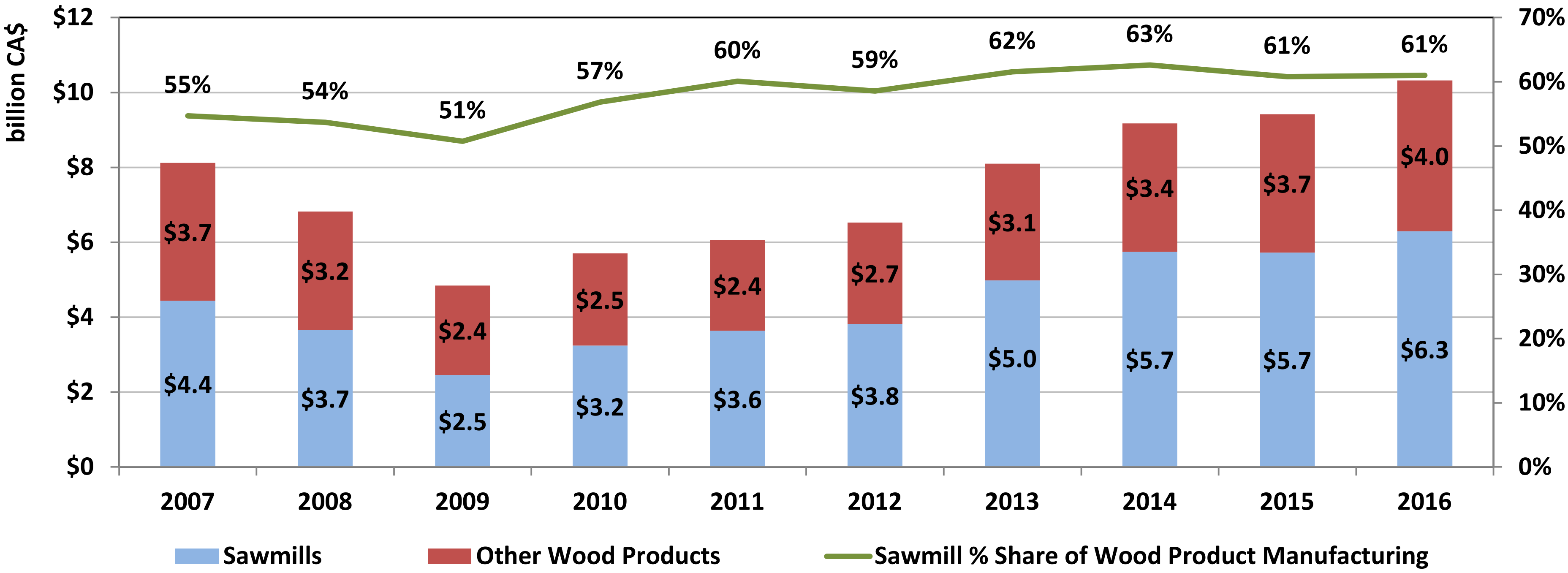
- **Logs:** In 2016, 65.7 million cubic metres of logs were harvested. Exports of 6.3 million cubic metres (9.6% of harvest), mostly from coastal areas, were worth CA$771 million.

- **Wood Products-Pellets:** B.C. exported 1.93 million tonnes of wood pellets worth CA$319 million. The UK was the primary destination by weight (71%), followed by Japan (14%), Belgium (7.4%), and Italy (3.1%).

*Excludes shake and shingle mill sales. Sawmills are a subcategory of Wood Product Manufacturing.

**Pulp is a subcategory of the Paper Manufacturing NAICS code.

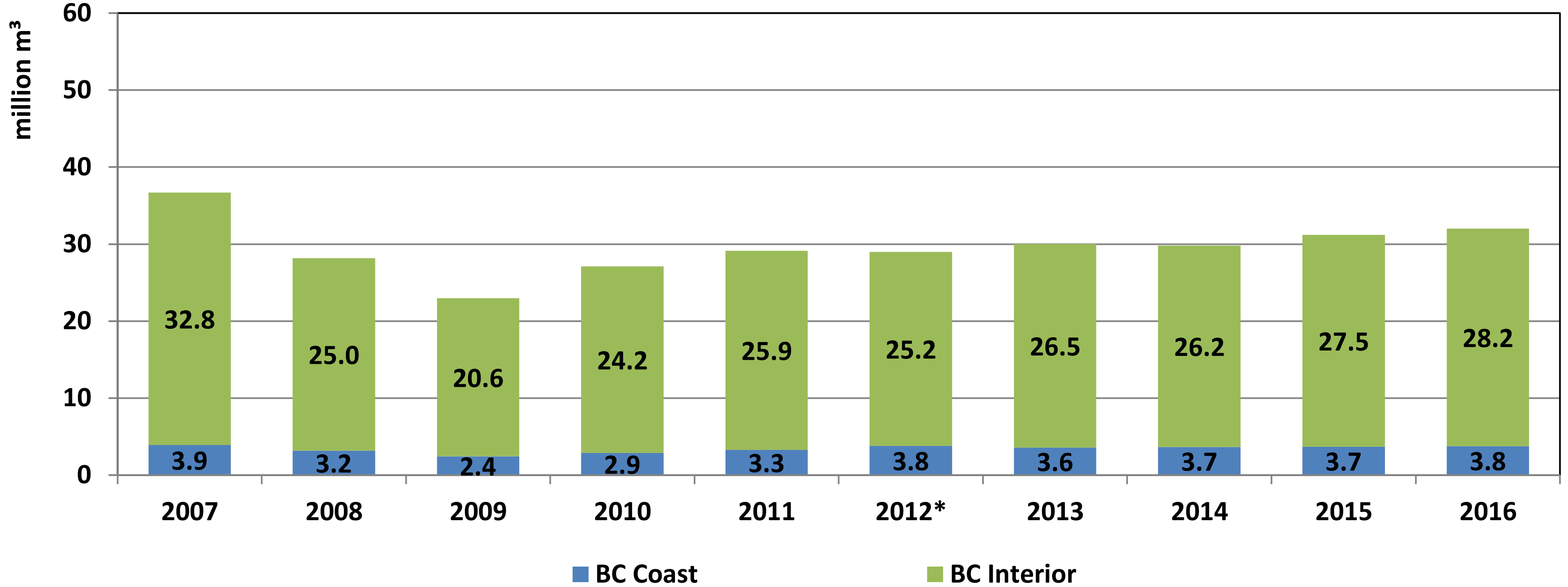
B.C. Wood Product Manufacturing Sales



Data source: Statistics Canada; CANSIM 304-0015. Sawmill sales are primarily lumber, and include chip and sawdust sales. Other wood products include veneer, plywood, oriented strand board, shake and shingles, wood pellets, and most other products of wood such as cabinets, bowels, tool handles, fencing, etc.

Products – Wood Products **– Wood Product Manufacturing sales totaled CA$10.3 billion in 2016. Sawmill sales accounted for 61% of Wood Product Manufacturing sales. From 2015 to 2016, Sawmill sales increased 10%, and Other Wood Products increased 9%.**

B.C. Softwood Lumber Production

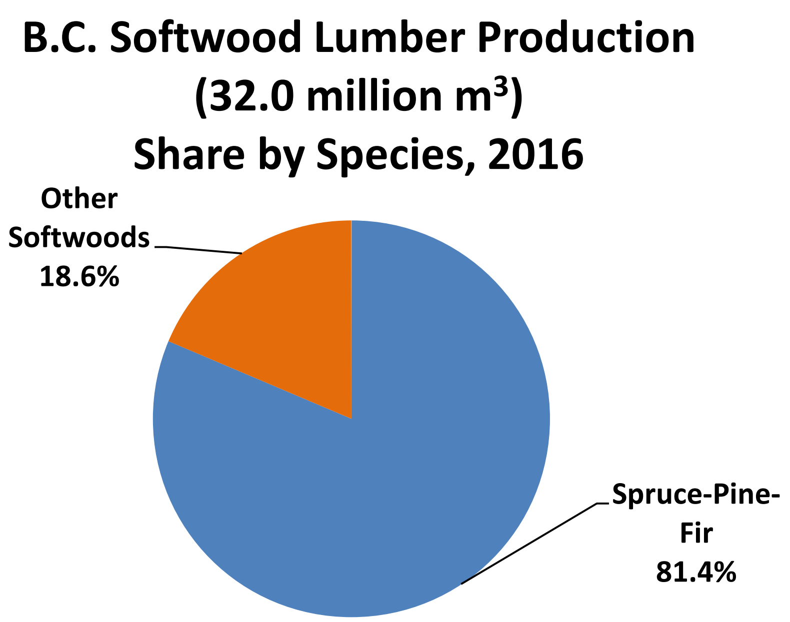


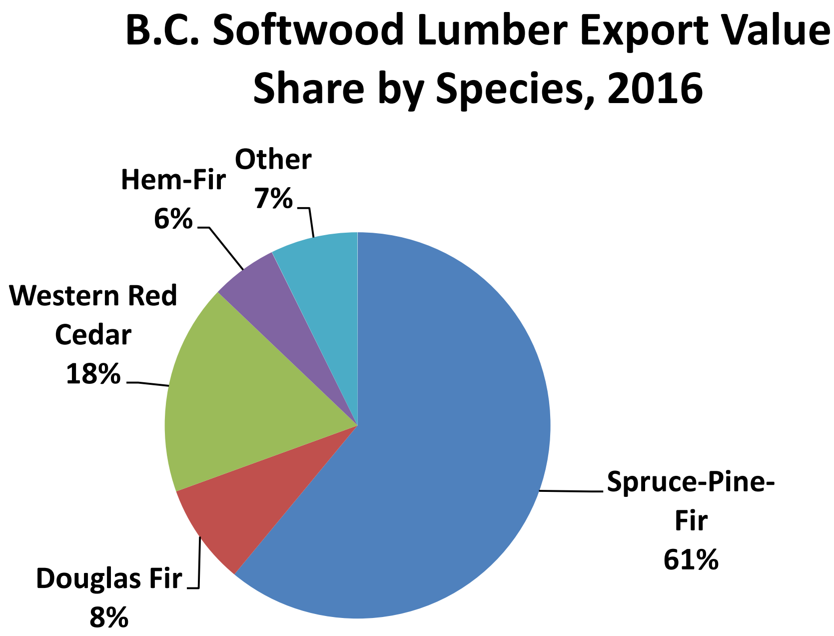
*Interior and Coast totals are Estimates. In all years the Interior includes production from Yukon, Northwest Territories, and Nunavut, though the volume is negligible

Data source: Statistics Canada; CANSIM 303-0064.

Products – Softwood Lumber **– Softwood lumber production volume increased 2.6% in 2016. The Coast accounted for 12% of B.C. production. Lumber production in the past several years is comparable to the production in 1995-1999 when U.S. housing starts averaged around 1.5 million, yet housing starts are currently only 1.18 million.**

B.C. Softwood Lumber Production and Export Value Share by Species, 2016

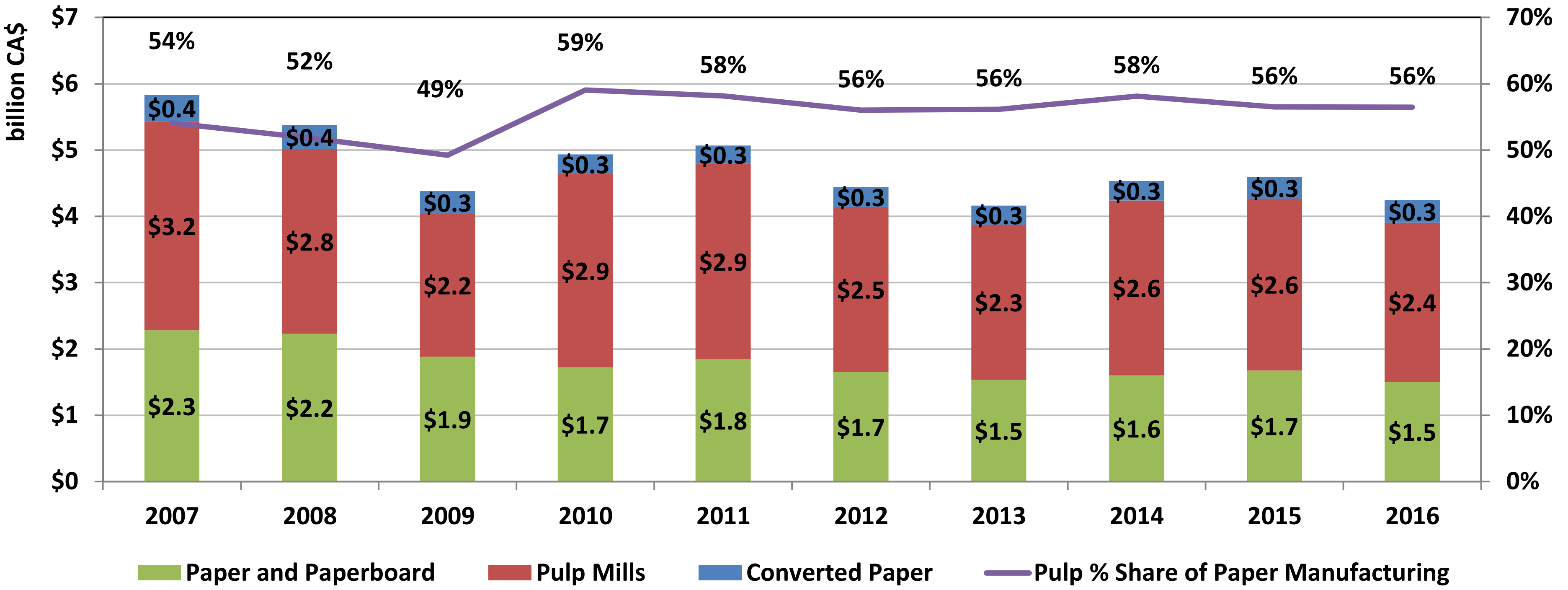




Data source: Statistics Canada; CANSIM 303-0064 and B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Based on volume in cubic metres. SPF's share of export volume was 75% in 2016. Note historic data is subject to revisions. Lumber exports in 2016 may decline (see slide 5).

Products – Softwood Lumber **– In 2016, 81.4% of softwood lumber production volume was spruce, pine or fir (SPF), and 18.6% was from other species such as cedar, Douglas fir, and hemlock. For comparison, in terms of export value SPF was 61% of the total, while other species made up 39%. This demonstrates non-SPF species on average have a higher value per m³ than SPF.**

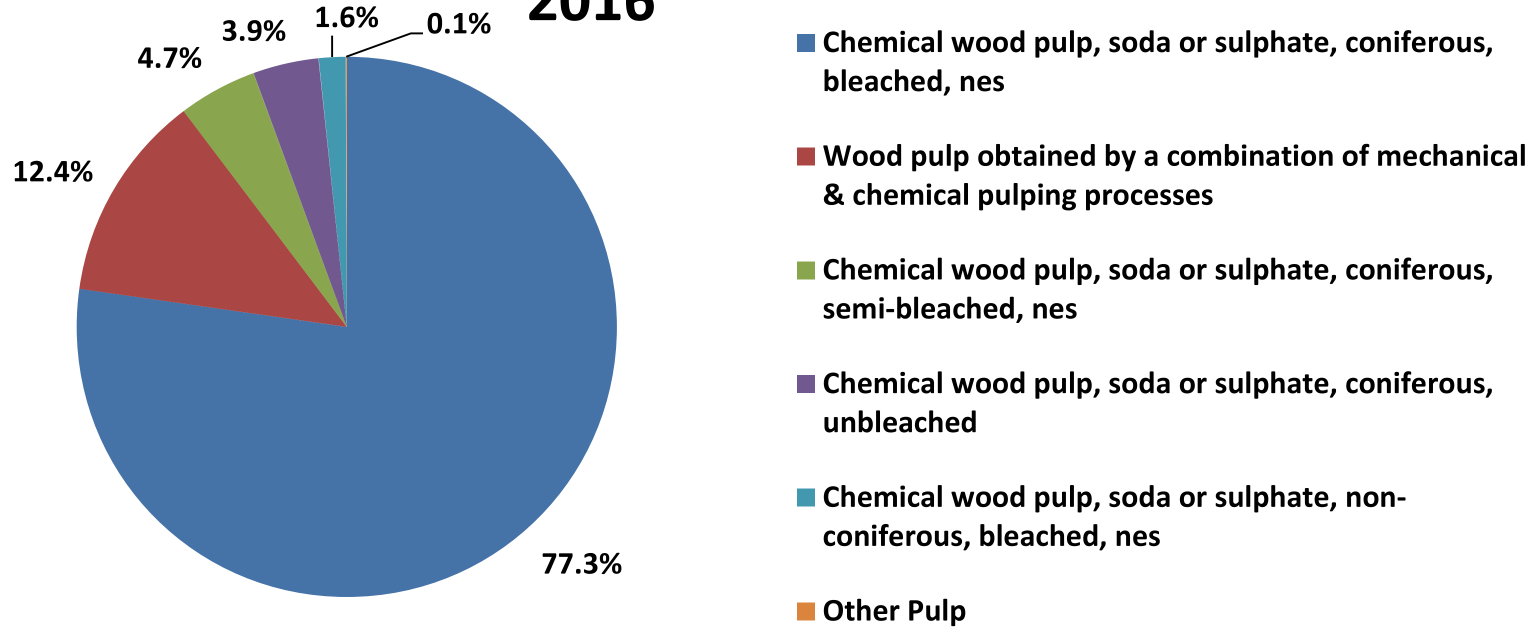
B.C. Paper Manufacturing Sales



Data source: Statistics Canada; CANSIM 304-0015. Converted paper includes products created from purchased paper and paperboard.

Products – Pulp and Paper **– Total Paper Manufacturing sales were CA$4.2 billion in 2016, decreasing by 7.5%. Pulp Mills declined 7.5% from 2015 to 2016, and accounted for 56% of total sales. Paper and Paperboard sales were down 10%, and Converted Paper was up 6.8%.**

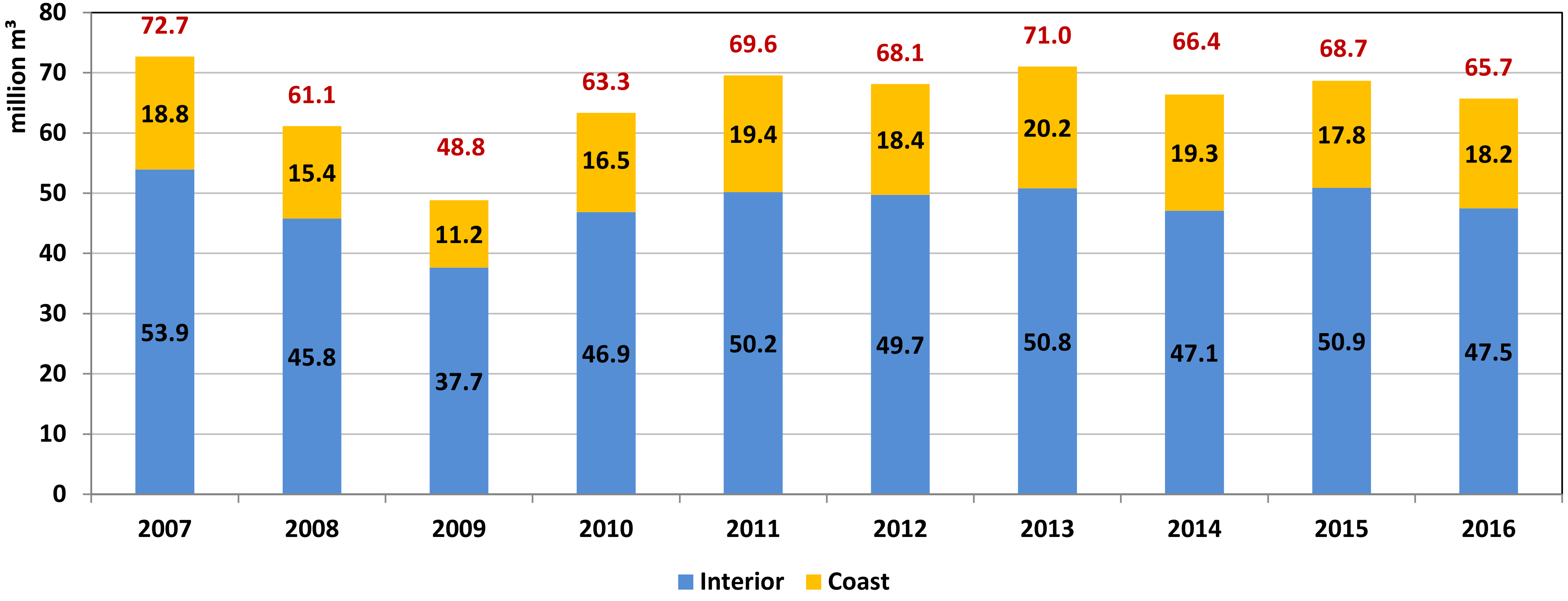
B.C. Pulp Export Share (4.0 million tonnes) by Product, 2016



Data source: Statistics Canada via BC Stats; CIMTD. Based on air dry tonnes. NES stands for "not elsewhere specified". Note historic data is subject to revisions.

Products – Pulp **– Bleached sulphate (kraft) pulp dominates B.C.'s pulp exports.**

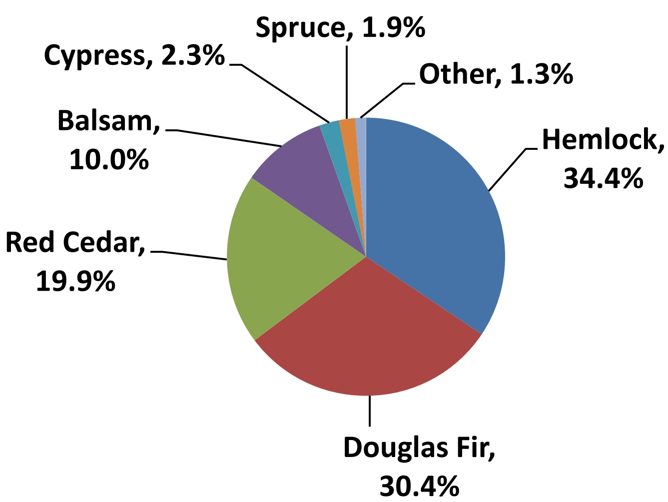
B.C. Timber Harvest Volume



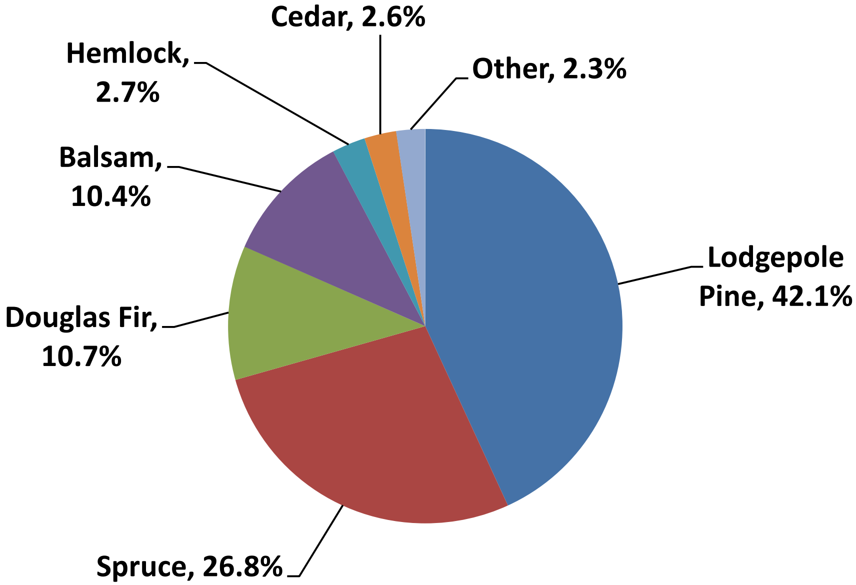
Data source: B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) Harvest Billing System. All logs, special forest products, species and grades billed excluding waste, reject and Christmas trees, data run on May 1, 2017. Includes both Crown and private lands.

Products – Logs **– Total harvest volume (65.7 million m³) was down 4.3% from 2015, and up 35% from 2009. The Interior accounted for 72% of the harvest, and the Coast for 28%. The last few years of harvest are close to pre-beetle harvest uplift, pre-housing boom levels.**

Coast Harvest Volume Share by Species (18.2 million m³), 2016



Interior Harvest Volume Share by Species (47.5 million m³), 2016



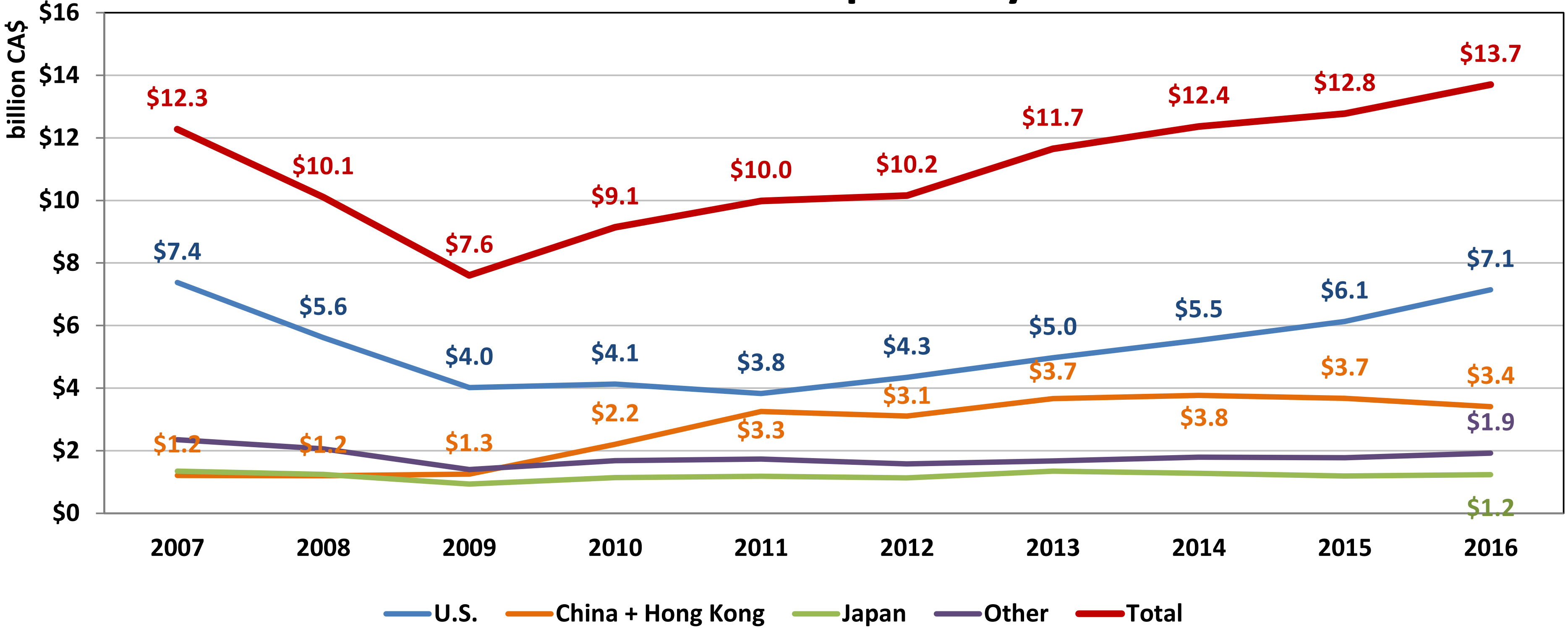
Data source: B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) Harvest Billing System. All logs, special forest products, species and grades billed excluding waste, reject and Christmas trees, data run on May 1, 2017. Includes both Crown and Private lands.

Products – Logs **– Hemlock and Douglas fir make up roughly 2/3 of the harvest on the Coast. In the Interior the main species is lodgepole pine, followed by spruce.**

Markets Overview

- **The U.S., China, and Japan** are the top three export markets for the B.C. forest sector.
- **The U.S. is the largest market** and has improved substantially since 2009. It still has significantly less share of B.C. forest exports compared to pre-2009, but its value has increased steadily, with a large increase in 2016 (+$1.0 billion).
- **China has increased** substantially over the last decade and is now in a strong second place. China's share had remained around 30% until 2016 when it decreased to 25%.
- **Japan has decreased** compared to the late 1990s, but value has been steady lately. In terms of share Japan remains in third place since 2009. Value was up $37 million in 2016.
- **Other export markets** made up 14% of total forest sector exports in 2016, with notable destinations being South Korea, the U.K., Taiwan, and Indonesia.

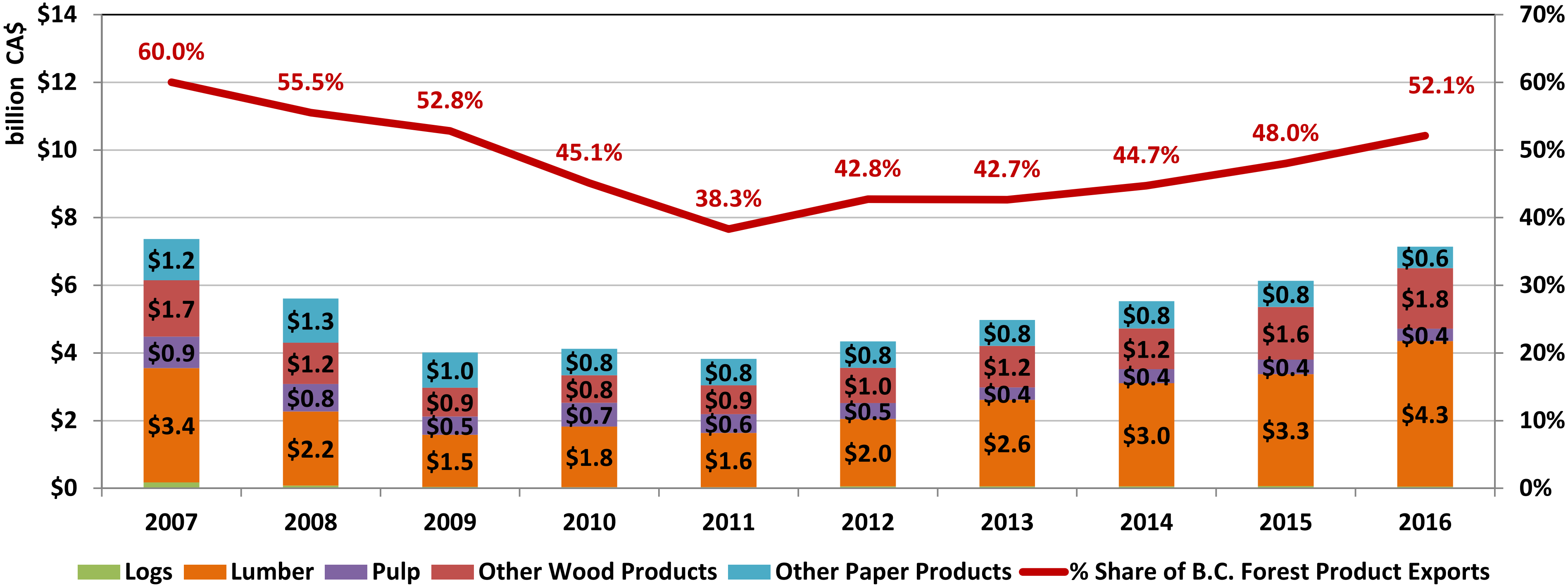
B.C. Forest Product Exports by Market



Data source: [B.C. Stats](#) extract from Statistics Canada data. Also available from Statistics Canada [CIMTD](#). Note historic data is subject to revisions

Markets **– The U.S. was the #1 export market by value, and has been increasing steadily since the housing crash. China became the #2 market in 2009 and has been a key driver of the forest sector's recovery since then. Japan was #2 for many years, until 2009, and is now #3.**

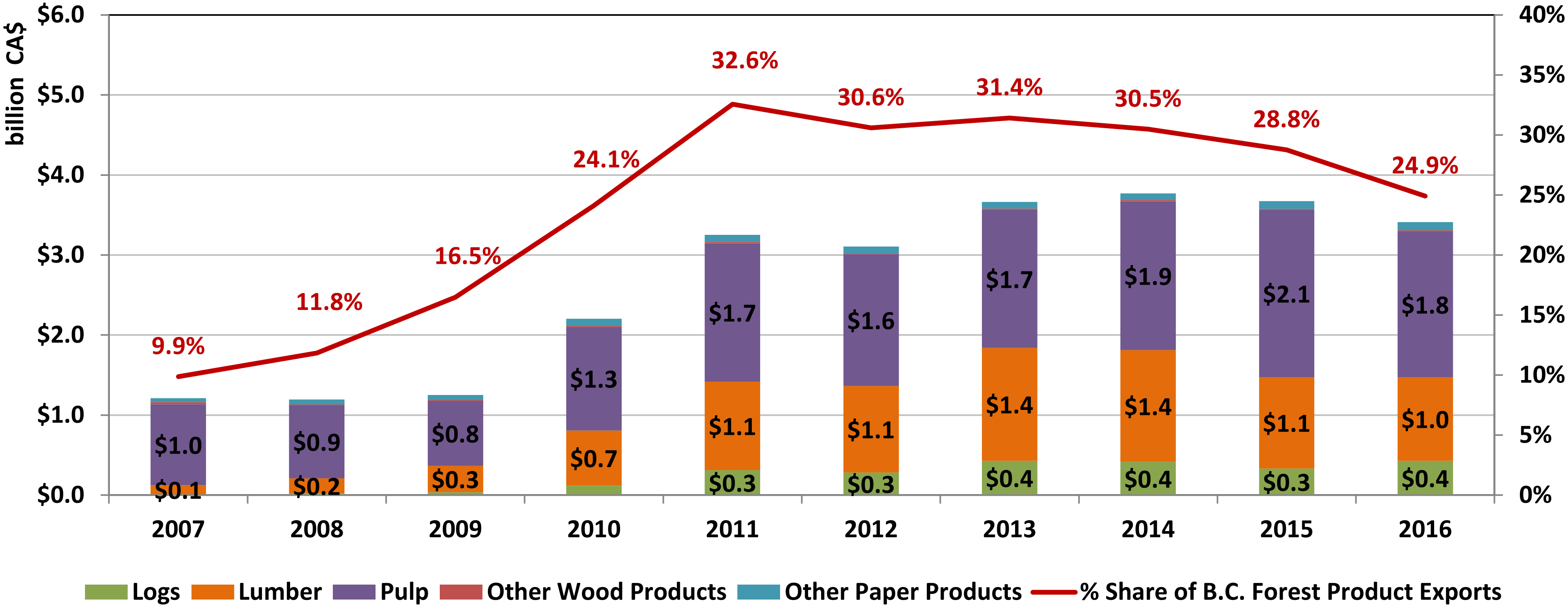
B.C. Forest Product Exports to the United States



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

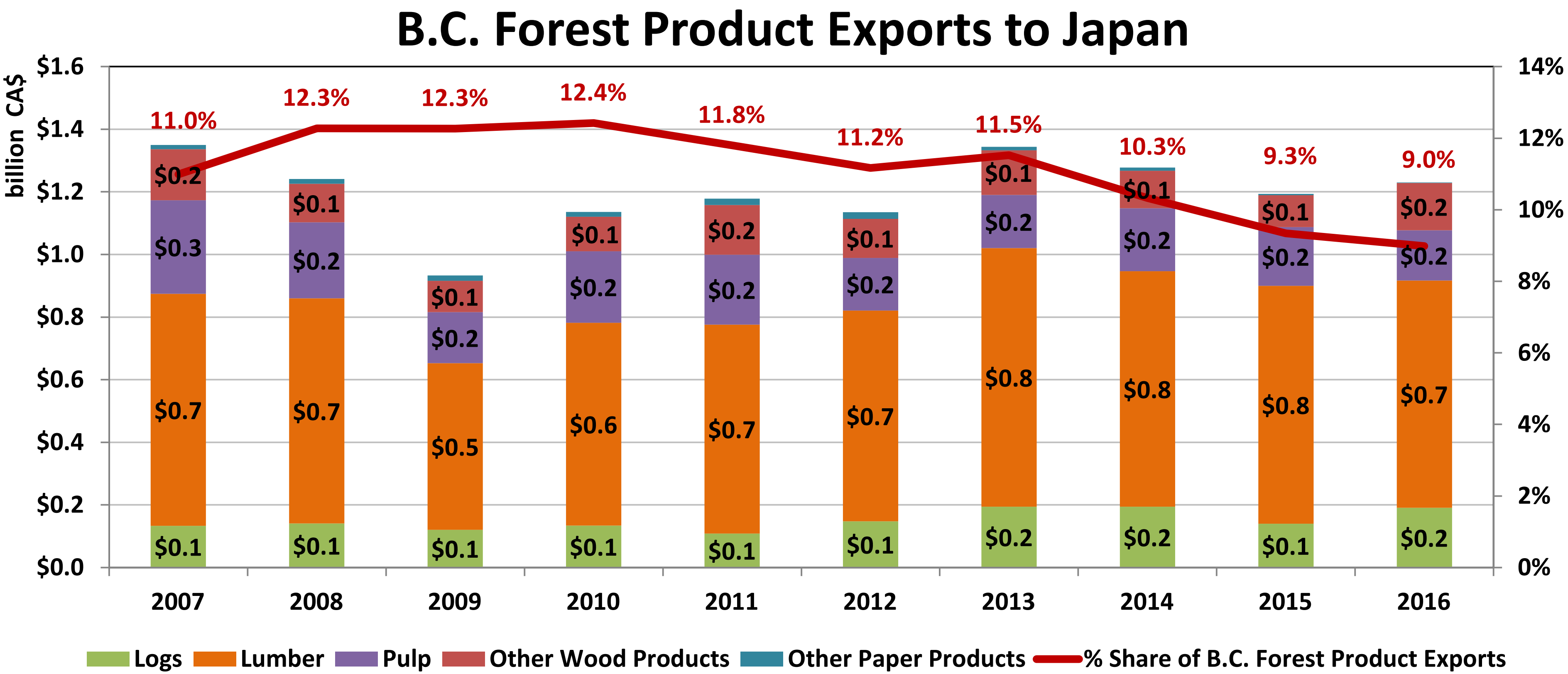
Markets – U.S. **– The U.S. was B.C.'s largest market in 2016 at CA$7.1 billion, an increase of 16% over 2015. The U.S.'s share of B.C.'s forest product exports increased to 52.1%. The top 5 Other Wood Products were OSB, Veneer and Plywood (Douglas fir), Shakes, Shingles, and Siding.**

B.C. Forest Product Exports to China



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

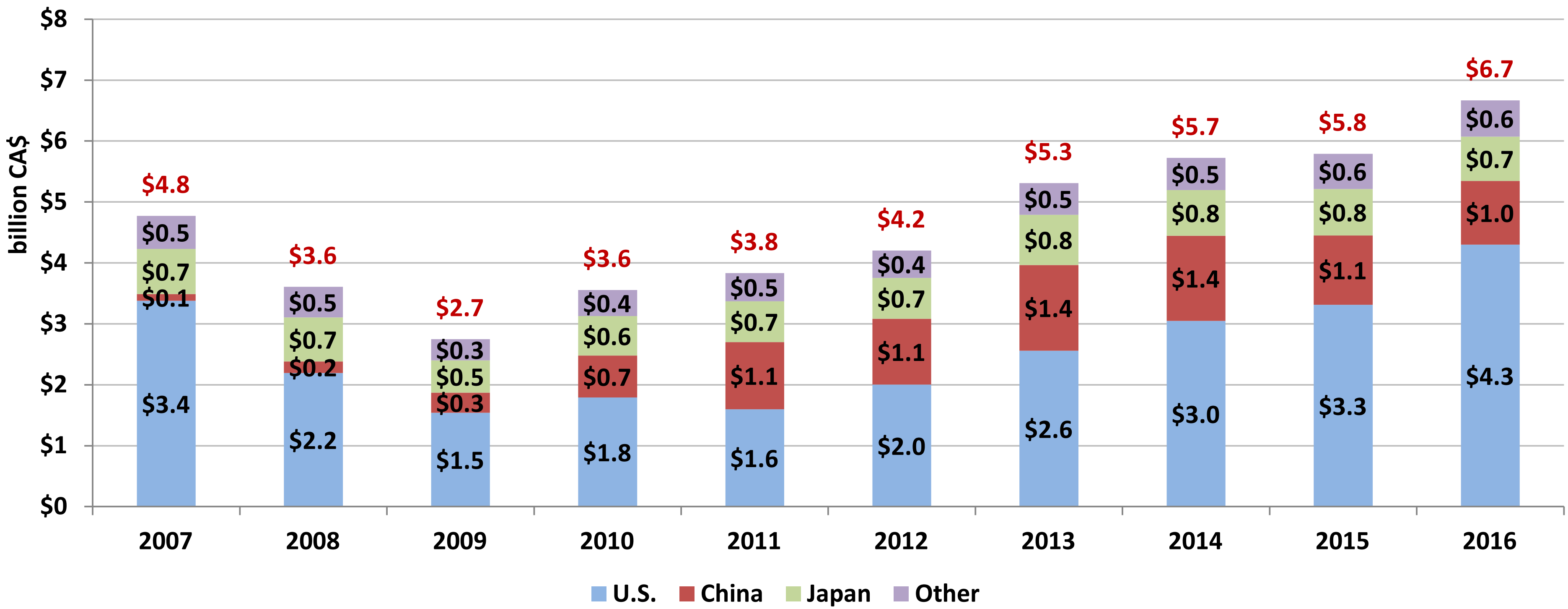
Markets – China **–B.C. forest product exports to China as a share of total B.C. forest exports fell to 24.9% of B.C.'s forest exports. The value in 2016 was CA$3.3 billion, a decrease of 7.1% from 2015. Pulp is the dominant export product (53%).**



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Japan **– B.C.'s exports to Japan have decreased about 75% from peak years in the mid-1990s, but exports have been relatively steady in recent years. Exports were valued at CA$1.23 billion in 2016, an increase of 3.1% from 2015. Lumber had the highest share of value with 60% in 2016.**

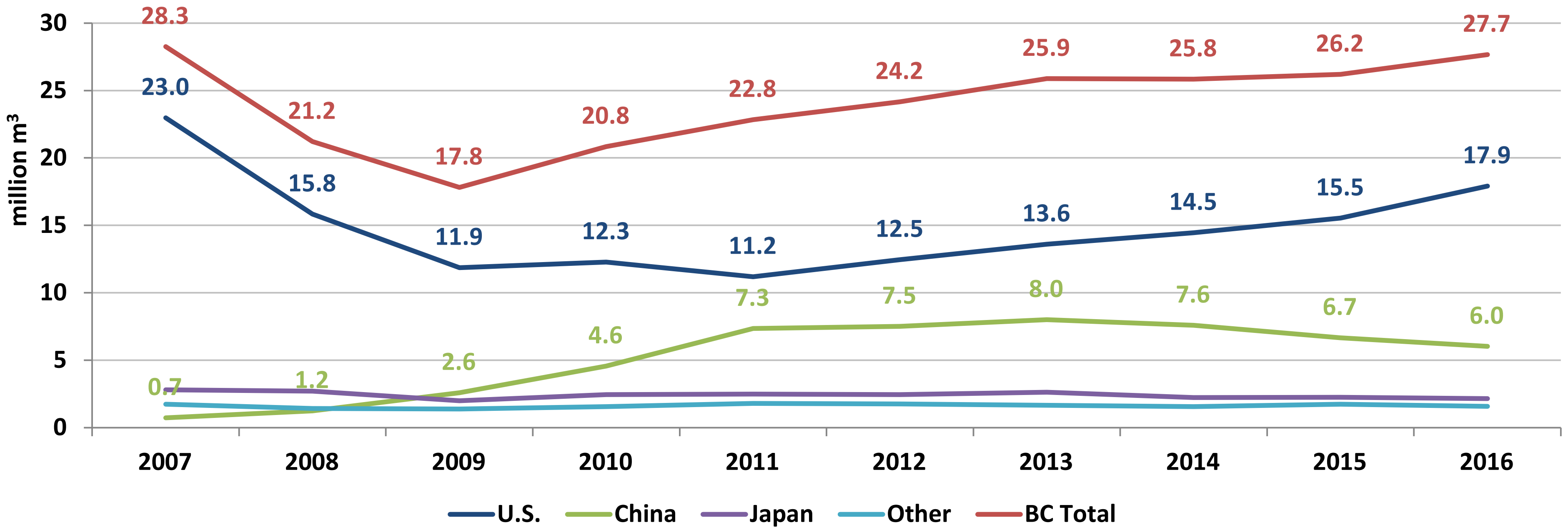
B.C. Softwood Lumber Exports by Market



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Softwood Lumber **– Prior to the U.S. housing crash B.C.'s lumber export market was heavily reliant on the U.S. Now other destinations, primarily China, have reduced the share of the U.S., though the U.S. still makes up the majority of B.C.'s lumber export value. 2016 saw a large increase in the value being shipped to the U.S. (+30%).**

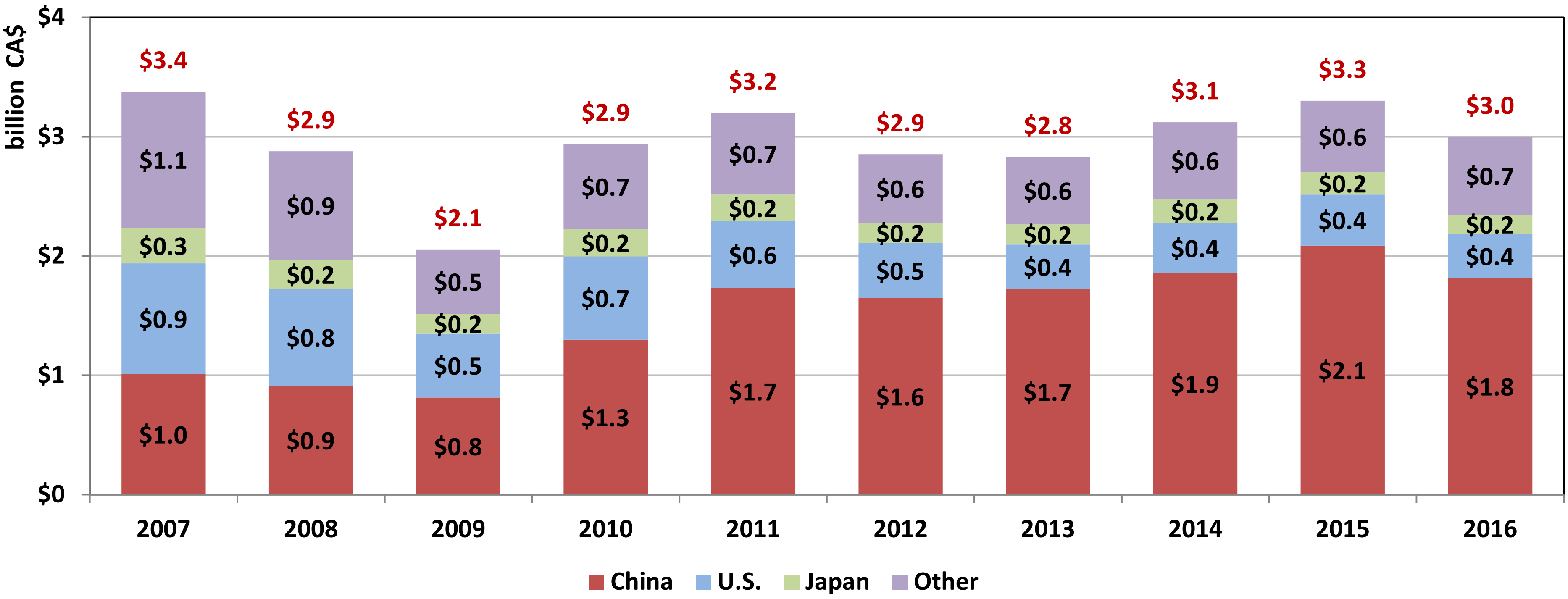
B.C. Softwood Lumber Export Volume by Market



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Softwood Lumber **– Prior to the U.S. housing crash B.C.'s lumber export market was heavily reliant on the U.S. Now other destinations, primarily China, have reduced the share of the U.S., though the U.S. had a major increase from 2015 to 2016 (+15%). Note: There was a 1.56 million m^3 reduction of BC lumber exports to the U.S. in 2016 (-$252 million). This was very similar to our estimate for a correction, and a major driver of the narrowing gap between manufacturing and export values in the original 2016 Annual Report.**

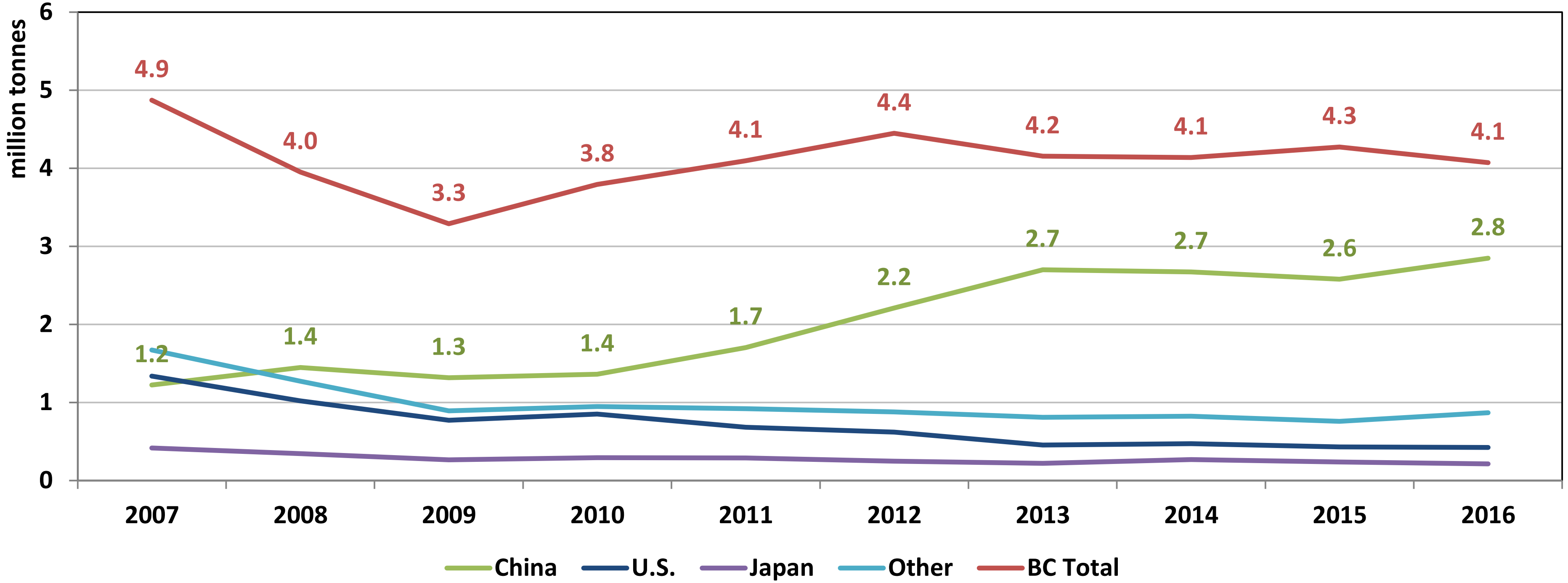
B.C. Pulp Export Value by Market



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Pulp **– China had a dominant 61% share of B.C. pulp exports in 2016, followed by the U.S. (12%), Japan (5%) and other destinations (22%).**

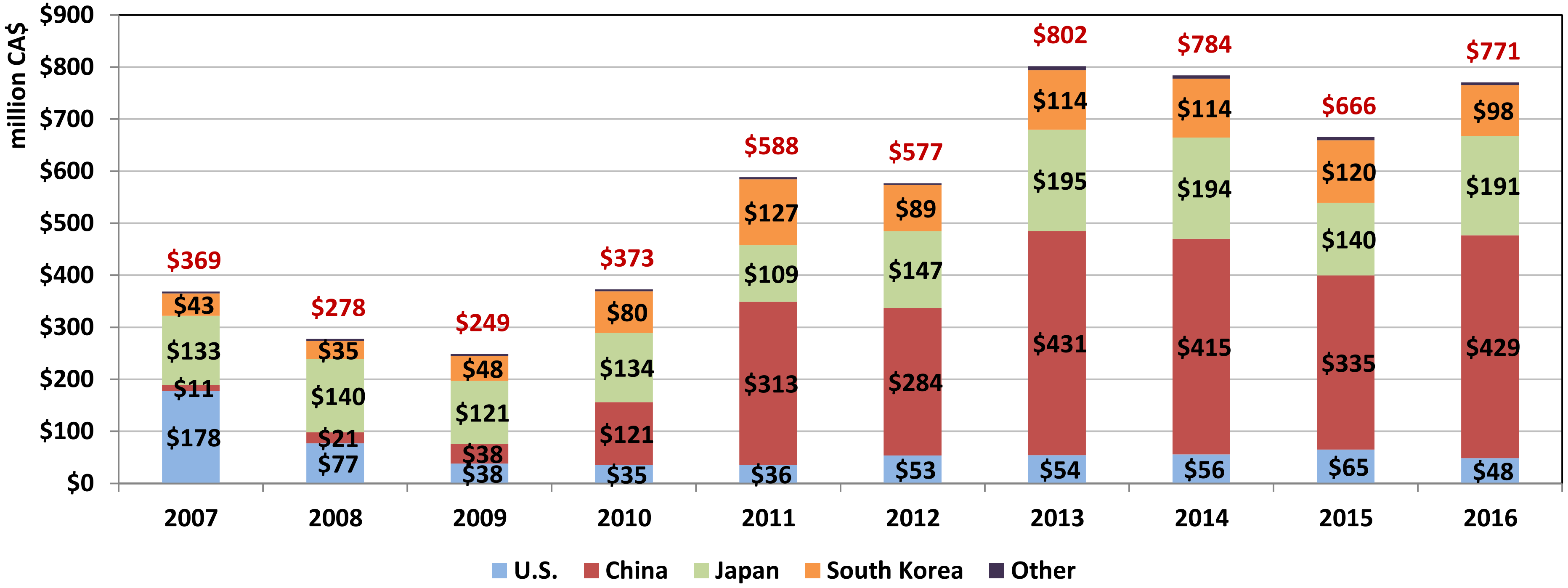
B.C. Pulp Export Tonnage by Market



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Pulp **– China had a dominant share of B.C. pulp exports in 2016. Over the past decade, exports to China have more than doubled.**

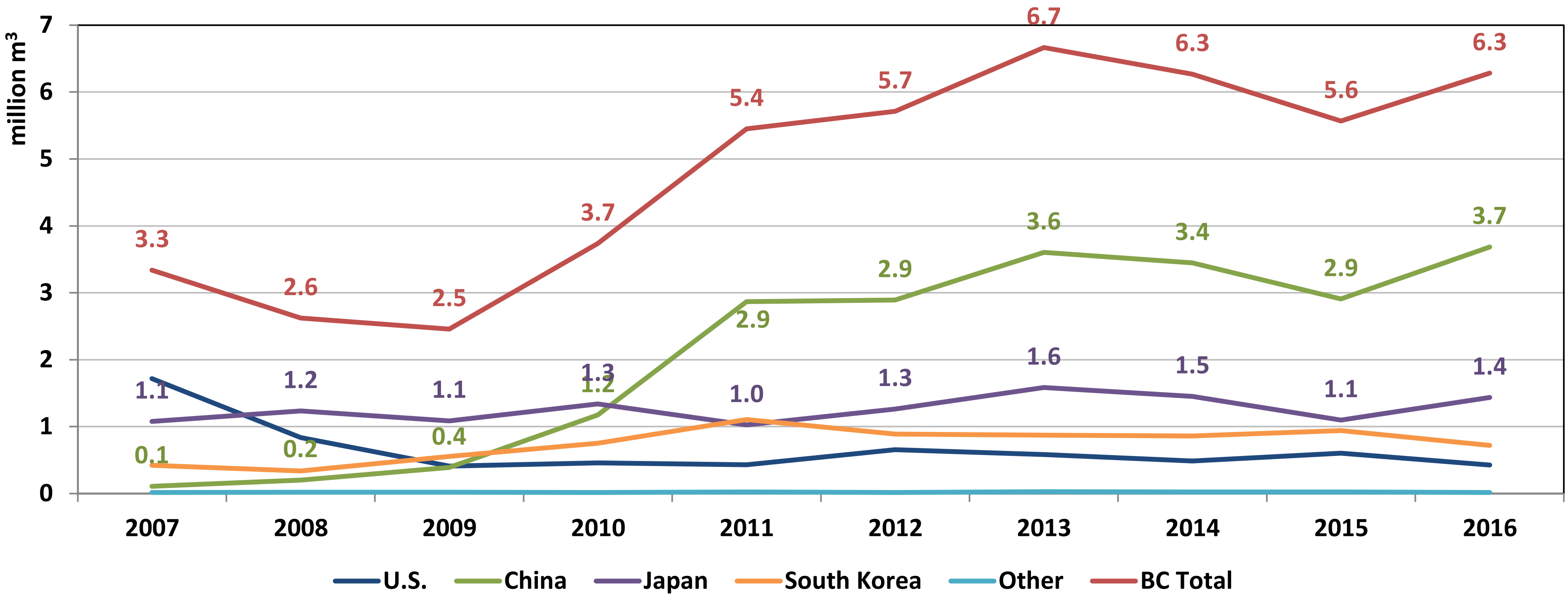
B.C. Log Exports by Market



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Logs **– The value of log exports increased by 16% in 2016. China (56%) remained the largest destination. South Korea (13%) and the U.S. (6%) decreased. Japan (25%) increased in 2016 over 2015. Over the past decade China replaced the U.S. as the main log export market.**

B.C. Log Export Volume by Market



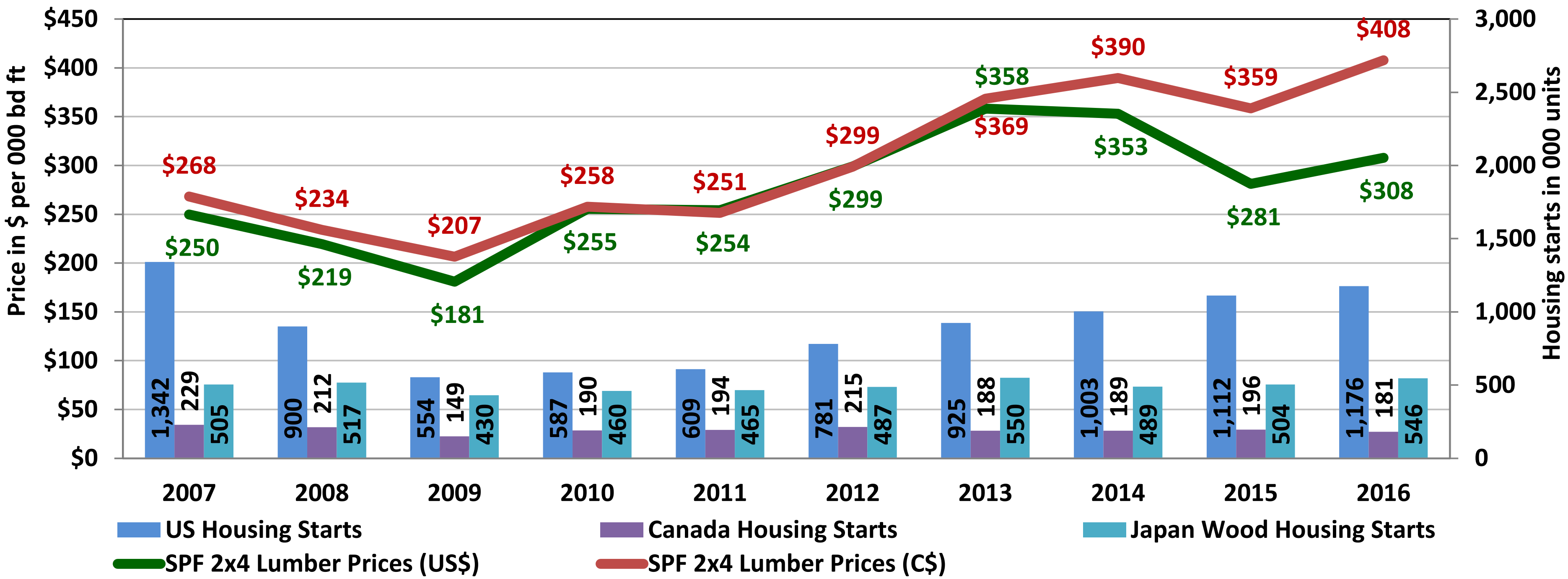
Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note historic data is subject to revisions.

Markets – Logs **– The volume of log exports increased in 2016. China increased roughly 0.8 million m^3. South Korea (11%) and the U.S. (7%) decreased. Japan (23%) increased in 2016 over 2015. Over the past decade China replaced the U.S. as the main log export market.**

Overview of Sector Indicators

- **Prices and Costs:** Prices changes were a real mix from 2015 to 2016. Some products saw increases and others decreases. B.C. Interior sawmilling costs declined in 2016.
- **U.S. Housing Market:** U.S. housing starts were 1.2 million in 2016, the seventh year of gains since the 0.55 million start low in 2009. The share of multi-family starts is high, which reduces wood consumption compared to similar levels of starts in the past.
- **B.C.'s Share of Canadian Forest Export Value:** B.C.'s share increased slightly from 2015 to 2016, now accounting for 37% of Canadian forest product export value.
- **Government Revenues:** Direct forestry revenues to government increased 6.8% in fiscal year 2016/17 compared to 2015/16.

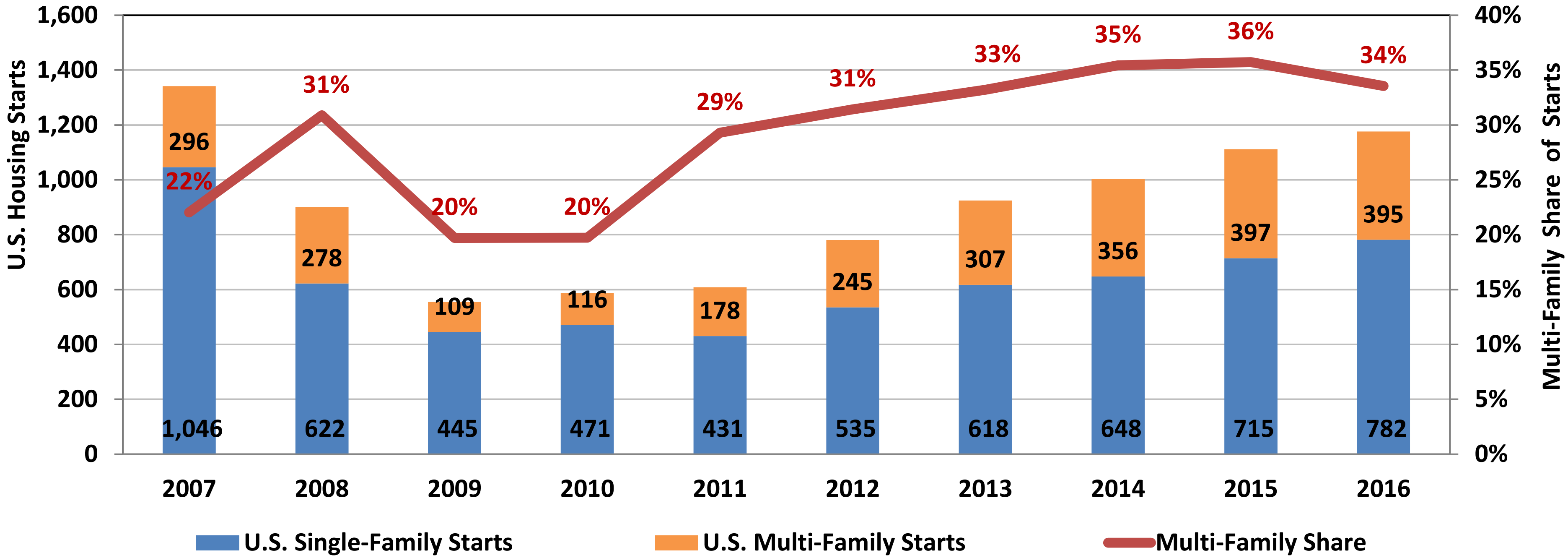
SPF 2x4 Lumber Prices and Housing Starts



Data sources: Madison's Lumber Reporter (SPF), U.S. Census Bureau, JAWIC and Statistics Canada.

Prices and Costs **– North American and Japanese housing markets improved in 2016, but housing starts were still low compared to the early/mid 2000's. Average SPF 2x4 lumber prices rose slightly in 2016. The Canadian dollar also depreciated slightly which boosted the price in Canadian dollars.**

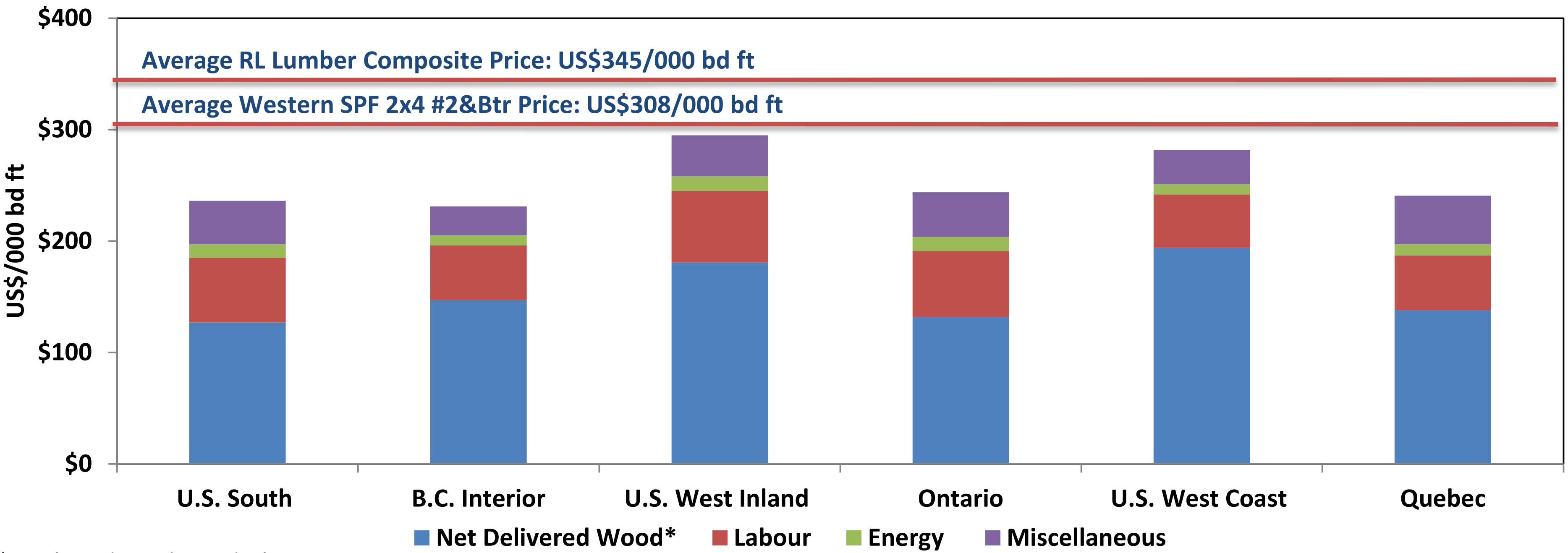
U.S. Housing Starts: Single vs. Multi-Family Units



Data sources: U.S. Census Bureau.

***Prices and Costs* – The share of multi-family starts has been increasing since 2010, and 2016 was the first year the share fell. The last time the share was this high was in the 1980s. Multi-family units use roughly 66-75% of the wood that a single family unit does.**

Softwood Lumber Mills' Variable Costs (2016)

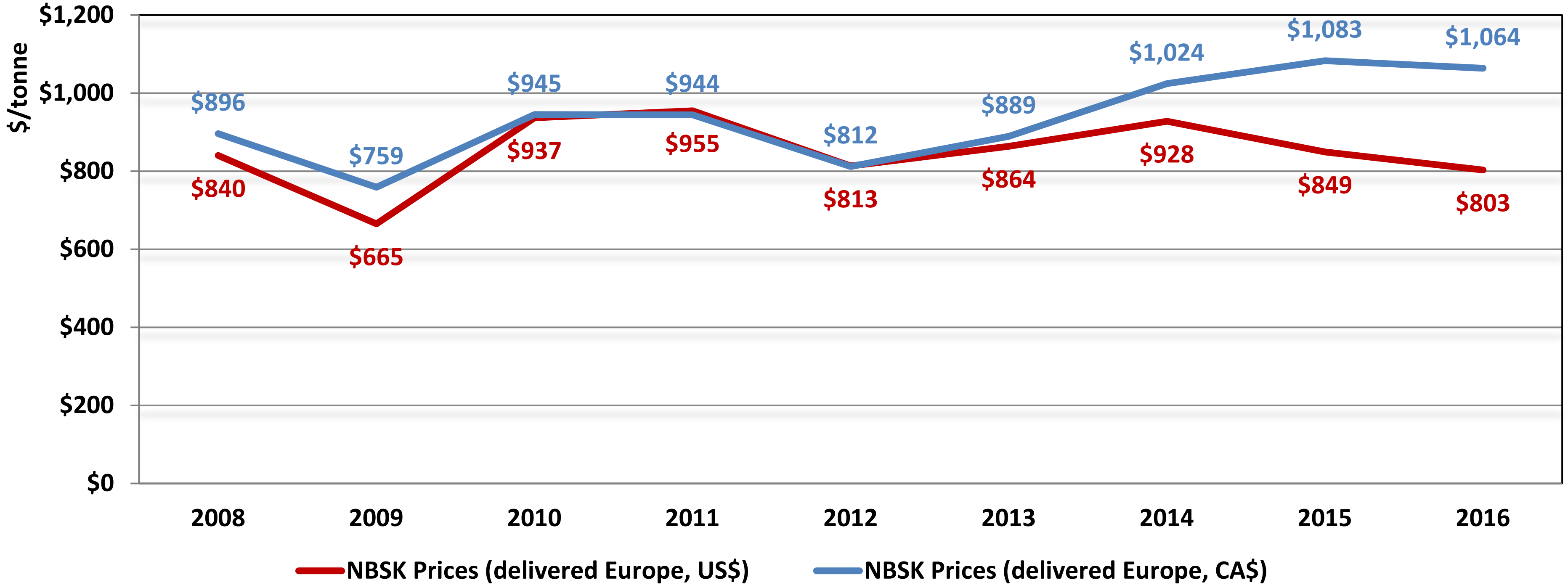


** = Delivered Wood - Residual Income*

Data source: Costs are from Forest Economic Advisors (FEA), composite from Random Lengths, and SPF 2x4 from Madison's Lumber Reporter.

***Prices and Costs* – In 2016, B.C. Interior softwood lumber mills had the lowest variable costs across the U.S. and Canada. The Interior is just barely below the U.S. The South was the lowest cost producer for several years prior to 2016.**

Market Pulp Prices



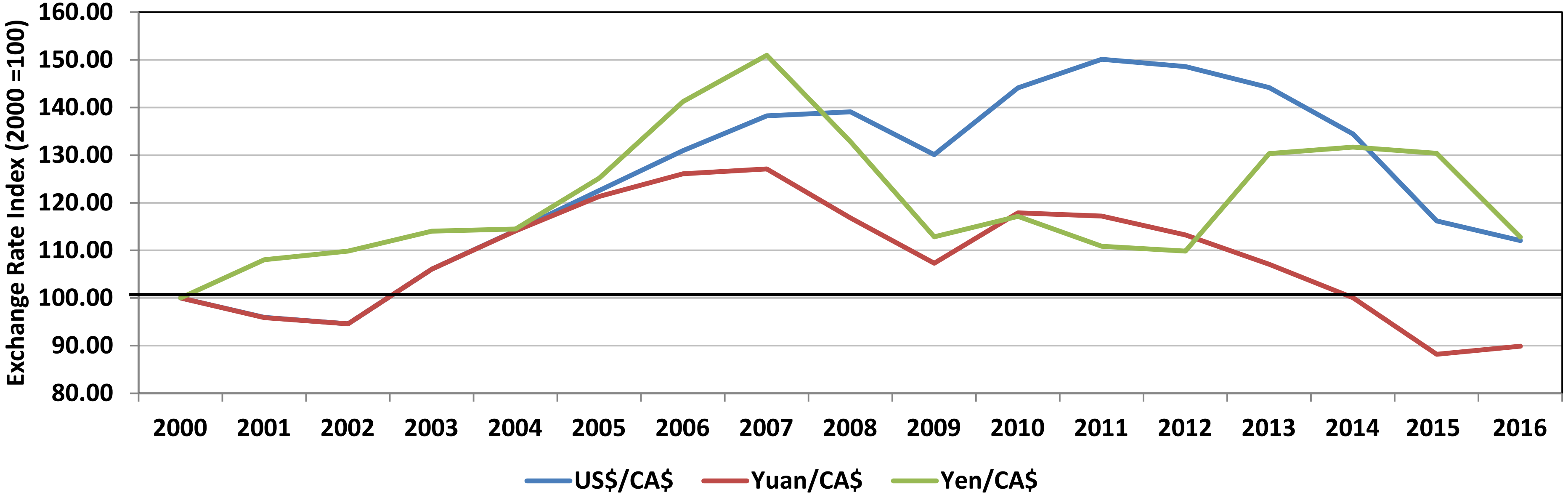
Data source: Equity Research Associates (ERA).

Prices and Costs **– Pulp prices declined in 2016. Pricing of pulp in U.S. dollars protected B.C. producers from some of the price decline.**

2000 Exchange Rates
0.67 US$/CA$
5.58 Yuan/CA$
72.62 Yen/CA$

Indexed Foreign Exchange Rates Relative to CA$

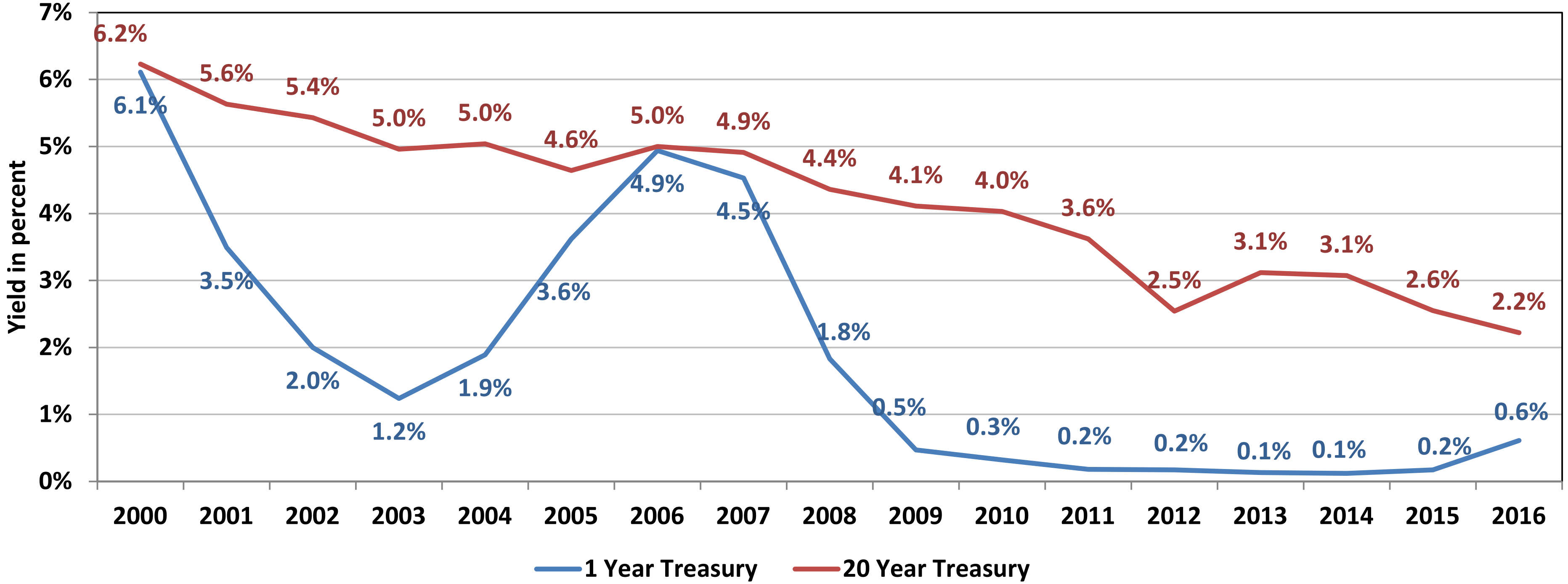
2016 Exchange Rates
0.75 US$/CA$
5.01 Yuan/CA$
81.90 Yen/CA$



Data source: 2000-2006, OANDA. 2007-2016, Bank of Canada.

Prices and Costs **– This shows the percent change in CA$ exchange rates compared to 2000. Increases indicate appreciation of the CA$ and make Canadian exports less competitive. By the end of 2016 the CA$ depreciated against the US$ and Yen compared to 2015, but both are still above the rates in 2000. The CA$ appreciated slightly against the Yuan, the first appreciation since 2010.**

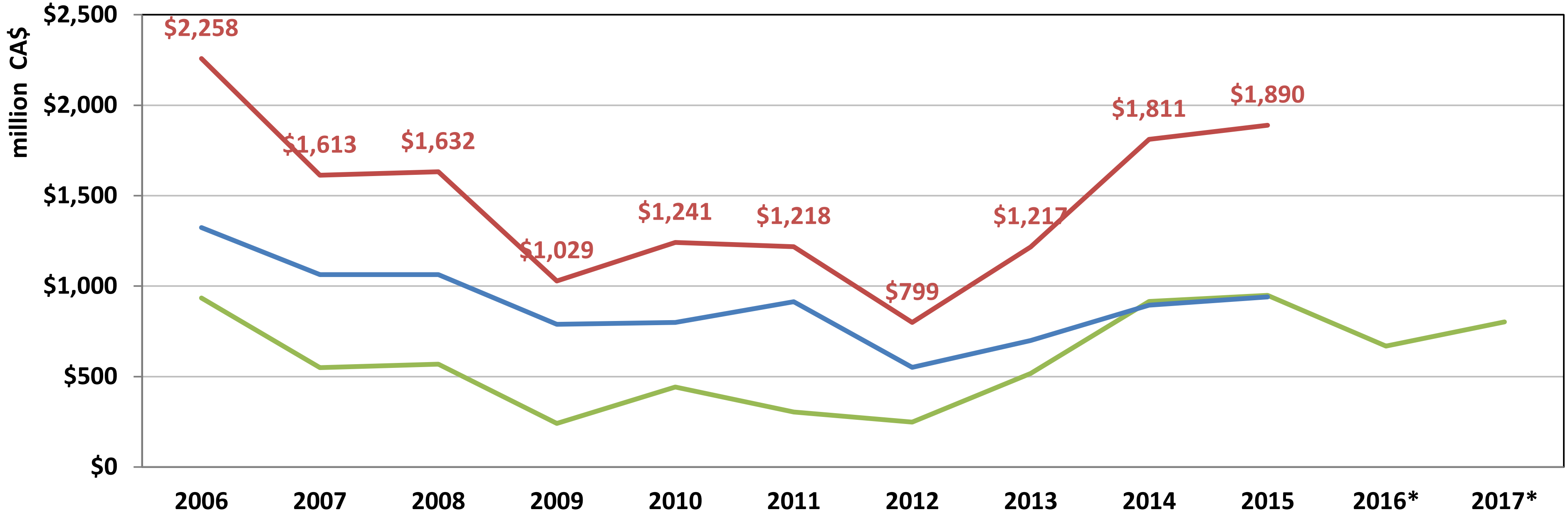
U.S. Treasury Bill Yields



Data source: U.S. Department of the Treasury.

***Prices and Costs* – The cost of short-term borrowing increased in 2016, but long-term borrowing rates fell again. After the financial crisis of 2008, rates were lowered to stimulate the economy, and they continue to remain low.**

B.C. Forest Sector Capital and Repair Expenditures

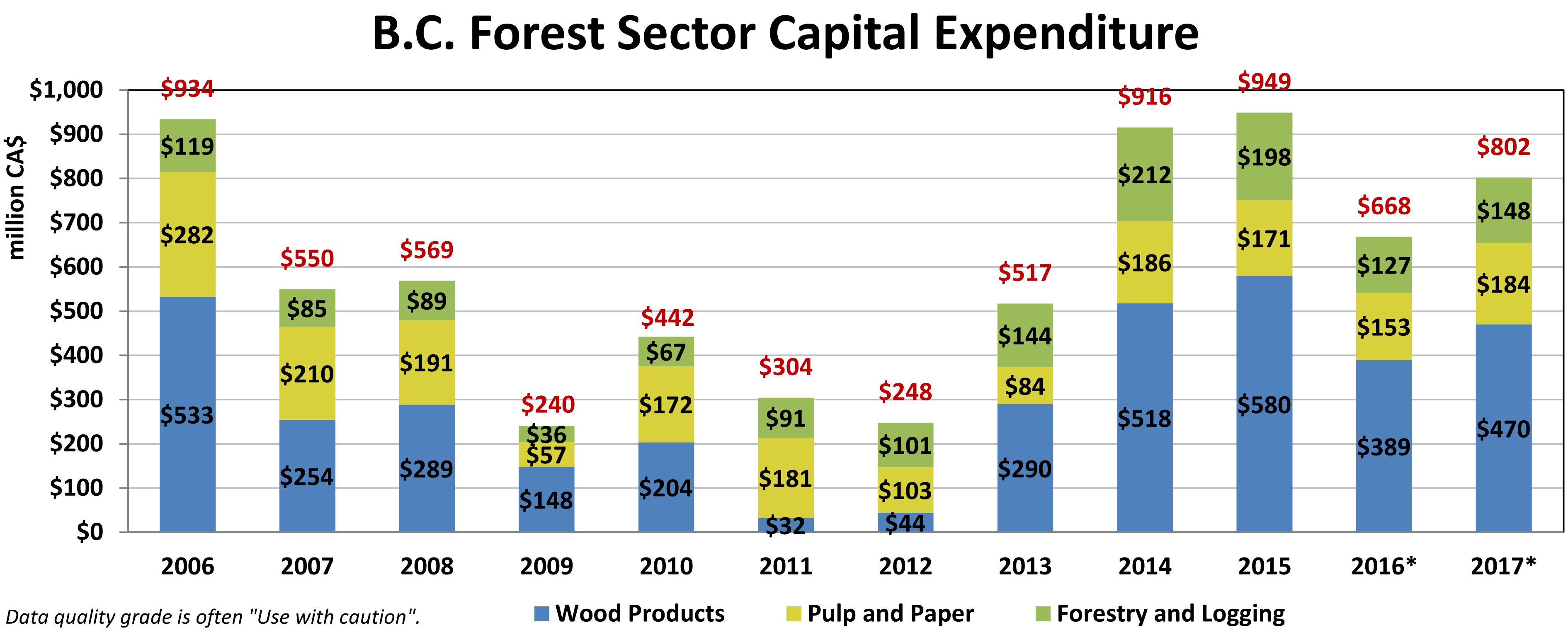


Data quality grade is often "Use with caution".
**Preliminary and intentions, subject to change.*

Data source: Statistics Canada; CANSIM 029-0045.

Investment **– B.C. forest sector investment (CA$1,890 million) increased 4.3% from 2014 to 2015. Expenditure includes investment in construction (e.g. buildings and land improvements) and in machinery and equipment. 2015 is the latest year for repair expenditure.**

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

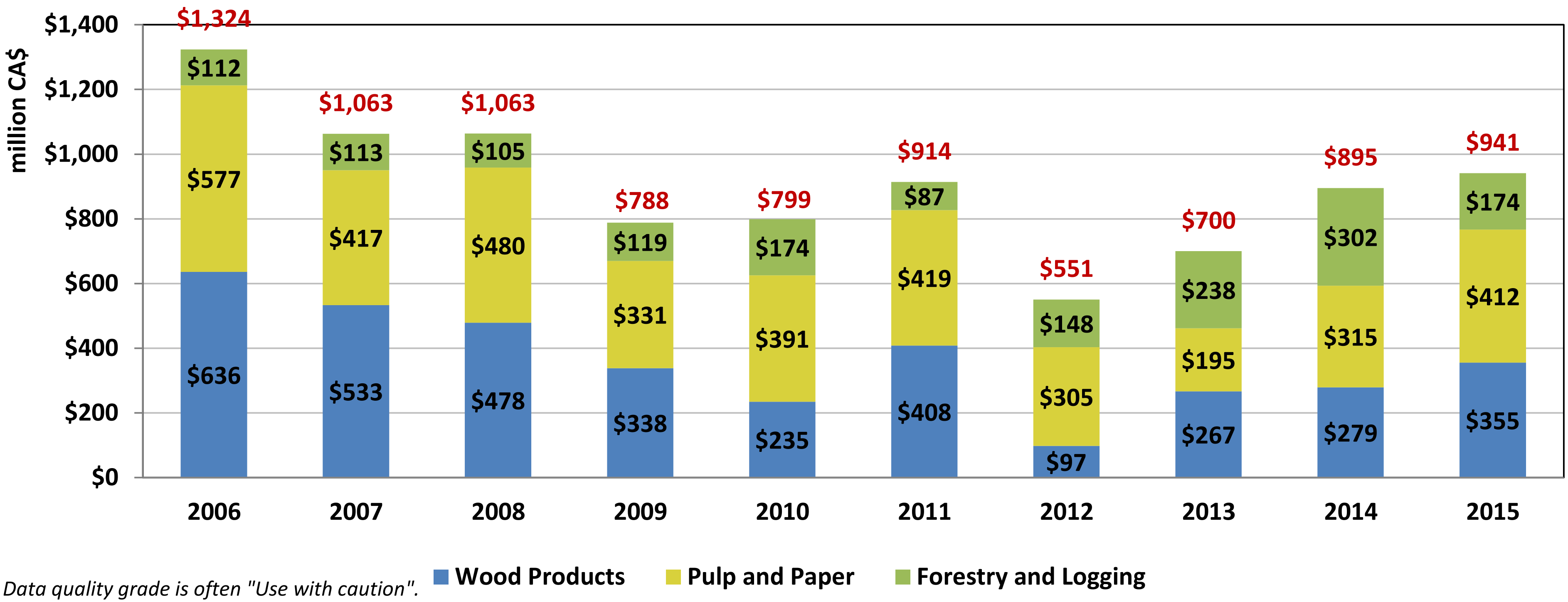


Data quality grade is often "Use with caution".
**Preliminary and intentions, subject to change.*

Data source: Statistics Canada; CANSIM 029-0045.

***Investment* – From 2014 to 2015 capital expenditure increased 3.6%, 2016 preliminary results indicate a 3.6% increase from 2014 to 2015, and 2016 intention a decrease of 30% from 2015. Capital expenditure includes investment in construction (e.g. buildings and land improvements) and in machinery and equipment.**

B.C. Forest Sector Repair Expenditure

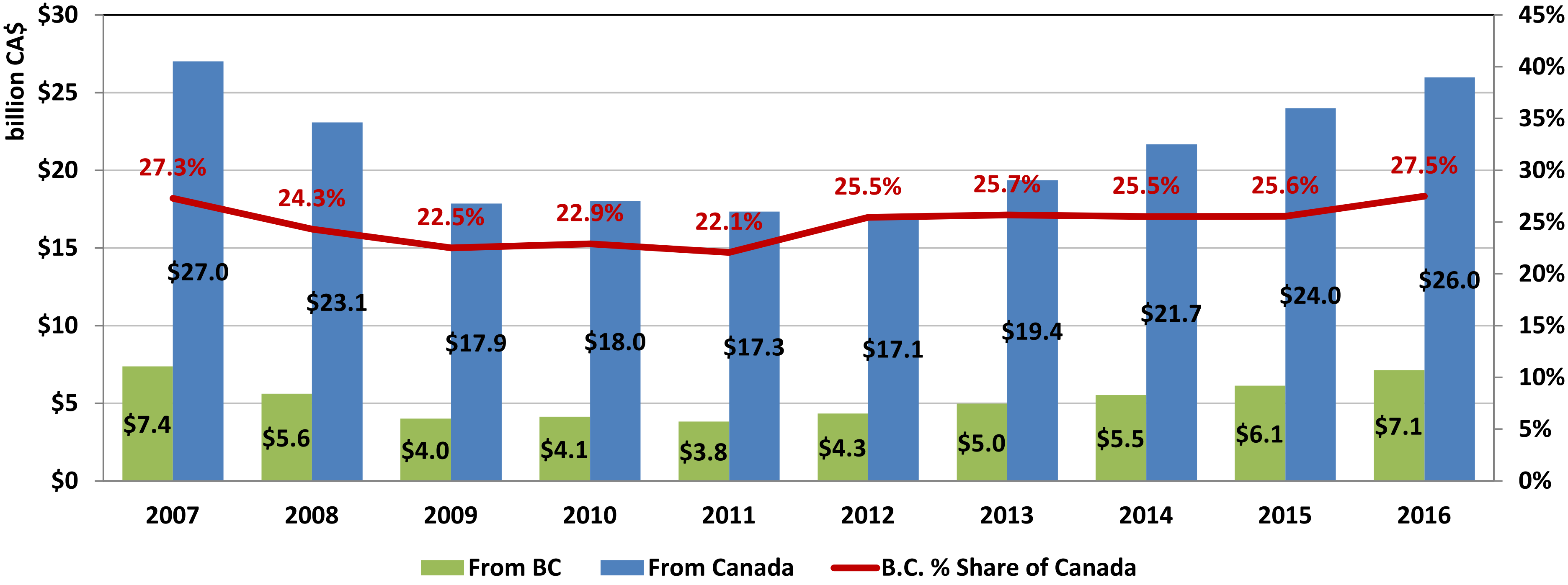


Data quality grade is often "Use with caution".

Data source: Statistics Canada; CANSIM 029-0045.

***Investment* – 2015's results indicate B.C. forest sector repair expenditures increased 5.1% from 2014. Repair expenditure includes investment in construction (e.g. buildings and land improvements) and in machinery and equipment. 2015 is the latest data for repair expenditure.**

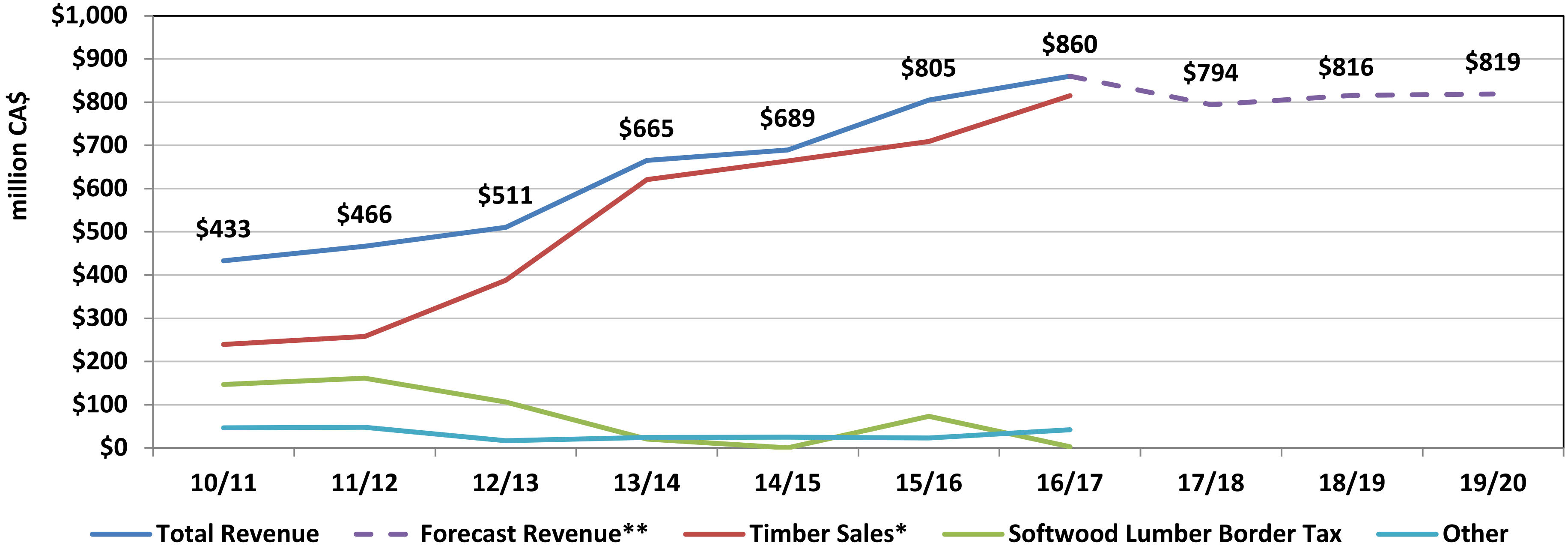
Forest Product Exports to U.S.: B.C. and Canada



Data source: B.C. Stats extract from Statistics Canada data. Also available from Statistics Canada CIMTD. Note sources may differ slightly and historic data is subject to revisions.

***B.C.'s Share* – B.C.'s share of Canadian forest exports increased in 2016. Both B.C. and Canada saw the total value of forest exports rise in 2016.**

B.C. Government Forest Sector Revenue, by Fiscal Year



*Timber Sales includes BCTS sales. **Excludes Recoveries, and Logging Tax.

Data source: B.C. FLNR. Corporate and personal income taxes are not included in these figures. While not identical, similar numbers can be viewed in the B.C. Ministry of Finance Budget and Fiscal Plan, page 118. Forecasts are from the 2017/18 to 2019/20 Budget and Fiscal Plan dated February 21, 2017.

***Government Revenues* – In 2016/17, the B.C. government received direct forest revenues of CA$860 million, an increase of roughly CA$55 million over the previous year. Revenue from timber sales increased by CA$160 million in 2016/17.**

Conclusions

- B.C.'s forest sector showed improvement in manufacturing sales and exports in 2016. Pulp and Paper products declined, but this was offset by strong wood products performance. Harvest declined roughly 3 million m^3.

- Chinese demand for logs, lumber, and pulp continued to be a key market for the B.C. forest sector. Russia continued to increase market share and volumes in China as China's total lumber imports rose again. Canada's lumber export volume to China declined, though the decline to China was offset by strong lumber exports to the US.

- Compared to pre-recession, B.C.'s forest sector has better diversity in export destinations. China has a major share, and the U.S. and Japan continue as major markets. The B.C. forest sector is trying to further this diversification by promoting sales to India, and expanding into new products such as engineered lumber and wood pellets.

Outlook

- Stronger demand (mainly from a recovering U.S. market) and weaker B.C. timber supply are expected to have a positive influence on prices. So far in 2017 lumber prices have been strong, but it's difficult to tell how much has been driven by B.C. wildfires and the U.S.' preliminary-tariffs on lumber (CVD 19.88%, AD 6.87% averages) vs. changing consumer demand.
- China continued as the world's largest importer of logs and lumber in 2016, with large increases in log and lumber imports. This demonstrates China is continuing as a strong market, but Russia's continued increase in supply to China may harm B.C. exporters.
- The softwood lumber dispute adds additional uncertainty to the U.S. lumber market. Negotiations are ongoing and so are the U.S.'s investigations for final countervailing duty and anti-dumping duty rates by late 2017 or early 2018.

Outlook - Continued

- Foreign demand for wood pellets has been strong and B.C. exports increased roughly 50% in 2016. The U.K. is the number one destination. Japan and Belgium also took large volumes in 2016.
- Innovations and investments in markets, products and technologies will make the sector more competitive. Changing building codes to allow tall wood buildings, such as UBC's 18 storey residence, and encouraging wood use over other building materials in general, are just two examples of programs that could grow the forest sector.
  - UBC's brock residence used an estimated 2,233 m^3 of Cross-Laminated-Timber or Glulam, which is equivalent to the amount of lumber used in 60 single-family houses in Canada*.

*Source for houses conversion: Forest Economic Advisors

Additional Sources for Data

- Statistics Canada wood product tables.
- Canadian National Forestry Database.
- Food and Agriculture Organization of the United Nations (FAO)