Today's Timber Prices Don't Matter

(As Much As Future Timber Prices)

Timber prices are important for timberland investors. They determine the value of timber being harvested and the value of the standing timber remaining on the property.

Today's timber prices can be very important for very small timberland properties. For example, a 100-acre investment that consists of 100 acres of southern pine planted 25 years ago can be valued using current timber prices.

But today's timber prices don't really matter for most standing timber—because most standing timber will not be harvested for years. If that 100-acre southern pine timberland property has 40 acres of just-planted seedlings and 60 acres of 10-year-old trees, today's timber prices mean very little. What does matter is what timber prices will be 15 and 25 years from now.

Today's timber prices only apply to a small portion of a large timberland property. Most of the timber on a large property is not ready to be harvested. Some of it might not be harvested for another 25-100 years.

Where might those prices be in 10 or 25 (or 100) years? There are forest economists all over the world that work on answering that question. They base their forecasts on projections of key economic factors. In the US, one very important factor is housing starts, which consume large quantities of softwood lumber made from large quantities of softwood sawtimber.

Figure 1. Softwood Stumpage Prices—Quarterly (Nominal US$/ton)
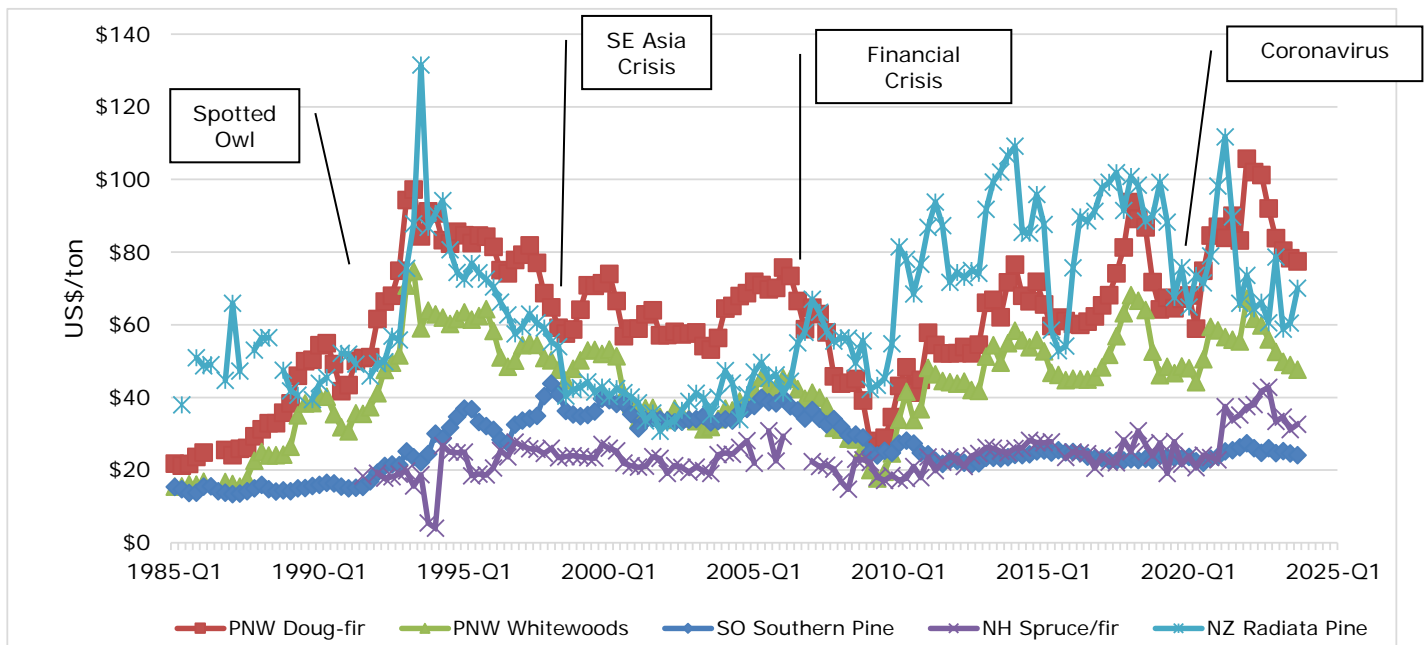
Sources: Log Lines, Pacific Rim Wood Market Report, , OR Dept of Forestry, OR/WA Log Market Report, Timber Mart-South, NH Timberland Owners Association, NZ MPI

Forecasting those key economic factors out more than a couple of years is challenging because future economic and political shocks are impossible to predict.[1]

Figure 1 shows quarterly nominal softwood stumpage prices since 1985 for 5 species/species groups from 4 timberland investment regions.[2] The New Zealand prices were converted to US dollar prices.

There seem to be price shocks every 10 years or so.
- Spotted owl, early 1990s
- SE Asia financial crisis, 1997
- Global financial crisis, 2006/2007
- Coronavirus, 2020

This suggests shocks will always be with us and they will be with us every 10 years.

Where Will Stumpage Prices Be in 10 or 100 Years?

We know that the future will be different than the past, but can we use the past to help us understand what might happen in that future? Can what we know about past stumpage prices help us prepare for future stumpage prices?

Next quarter's price will usually be similar to this quarter's price. It is unlikely to be twice or half today's price—though radiata pine prices doubled in *two* quarters once when a price shock hit the timber world. But the price 10 or 50 years from now could be twice or half today's price.

Even with the shocks, it usually takes a few quarters for prices to move significantly higher or lower. One exciting(?) exception is the change in New Zealand log prices in 1993 as the impact of halting timber harvests on Western US National Forests to protect the northern spotted owl was felt across Pacific Rim wood markets. Prices jumped US$44/ton in the third quarter, then fell US$45/ton in the fourth quarter. These are by far the largest

changes in value in the 150+ quarters shown here. (New Zealand prices tend to be more volatile than the others in part because roughly half of its log production is exported and higher reliance on export markets increase price volatility.)

Historical Changes in Stumpage Prices

Table 1 presents some statistics about the changes in quarterly prices shown in Figure 1. The first two lines show the maximum changes—the largest quarterly increases and decreases. The third line shows the absolute value of the maximum change whether it is positive or negative. For most of the price series, this is the same as the maximum positive change, but for New Zealand, the biggest change is that -$45/ton negative change from Q4 1993.

The fourth line shows the absolute value of the minimum change. It shows that you can expect the next quarter's price to be from *at least* $0.01/ton higher or lower (for PNW Douglas-fir or southern pine) to *at least* $0.04/ton higher or lower (for PNW whitewoods).

The average in the fifth line is an average of the positive and negative values. It suggests that southern pine stumpage prices will increase an average of $0.07/ton per quarter over time, while PNW Douglas-fir prices will increase an average of $0.36/ton per quarter over time. So southern pine prices should be should be $2.10/ton higher in 5 years (20 quarters) while Doug-fir should be $7.20/ton higher in 5 years. The problem we have with this number is that it does not provide a clear picture of the volatility you might find because it is combining large positive and negative numbers.

The average of the absolute values may be a better indicator of the volatility to expect. It ranges from $1.12/ton/quarter for the US South to $6.94 for New Zealand. This means that—on average—you can expect next quarter's southern pine stumpage price to be $1.12/ton higher or lower than this quarter's price and the radiata pine price to be $6.94/ton higher or lower in New Zealand. So the average change in price for southern pine is $0.07/ton, but it will move in $1.12/ton jumps.

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[1] If we could predict them, then they wouldn't be shocks, would they?.

[2] The New Zealand and Pacific Northeast prices are reported as delivered prices, so we estimated cut and haul costs to calculate stumpage values.

Table 1. Selected Quarterly Stumpage Price Change Statistics

	PNW Doug-fir	PNW Whitewoods	SO Southern Pine	NH Spruce/Fir	NZ Radiata Pine
Maximum Positive Change	$22.48	$19.18	$5.64	$30.83	$43.75
Maximum Negative Change	-$15.01	-$15.79	-$4.58	-$21.90	-$44.74
Maximum Change (Absolute Value)	$22.48	$19.18	$5.64	$30.83	$44.74
Minimum Change (Absolute Value)	$0.01	$0.04	$0.01	$0.02	$0.03
Average	$0.36	$0.21	$0.07	$0.20	$0.18
Average of Absolute Values of Change	$4.13	$2.97	$1.12	$2.97	$6.94
Positive Change Streaks					
Longest	13	7	6	5	5
Average	3.2	2.3	2.2	1.5	1.9
Negative Change Streaks					
Longest	7	9	6	5	6
Average	2.0	2.5	1.9	1.7	1.8

Price Streaks

How often do we get stumpage prices rising or falling for multiple quarters in a row? How likely is it that those radiata pine prices will rise (or fall) at nearly US$7.00/quarter for, say 10 quarters and give us a $70/ton change in price?

The "streak" numbers in Table 1 show how long positive and negative streaks last. The longest price increase streaks range for 5 quarters for NH spruce/fir and NZ radiata pine to 13 quarters for PNW Doug-fir. The longest negative streaks range from 5 quarters for NH spruce/fir to 9 quarters for PNW whitewoods.

The ***average*** streak, whether positive or negative, lasts for 1.5 to 3.2 quarters.

Histograms

Figure 2 shows Excel-generated histograms of quarterly stumpage price changes for each. The southern pine makes a reasonably good-looking bell curve within a tight range of -$4.58 to $5.65. Spruce/fir shows a much wider range, but 84% of the values fall within two of the histogram bins.

Figure 2. Histograms of Changes in Stumpage Prices
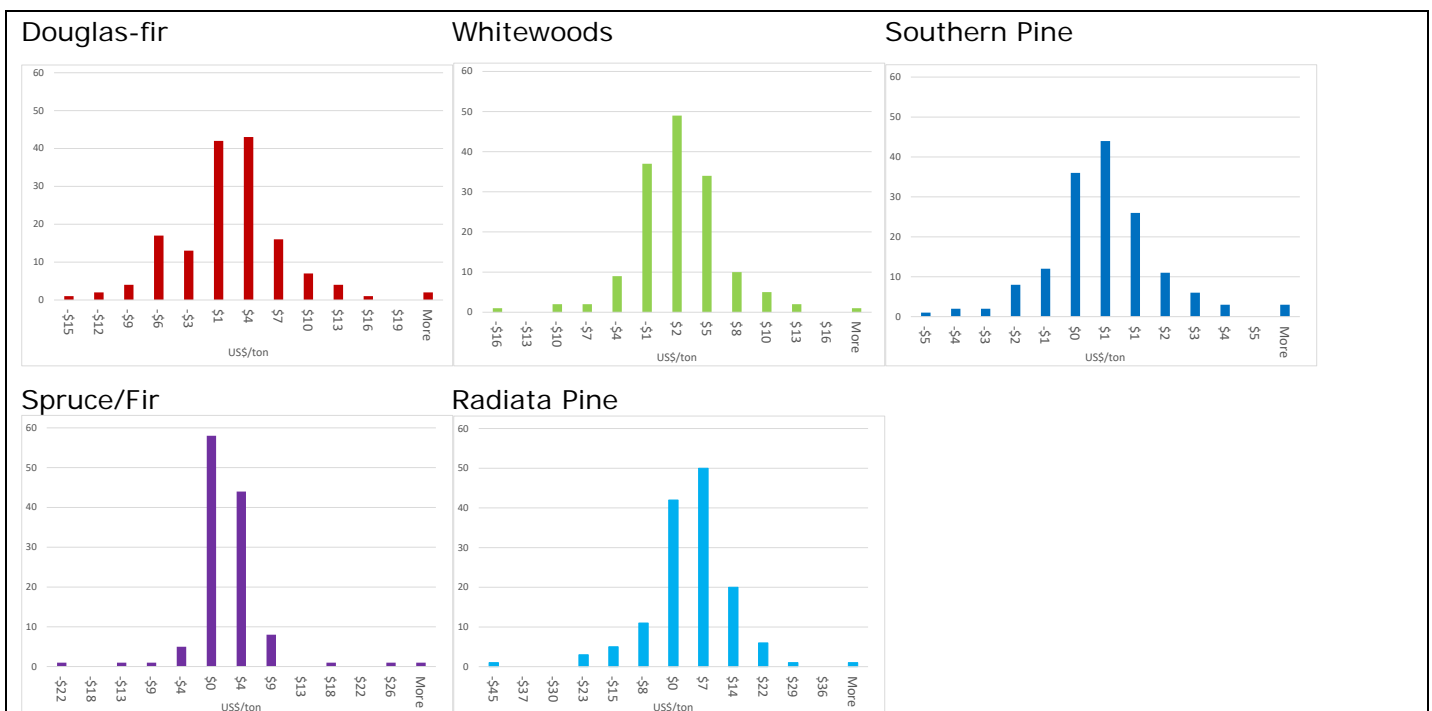
Radiata pine shows the widest range of values, but the biggest positive and negative changes are outliers and the rest of the values form a better bell curve.

The whitewood values are more concentrated in the center of the curve than are the Douglas-fir values, but there are a few large changes that give the curve long thin tails in both directions. The Douglas-fir curve is flatter than the others with thicker tails.

Summary

Today's timber prices are important for timber that is expected to be harvested now, but they are not very important for timber that is going to be harvested in 10 or 100 years. Forest economist can provide reasonable estimations of what prices might do in the near future, but cannot predict shocks (which seem to occur every 10 years or so) and are really not very good at forecasting prices 25 or 50 years from now.

We analyzed quarterly price changes including changes during shocks (Table 1). We found the average quarterly change since 1985 (nearly 40 years) ranged from $0.07/ton/quarter to $0.36/ton/quarter. But this average combines some large negative and positive changes. Using the absolute values of the price changes, we can expect next quarter's price should be *at least* $0.01 to $0.04/ton higher or lower than this quarter's price and *on average* $1.12 to $6.94/ton higher or lower than this quarter's price. Streaks of negative or positive price changes usually last only 2-3 quarters before flipping the other way for at least a quarter.

20 Years of Forest Research Notes

Thank-you, Readers.

This is the fourth issue of Volume 20 of Forest Research Notes. Some (many?) of our original readers have retired and the youngest readers—who weren't even born when the first issue was published—are reading it at the recommendation of their forestry school professors.

Occasionally a fiction writer will say that they don't always know what a character in their book will do, or they had something in mind when they started writing, but that character went off in an unexpected direction. That happens sometimes with these Research Notes. I thought this one was going to have a couple of short topics in it, but the first topic (this one) got out of hand. I thought it would include some analysis of annual price changes. But it grew too big and nothing else would fit.

There are both benefits and challenges to writing a newsletter with a self-imposed requirement to have it be four pages long—and only four pages long. A benefit is that, if a topic gets too long, some of it can become part of a later issue. So maybe the analysis of the annual prices will appear in the future.

At other times, I've started with some assumptions about what I would find and found something else (see, for example, Vol 1 No 3, *Regional Diversification in Timberland*).

Reader responses to Research Notes can be interesting. Some issues take *hours* to run the analysis and interpret the results. It can take several days to find the time to write them. And I'll get responses along the lines of "Nice, thanks". Then I'll put one together in a single morning and ship it out and I'll get responses like "Wow, this is the best thing you've ever done!" I wish I could figure out how to do more of that kind.

Again, thank-you Readers.