

# **Industry, Markets & Trade: Global Trends in the Forest Industry**



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**Communities Commerce and Climate Change: Innovations to Sustain  
the World's Forests**

**MEGAflorestais 2017**

**Quadra Island, British Columbia, Canada**

# 3 Questions

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1. What is the consensus outlook for timber?
2. How might the outlook change due to technological change?
3. What is the role of China (and how are its imports changing)?





Source: WWF Living Planet Report 2014 and New Forests estimates.

- Even given relatively low growth in the demand for timber, there is likely a need to increase the global supply through plantations
- .....especially true if we also want to conserve more natural ecosystems.



# Consensus Outlook

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- The consensus outlook is positive for the global timber market
  - Primarily driven by derived demand from growth in packaging and tissue paper and construction.
  
- Consensus view supported by acquisition of pulp assets in Sept.
  - A subsidiary of Asia Pulp & Paper paid a very high premium for El Dorado's pulp mill and expansion option in Brazil, reflecting a particularly bullish view from Asia.
  - \$2,810/tonne of pulp capacity
    - ✓ ~70% premium over average Brazilian peers
    - ✓ > 500% premium over Canfor Pulp
  - Interesting perspective on the future demand for pulp, and relative attractiveness of southern hardwood and northern softwood pulp.



# Consensus Outlook

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Is the consensus outlook for the wood market too optimistic?

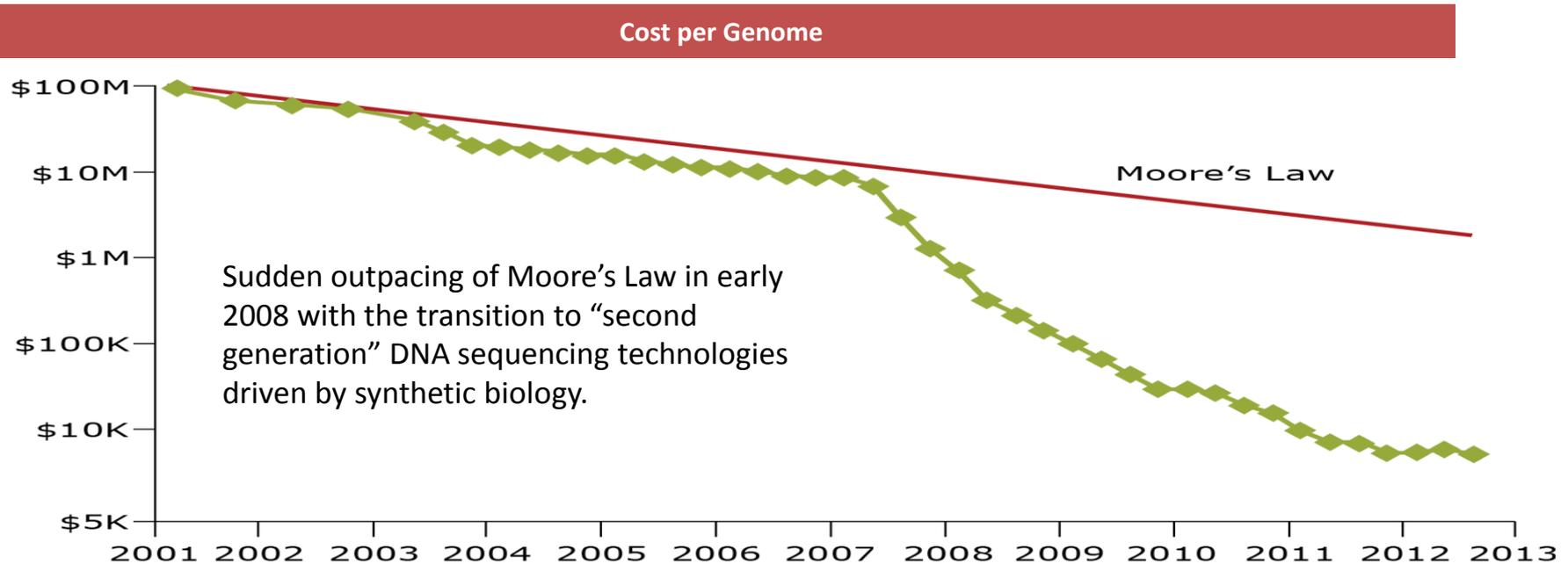
Due to technological change

- Could the supply be greater than estimated?
- Could the demand be lower than estimated?

What are some examples of such technological change?



# Synthetic Biology



- **Synthetic Biology** is a technological accelerator in metabolic engineering
- Cost of DNA sequencing falling even faster than that suggested by Moore's Law – from ~\$100 million per genome in 2000 to ~\$1,000 in 2016
- It is not "if" this dramatic cost reduction in DNA sequencing will have a meaningful impact on the forest products value chain, it is "how" & "when".



# Synthetic Biology

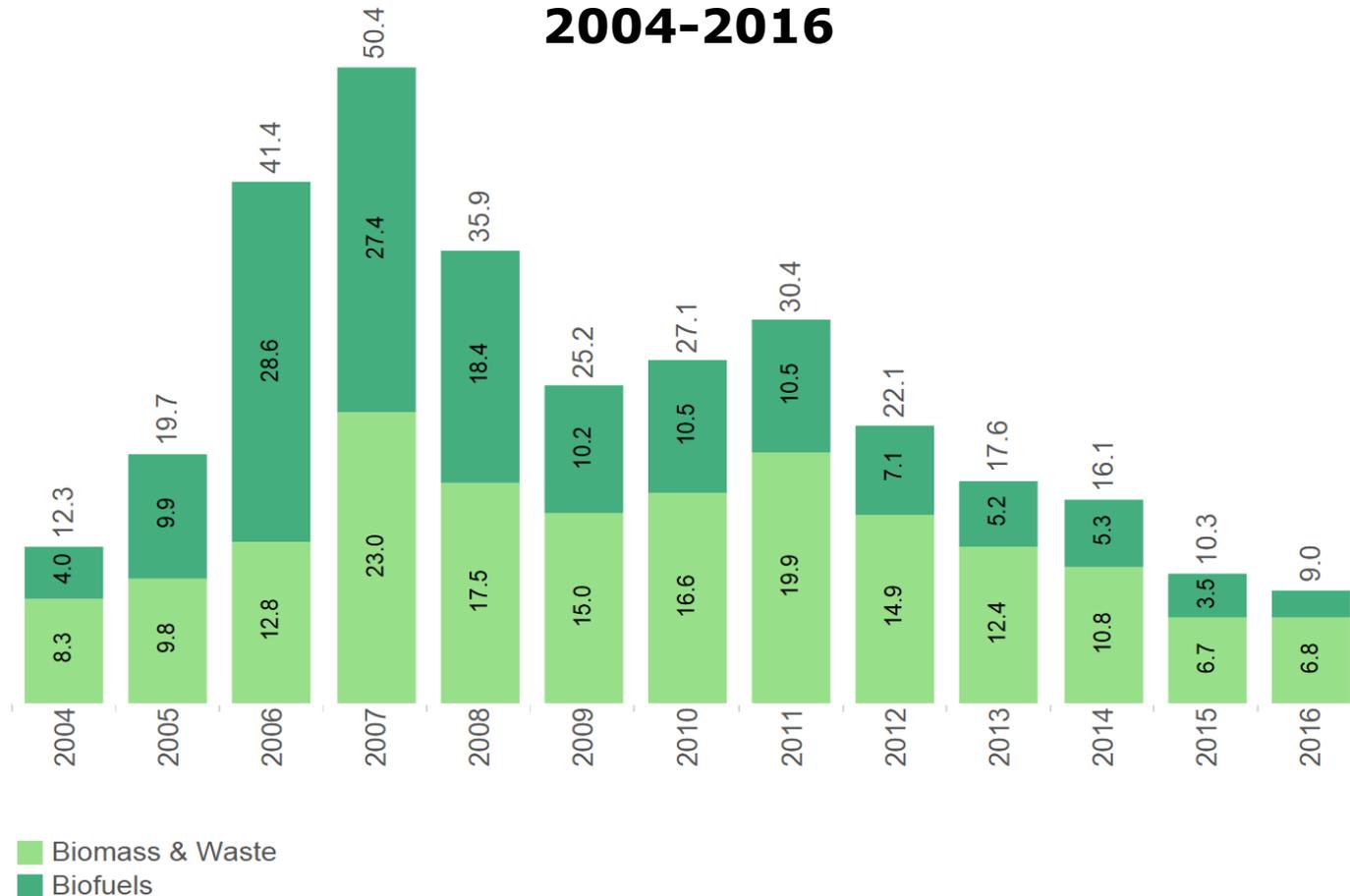
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- Brazilian forest companies have already applied synthetic biology to produce energy oriented eucalyptus clones:
  - Have high lignin content/calorific value – superior for generating energy, but cannot be used to produce pulp
  - Forest yield  $\sim 60-80$  m<sup>3</sup>/ha/year (vs  $\sim 35-50$  for pulp oriented clones)
  - Harvest in 2-3 years (vs 7 years for pulp)



# Trend in BioEnergy Investment

## Global Investment in Bio-energy (\$US Billion), 2004-2016



➤ After peaking at over \$US 50 billion in 2007, annual global investment in bioenergy has trended down to ~\$US 9 billion in 2016.

➤ An aggregate decline of ~80% over the last ten years, and the fall was even greater for liquid biofuels than power projects.



# Global Investments in Bio-Power

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- Investment down significantly from the recent peak in 2011 due to:
  - ✓ Uncertainty over biomass supply & future price;
  - ✓ Government efforts to rein in subsidies on renewable energy;
  - ✓ Low fossil fuel prices (natural gas & coal)
  - ✓ Falling prices of solar & wind energy.....last two due mainly to technological change.
- **From a purely financial perspective, most bio-power investments are not attractive (unless local power prices are unusually high) .**



# 3D Printing

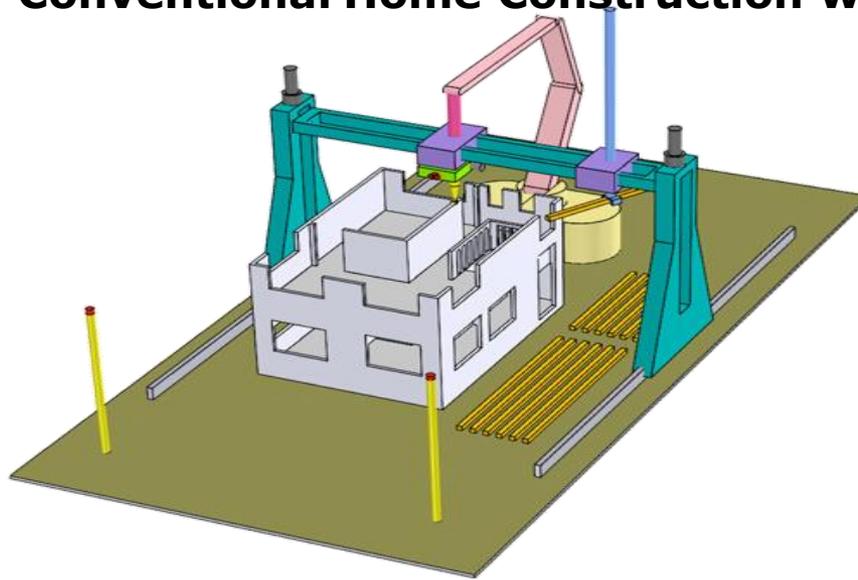


- **3D Printing has been called “the source of the next industrial revolution”.** It allows for *mass customization*.
- It is a manufacturing process that builds layers to create a three - dimensional solid object from a digital model on a computer.
- The wooden table above was printed by a hobbyist in Vancouver.



# 3D Printing

## Conventional Home Construction with a 3D Printer



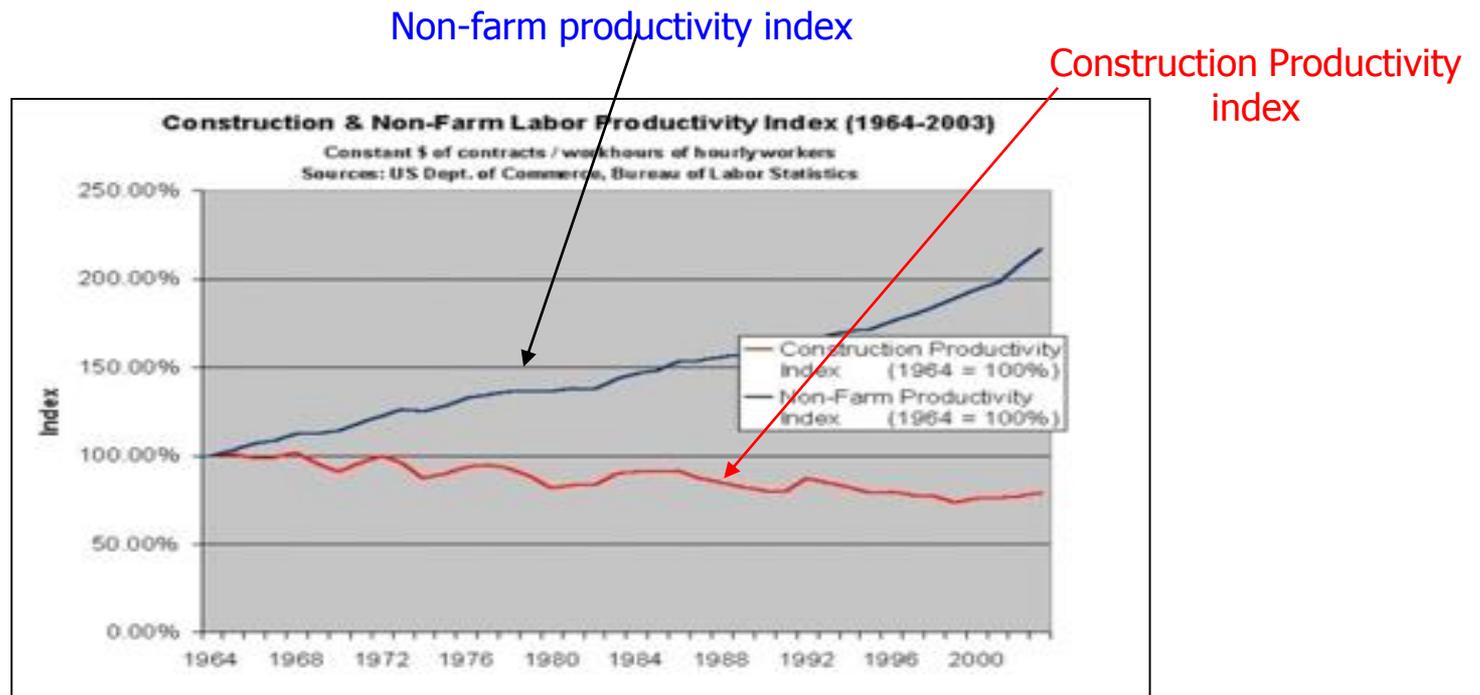
[Video of 3D-Printing of Houses](#)

- A range of alternative materials are being assessed for building with 3D printers – including woody biomass. China and the Netherlands are the global leaders.
- Winsun, a Chinese construction company, has already built flats using 3D printing.
- Potential threat or opportunity for wood/biomass? Most of the substrate used is Polymers (petrochemical plastics), metal alloys and modified cement. Biomaterials are less than 1% of the market.



# 3D Printing

- Labor productivity in the Construction sector has been declining.
- Construction is the last remaining manufacturing sector to not be automated. There is a large economic incentive to change the way we build – and 3D Printing will become one option.



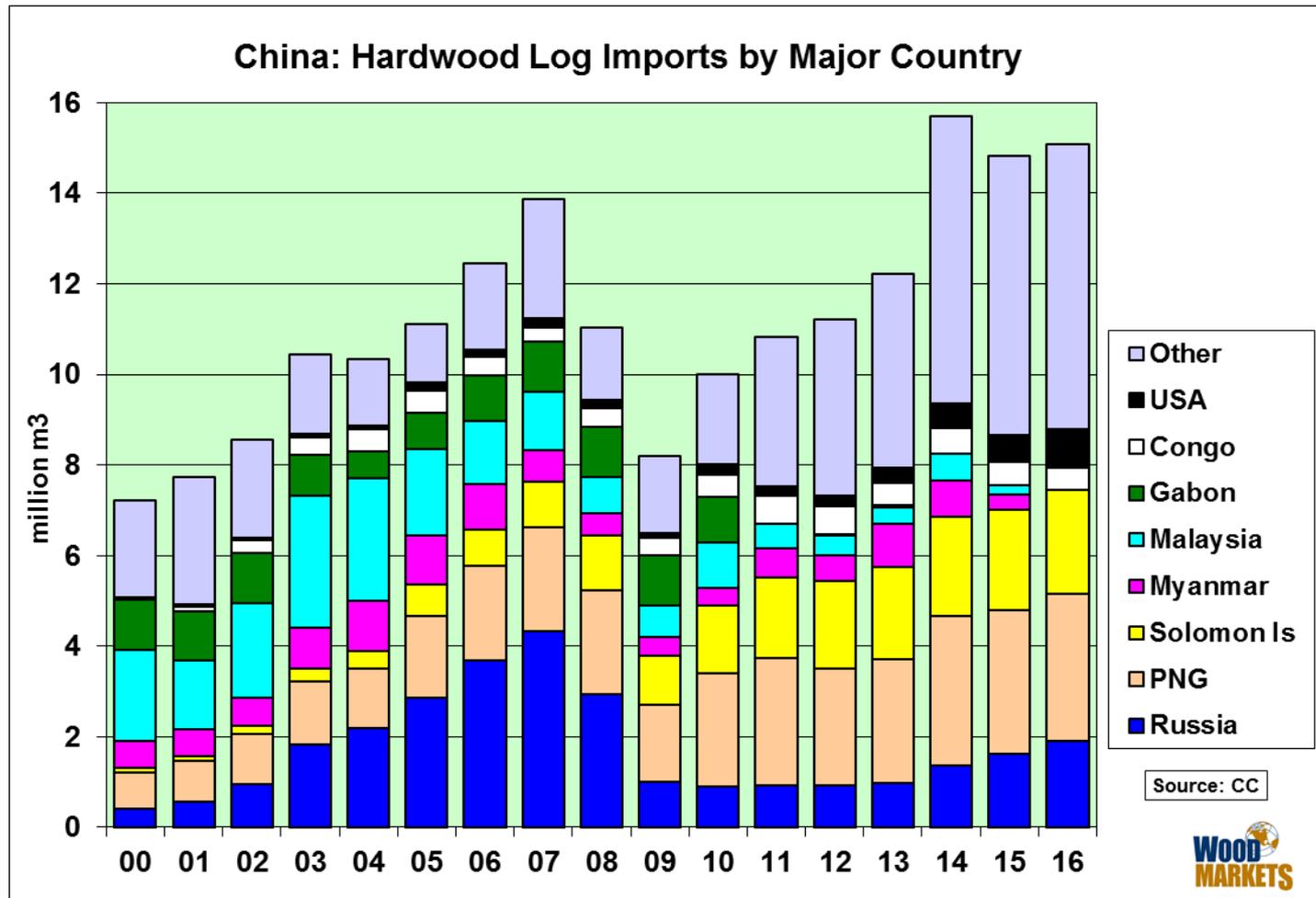
# Growth of China

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- Economic growth in China is driving much of the global growth in demand for forest products.
- Let's focus on China's imports of logs and lumber.



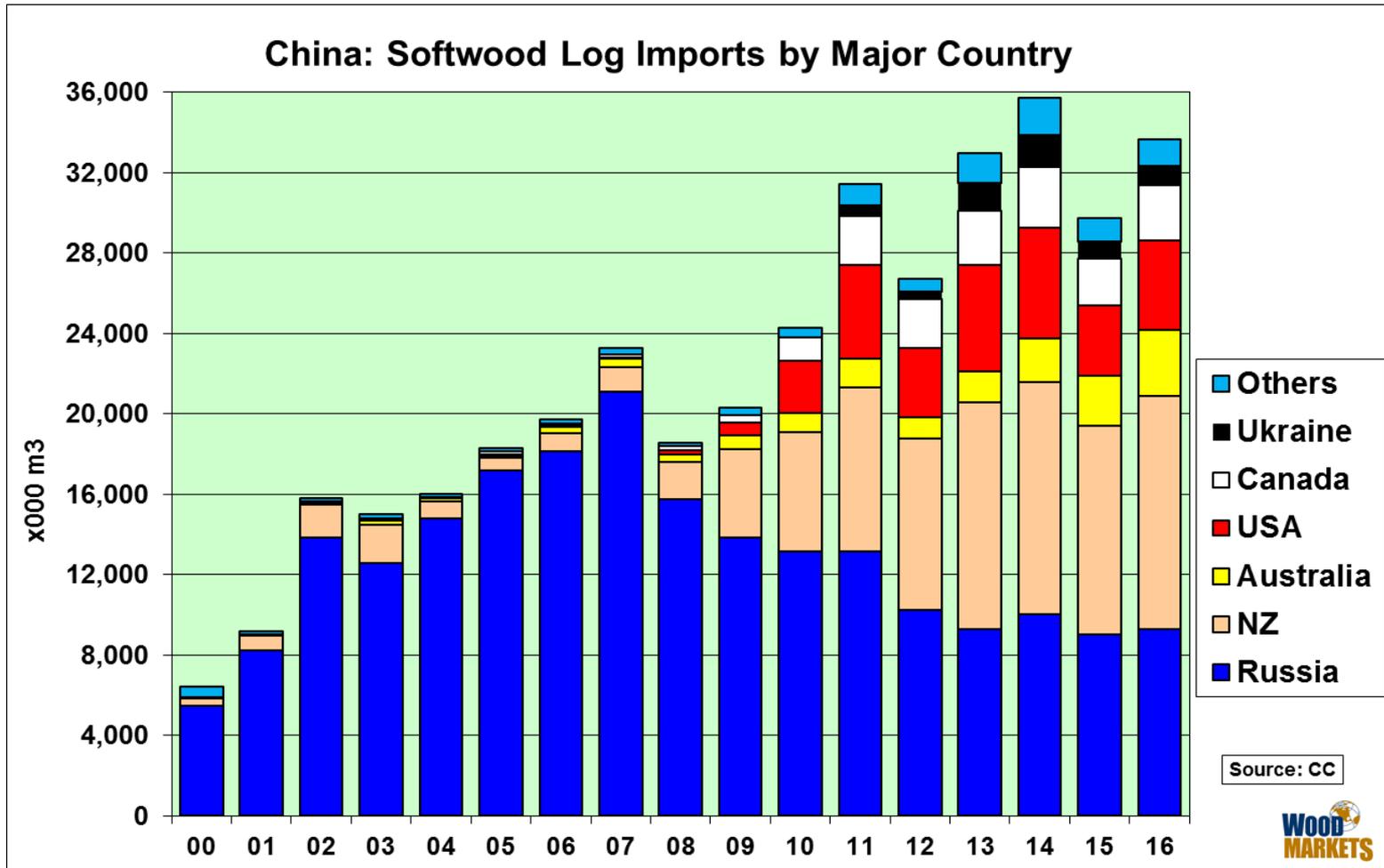
# Hardwood Log Market



- Imports roughly doubled since 2000, with the biggest increases from PNG, Solomon Islands & "Other" countries. Biggest declines from Malaysia & Russia.
- "Other" country suppliers are mainly Equitorial Guinea, Cameroon, Australia and Nigeria – in that order.



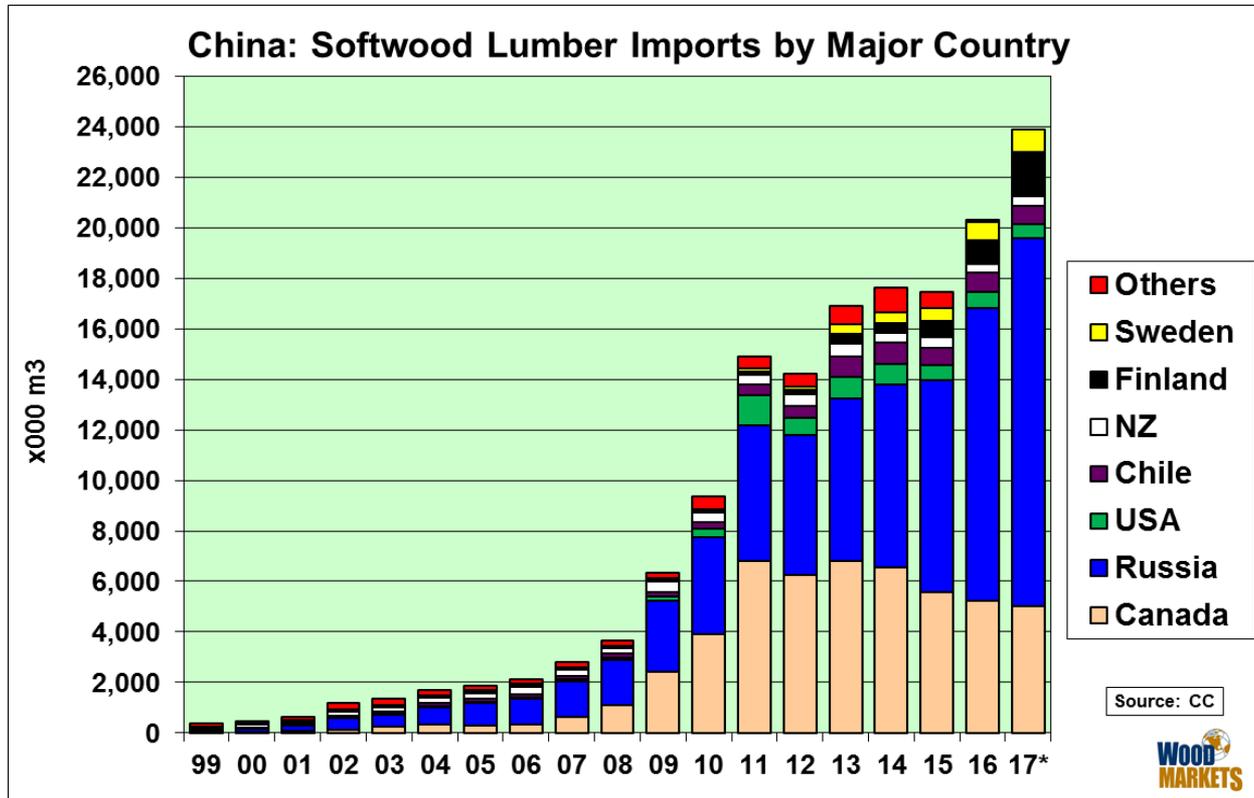
# Softwood Log Market



- China's imports of softwood logs have increased ~5x since 2000, but the rate of increase has slowed over the past 5 years.
- Russia imposed a 25% log export tax in 2008, with NZ and USA capturing the most market share.



# Softwood Lumber Market



- U.S. and China are the largest importers of lumber - each accounting for ~20% each of global imports. Canada is the dominant source for the U.S.
- China's imports of softwood lumber have risen even more dramatically than its imports of logs - up from essentially zero in 2000 to ~24 million m3 in 2016 (+120x).
- Due to a combination of the log export tax and a sharply devalued Russian ruble, China's imports from Russia have dramatically increased (to 55% share vs 25% for Canada).



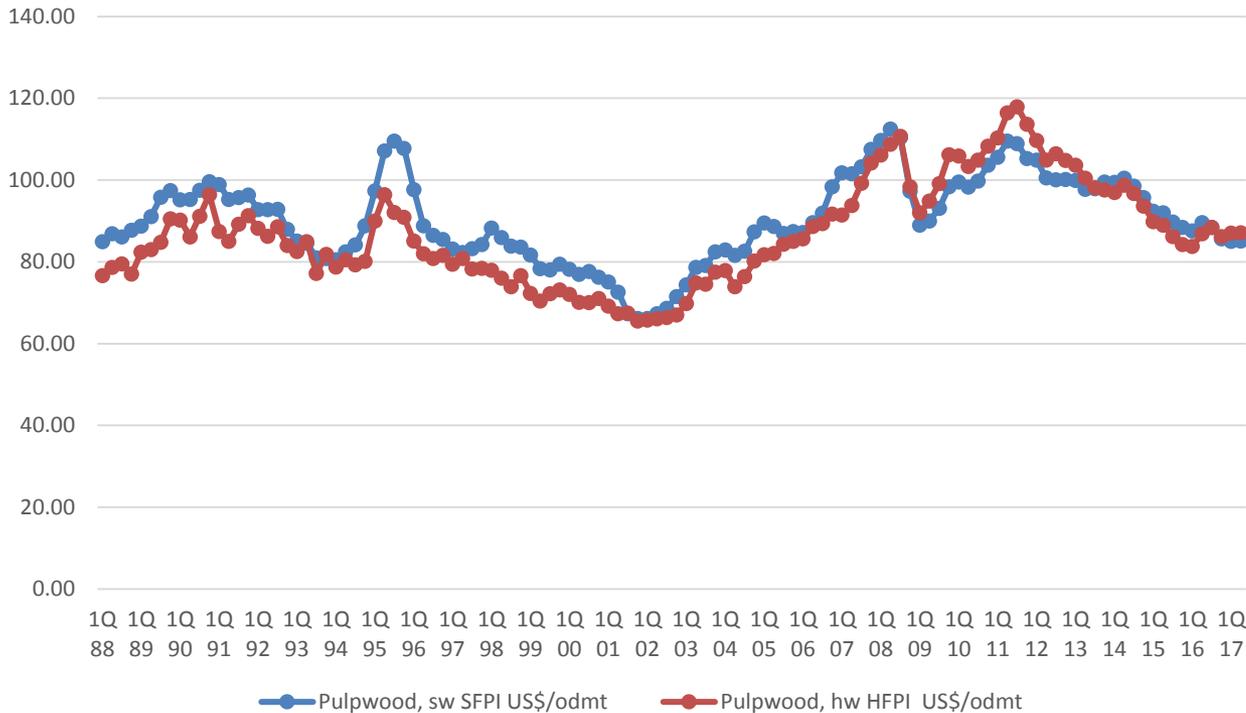
# Appendix: Timber Prices

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# Global Pulpwood Prices

Global Pulpwood Prices: 1988:Q1-2017:Q2  
(US\$/ODMT)



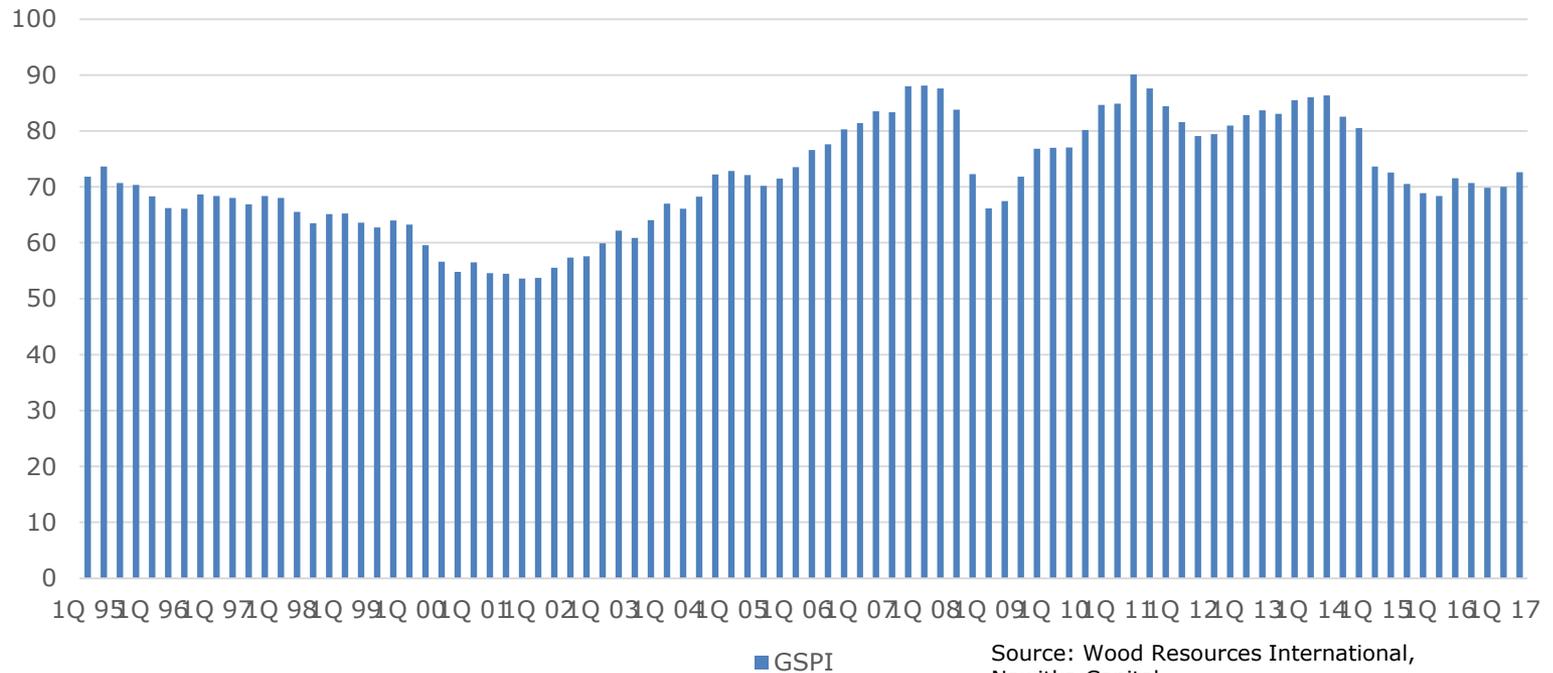
Source: Wood Resources International, Nawitka Capital

- After falling ~25% from their peak in early 2011, pulpwood prices have levelled out at ~US\$85/ODMT – well above the lows reached in 2001.
- Western Russia currently has the lowest pulplog prices (~\$52 for sw and \$43 for hw); while Sweden has the highest (\$114 for sw and \$92 for HW) – more than double. B.C. is ~\$72 for sw.



# Global Sawlog Prices

Global Softwood Sawlog Price:  
1995:Q1-2017:Q2  
(\$U\$/M3)



- Average global softwood sawlog prices are currently around \$70/m3 – down substantially from 2013/14.
- Current prices range from a low of \$38 in Western Russia and \$38 in Chile, to a high of \$89 in the Western U.S. and \$124 in Germany. B.C. is around \$57.

