2 May 2019

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Please find attached the latest edition of WillSonn Advisory's Market Trends. It has been an interesting start to the year, with some market indicators showing stability at more sustainable levels (builder sentiment and construction expenditures, affordability, log and product prices), while other indicators are demonstrating potential vulnerabilities (housing starts, existing home inventories, construction times and employment). Also in this quarter's edition, I am pleased to include a contribution by Phil Nash, who authored an interesting piece for my Deeper Dive section – Timberland Investing: Are We Really Hedged and Diversified?

I hope you enjoy this quarter's Market Trends, and as always, look forward to hearing from you if you have any comments or questions. In the meantime, I hope things continue to go well in the coming months.
Best Regards,

Will

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Market Trends

1st Quarter, 2019

Perspectives on the latest market trends and indices impacting the Timber and Wood Products sectors, compliments of WillSonn Advisory, LLC

Q1 2019 Highlights

Market Trends

- Builder sentiment stabilizes and construction expenditures moderate (page 4)
- Affordability continues to drift lower as interest rates move up (page 5)
- 1st Quarter Housing Starts disappoint, well below the 2018 pace(page 6)
- Housing Inventory levels are up, and so is construction time (page 7)
- Construction Employment is up, but productivity is down (page 8)
- Lumber and Plywood prices stabilize, OSB prices continue to slip (page 9)
- PNW Log Prices continue to weaken while the South sees a winter bump (page 10-11)
- Mill margins recover marginally, South advantage dips below $100/MBF in Q1 (page 12)
- US Corporate harvest levels and ownership slip 1% in 2018 (page 13)

In Depth Coverage

- Phil Nash explores Timberland Correlations and Diversification (page 15-24)

In Case You Missed It

- AD&C Loans (page 26)
- Top Builder Challenges (page 27)
- Student Debt by age cohorts (page 28)

Section 1: Latest Trends

Builder Sentiment & Private Residential Expenditures

NAHB's **Homebuilder Market Index (HMI)** and **Remodeling Market Index (RMI)** are measures of home builder and remodeling contractor sentiment.

The HMI posted a modest recovery in the 1st quarter, posting a score of 62 in February and March, still well below the peak of 74 in December 2017. The 6-month rolling average continued to edge lower, recording a 61, down 3 points from last quarter.

The RMI slipped to 57 in Q4. As reported in the first quarter, the NAHB data suggests that average home tenure has increased from ~6 years (from 1987 through 2008) to ~10 years in three of the last four survey years.

Private Expenditures on Single Family Housing (in constant dollars, SAAR) **improved at a 3.1% pace in 2018, a modest decline from the 3.8% registered in 2017. Private Residential Improvement Expenditures moderated in 2018 as well, just 1.7% over 2017 levels, well off the torrid gains of 18.0% posted that year.** Through the first two months of 2019, private single family residential expenditures (SAAR) are down 6.8%, while residential improvement expenditures (SAAR) are up 1.1%, compared to full-year 2018 levels.

*The monthly HMI and quarterly RMI are dispersion indices, measuring the proportion of respondents who have a positive versus negative view (neutral responses are ignored in the calculation). While **a reading over 50 indicates a prevailing positive view of current and future conditions**, it says nothing about the proportion in the neutral camp.*

The Seasonally Adjusted Annual Rate expenditure figures in both charts were deflated using the US Census Bureau's "Fixed" Construction Price Index which adjusts for both inflation and home size.

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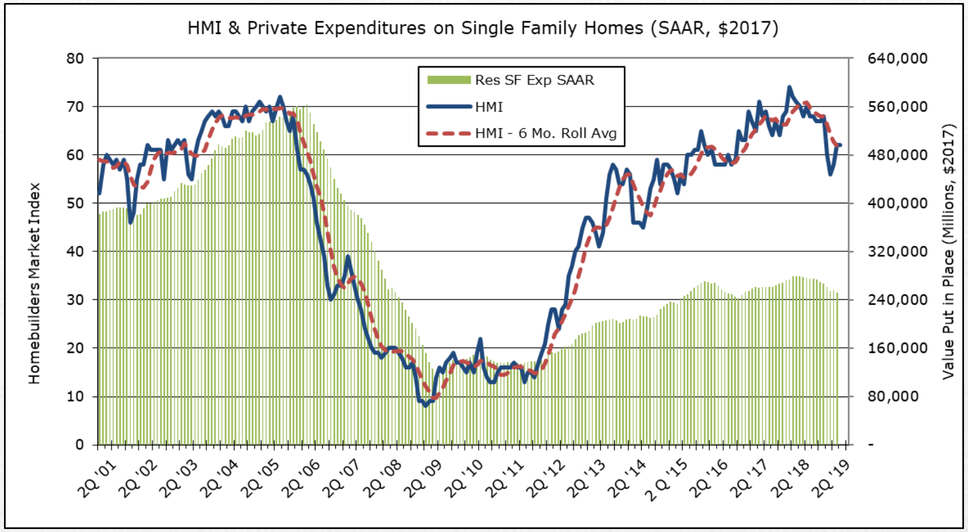
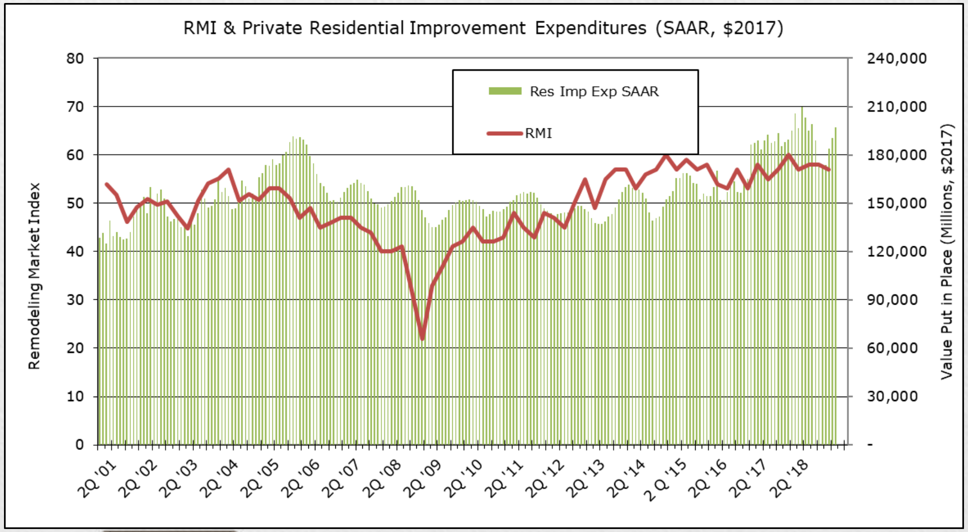


Data Sources: Census Bureau, NAHB, Dept. of Commerce   Charts & Analysis: WillSonn Advisory



Affordability

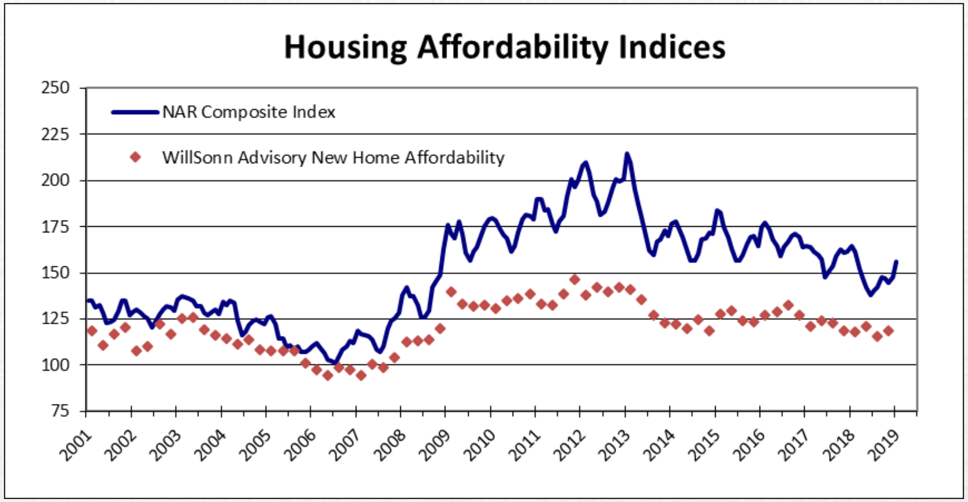
The National Association of Realtors (NAR) Affordability Index (top chart) made its typical Fall rise, registering 156 in January, the lowest January reading since 2008.

Also depicted in the top chart is my measure of new home affordability, one that incorporates the transaction price of new homes (rather than the listing price of existing homes, as used by NAR). Using NAR's family income and interest rates and Census Bureau median **new** home sale prices, I calculate a more modest **New Home Affordability Index of 119 in Q4 2018**. New Home affordability has drifted lower over the past two years due primarily to rising mortgage rates.

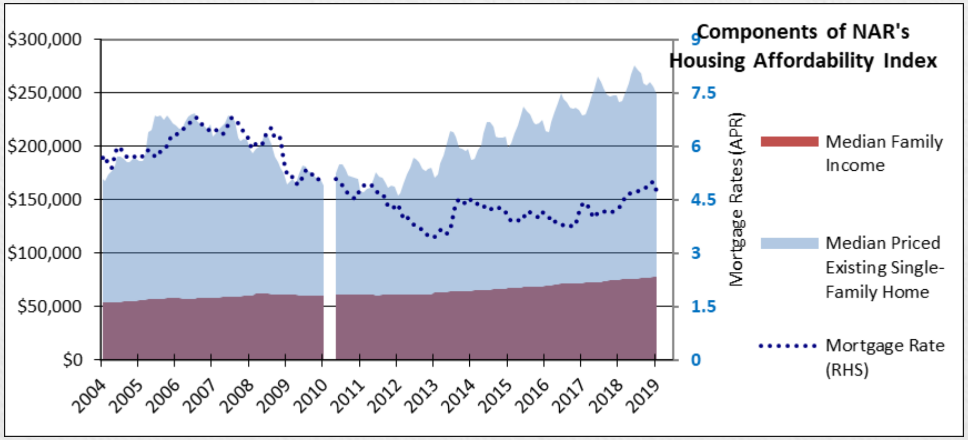
In the bottom chart, I've displayed the movement in the three components of the NAR Affordability Index – home prices, mortgage rates and family income. In 2018, compared to 2017, home prices were up 4.8% and Mortgage rates were up 12.4%, while Median Family Income was up just 3.8% resulting in a lower HAI, down 6.8% from last year. Holding home price and income steady, **a 50 basis point change in mortgage rates reduces the Affordability Index about 10 points**.

In early 2019, we have seen a marked decline in mortgage rates, below 4.1% the last two weeks – this bodes well for affordability heading into the second quarter of 2019.

A reading of 100 means that a family with median income would need to spend fully 25% of its monthly income on a mortgage to purchase the median priced existing home. A reading of 140 means that 25% of the median family income is 1.4 times the mortgage payment for the median priced existing home.



Data Sources: NAR, Census Bureau,, Dept. of Commerce Charts & Analysis: WillSonn Advisory



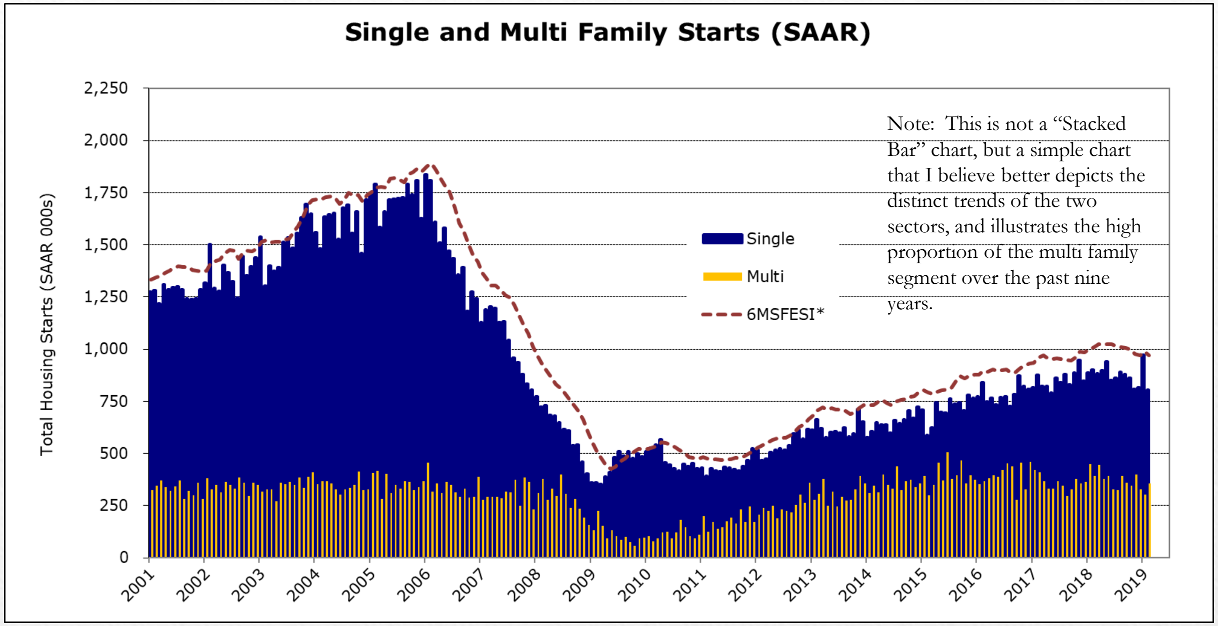
Housing Starts

Total Housing Starts registered 1.162 million units in February (SAAR), **7.0% below the 2018 pace of 1.250 million units.** In February, **Single Family Starts registered 805,000 units,** while Multi-Family Starts came in at 357,000 Units.

Year-to-date (SAAR), Total Housing Starts have averaged 1.218 million units, a decline of 2.5% versus full year 2018. **Single Family Starts are up 1.7%, while Multi Family Starts are down 12.2%, compared to full-year 2018.**

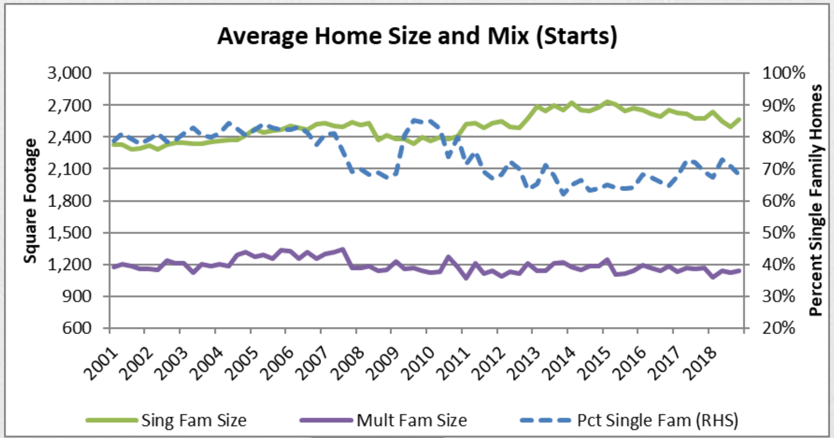
The WillSonn Advisory "6 Month Single Family Equivalent Start Index," recasts a multi family unit into a single family unit based on relative wood use, so a better measure of Housing Start demand for wood. After eight months above a million, the six-month rolling average continued to weaken to **971,000 units, representing 51% of the 2006 peak of 1.9 million SFES's.**

Multi-family units use approximately 2/3 as much wood per square foot compared to a Single Family Unit, and since Multi-Family Units are about half the size of Single Family homes, I count them as a 1/3 single family equivalent.



*6MSFESI = 6 Month Single Family Equivalent Start Index
Data Source: U.S. Census Bureau

Charts & Analysis: WillSonn Advisory



The size of the Single Family Home Starts in 2018 averaged 2,559 sq. ft., down 1.5% from 2017's average of 2,598 sq. ft., assisted by a bump in Q4. The size of Multi-Family Units started in 2018 averaged 1,119 sq. ft., down 3.0% from 2017 average of 1,153. **Single Family units made up 70% of Total Starts in 2018, on par with 2017.**

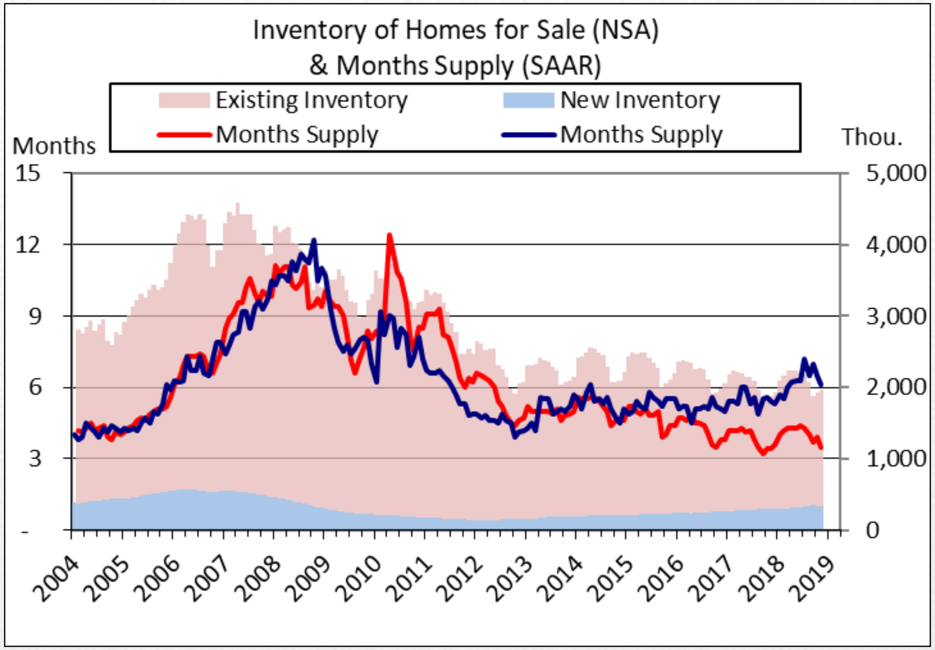
Home Sales and Construction Trends

The Inventory of Homes For Sale (Existing + New) totaled 1.965 million units in February, up 90,000 units from December '18, and up 90,000 units from February, 2018. Separately, Existing Home Inventories are up 50,000 units, while New Home inventories are up 40,000 units, compared to February 2018.

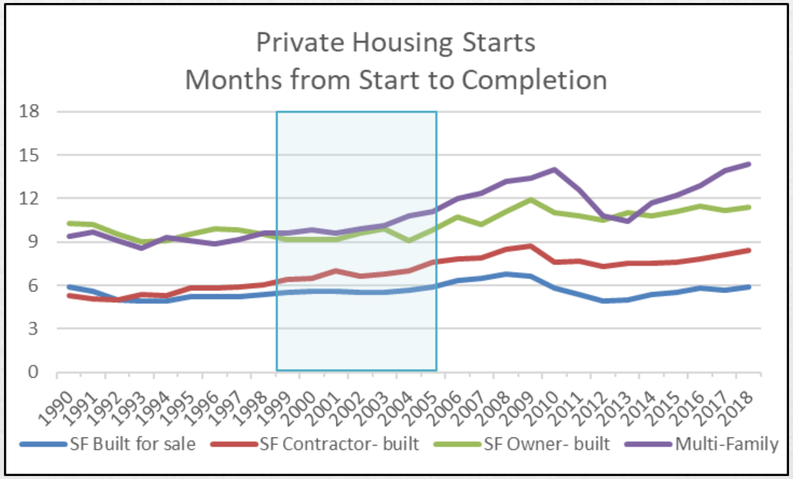
At their respective current pace of sales, there are 3.5 months of sales in Existing Home inventories, and 6.1 months of sales in New Home inventories (high by "normal" historical standards).

Of the 335,000 New units for sale at the end of February, 22% are Completed, 57% are Under Construction, and 21% have Not Yet Started.

Note: "Existing Homes" include both Single Family and Multi-Family units. "New Homes" include only Single Family Homes.



Data Source: U.S. Census Bureau, NAR   Charts & Analysis: WillSonn Advisory



Construction Time continued to increase in 2018 across the board for all subsectors. Single Family Starts "Built for Sale" averaged 5.9 months in 2018, the slowest since 2009. Single Family "Contractor-built" homes averaged 8.4 months to complete, also the longest completion time since 2009. Single Family "Owner-built" homes took an average of 11.4 months, generally in line with past completion times. Multi-Family Units took an average of 14.4 months from start to completion, setting the record going back to 1971.

To the extent that the availability of acquisition, development and construction (AD&C) loans remains constrained, longer build times for the Single Family "Built for Sale" and the Multi Family subsectors puts added pressure on builders, who have to cover the gap in funding with equity (profits form homes they sell) or more expensive private loans.

Please see "In Case You Missed It" for more detail

Construction Employment Update

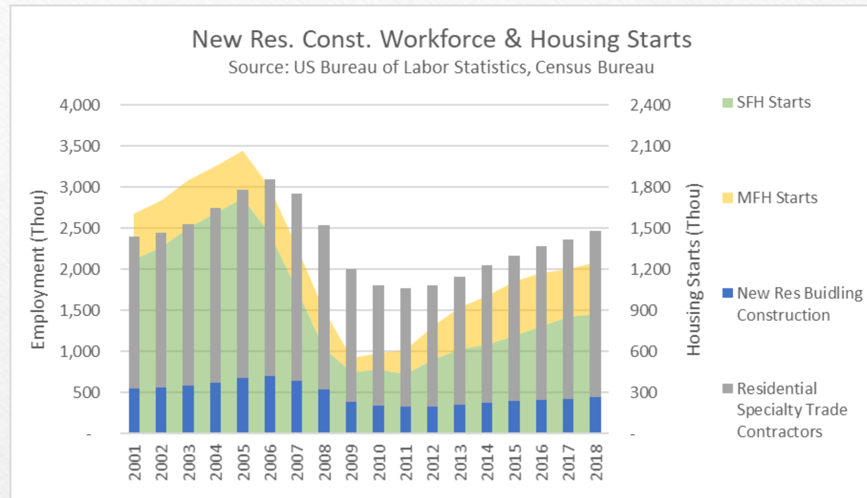
As many of you have read on the National Association of Homebuilders (NAHB) blog, labor availability is the number one concern of builder, with 82% listing it as a major concern for 2019. **Please see "In Case You Missed It" for more detail**

Labor for residential construction is reported in three NAICS codes. The largest is Residential Specialty Trade Contractors – plumbers, electricians, framers, and other independent contractors involved in Residential Construction (including only Residential contractors from NAICS 238). Residential Building Construction Employment (NAICS 2361) includes Remodeling contractors, along with new single and multi-family Builders, which I have separated. Together, I think of this as the "pool" of construction workers available to both the new home and remodeling sectors, since Specialty Trade Contractors can work in either sector.

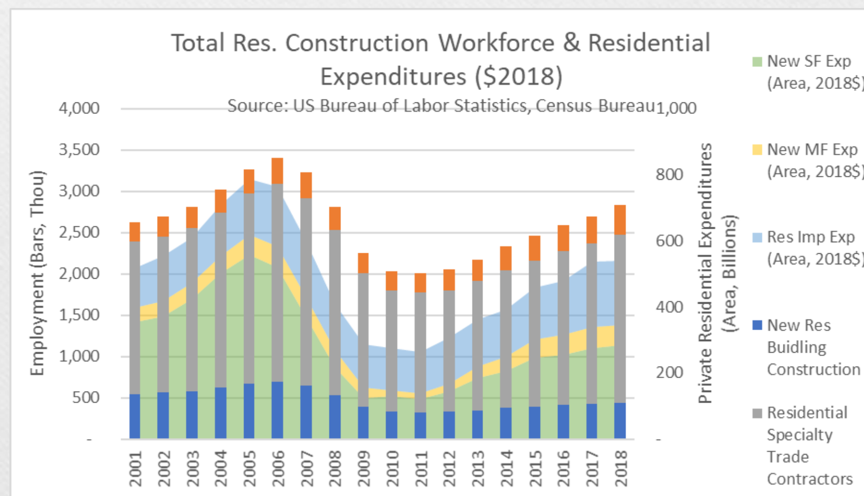
I plotted two of the three employment groups (excluding Remodelers) against housing starts in the top chart. You can see that **New Residential Construction Employment in 2018 was comparable to 2001-2003 levels** (~2.47 million people), **when housing starts averaged 1.72 million units, versus 1.25 million starts in 2018**. Workers in 2001-2003 produced .70 starts/worker/year in 2001-3, but only .51 in 2018 (and it has been at that level for the last five years). That is a 27% drop in productivity. I also looked at square feet constructed between these two period (chart not shown) and it suggests a 25% decline in square feet/employee/year.

Private Residential Construction Expenditures (all in real dollar terms, $2018) was also examined, which includes expenditures on Improvements and Remodeler headcount, shown in the bottom chart. Over the last five years, the US spent only 85% of the dollars per Construction Employee, compared to the 2001-2005 period (recently about $186k/employee, versus ~$219k/employee in the early 2000's).

By all three measures, starts/employee, square feet/employee, and expenditures/employee, **productivity is down. The issue is not headcount, the issue is productivity!** It may be due to increased regulation, less overtime, less skilled workers, fewer undocumented/uncounted workers, or some other factor.



Data Source: U.S. Census Bureau, Bureau of Labor Statistics Charts & Analysis: WillSonn Advisory



Wood Product Prices

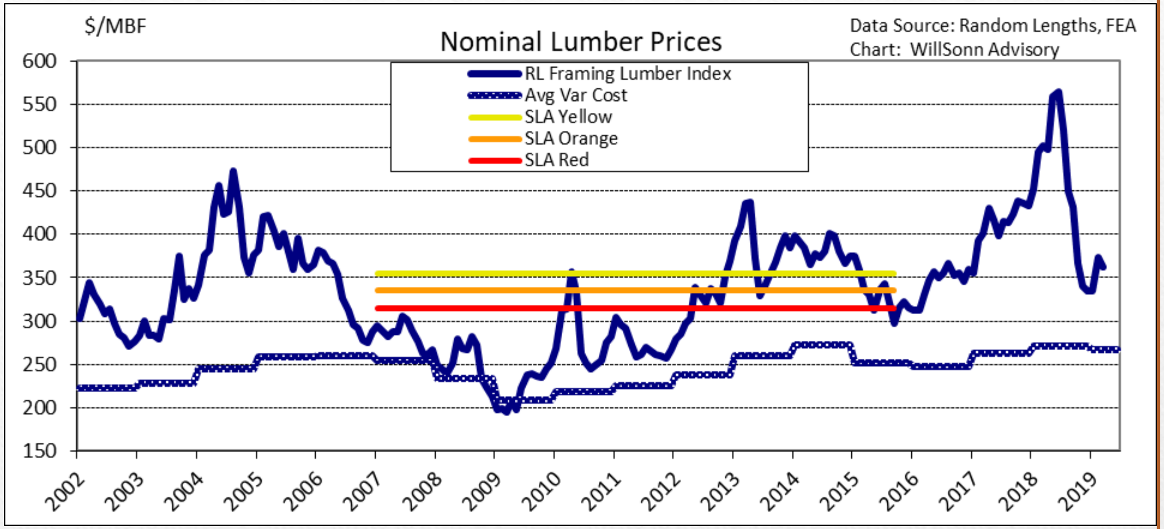
In 2018, while Single Family Housing Starts were up 3.9% and Residential Improvement Spending was up 1.7%, North American lumber production was up only 0.8% through November. This production lag largely caused the run up in lumber prices through June, which in turn put downward pressure on housing starts which peaked in May 2018. Builders had had enough.

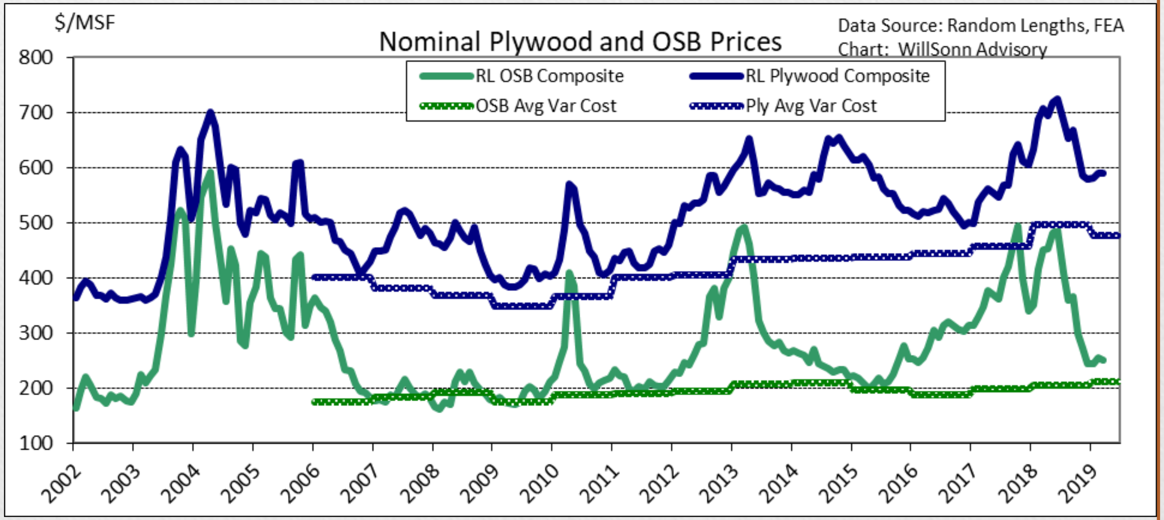
Lumber prices in Q1 2019 posted a modest increase, ticking up 3% from Q4 prices, but 22% below full year 2018 prices. Regionally in Q1 relative to the previous quarter, West Coast lumber mills saw a 13% increase for Dry Dimension and a 5% increase for Green DF, Inland mills saw prices move up 7%, while Southern sawmills saw prices contract 1%. Canadian components of the Random Lengths Framing Composite Index saw gains of 11% and 4% in the West and the East, respectively.

Plywood pricing slipped a skosh during the quarter, shaving 2% off from Q4, and down 12% from FY 2018 levels. First quarter movements were uneven regionally, with the Southern Plywood flat and Western Plywood down 4% for the quarter.

OSB prices in Q1 were 8% below Q4 prices, and 35% below FY 2018 prices.

According to FEA, variable costs for Lumber are expected to moderate in 2019, down 1%. Plywood is also expected to see a decline in variable costs in 2019, down 4%, while OSB variable costs are expected to rise 3%.



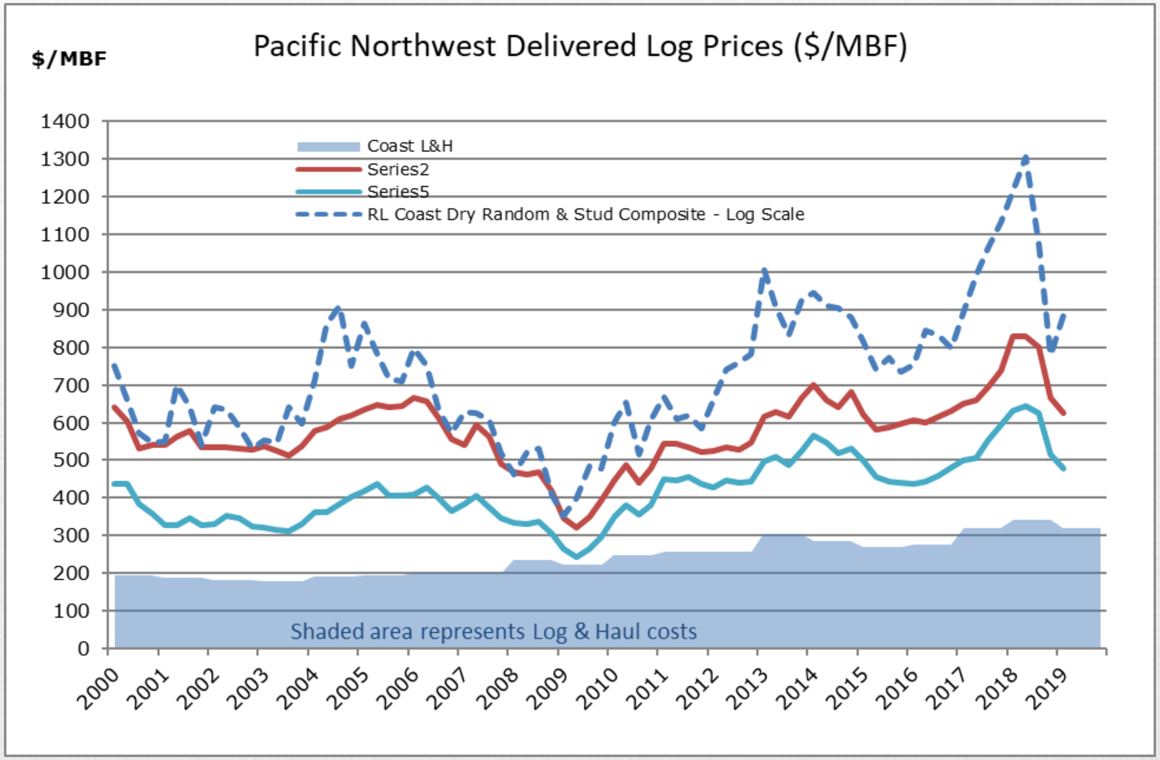


The sharp 40% decline in western lumber prices from the second quarter of 2018 to the fourth quarter, has continued to impact log prices in early 2019, where we saw delivered prices for **Douglas-fir 2saw and Western hemlock 3saw logs lose another 6%-7%.** First quarter prices were 19% - 20% below full-year 2018 prices, and were off 25%-26% from the peak in the second quarter of 2018 (compared to a 32% decline in lumber prices Q2 '18 to Q1 '19).

In contrast, after adjustments for lumber recovery, the Random Lengths Coast Dry Random & Stud Composite price (on a log scale) recovered $108/MBF in Q1, following retreats of $229/MBF in both the third and fourth quarters of 2018 (that's $558/MBF on a log scale!). Lumber prices in 2017 and early 2018 were simply unsustainable, forcing builders to delay starts in Q3 2018.

Log & Haul costs increased in 2018 as higher log prices allowed harvesting on more expensive sites – but as log prices moderate in 2019, Log and Haul costs are expected to follow suit.

PNW Log Prices



Data Source: Oregon DOF, WA DNR, Random Lengths, FEA, Log Lines
Charts & Analysis: WillSonn Advisory

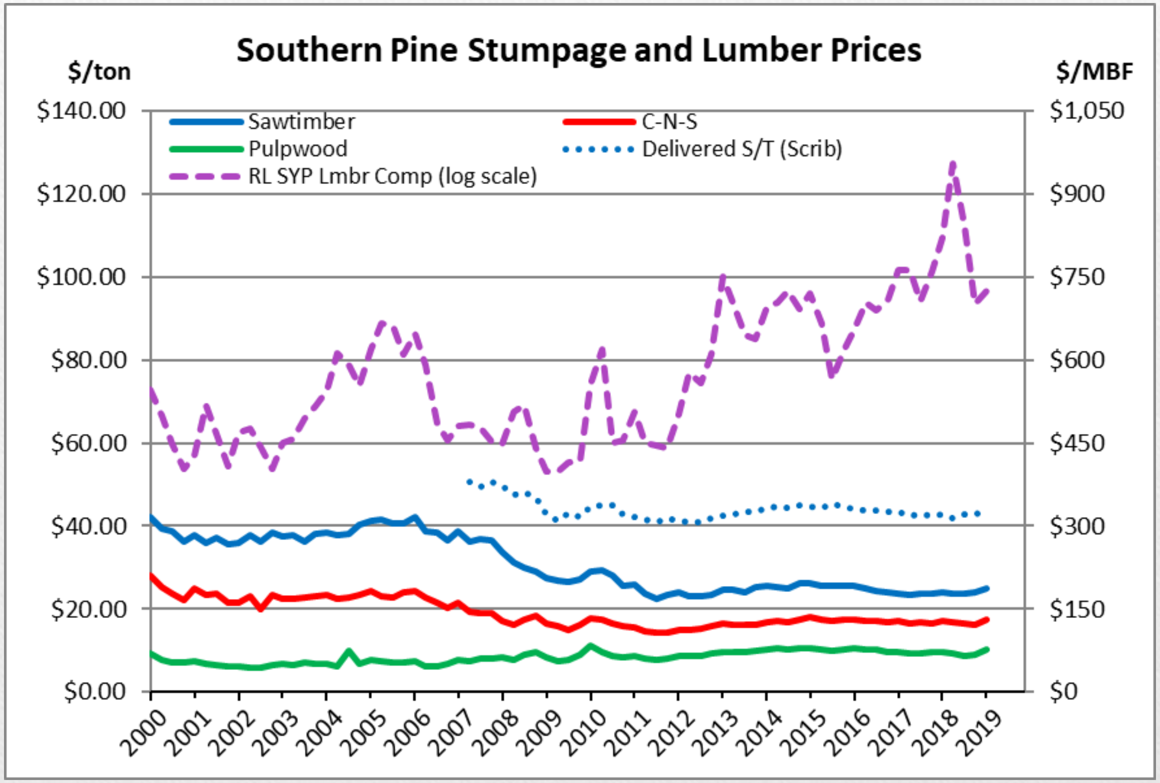
First Quarter Southern Yellow Pine stumpage markets saw prices improve across the board in the first quarter of 2019. SYP Sawtimber prices gained a $1.12/ton in the first quarter, the first $1+ gain seen since 2004 (five years ago!). Chip-n-saw stumpage prices were up $1.14/ton and pine pulpwood was up $1.12/ton in the fourth quarter. This is the first time sine Q1 2009 all three grades rose more than $1/ton (10 years ago!). But don't get too excited; log prices in Q1 often see a bump, only to move sideways or lower in subsequent quarters as logging conditions improve. One quarter does not make a trend.

The Random Lengths SYP Lumber Composite, adjusted for lumber recovery, was up 2% in Q1 compared to Q4 '18, but are 13% below full year 2018 prices

Sawtimber to Pulpwood price ratios remain tight, at a very meager 2.5:1 in the 2012-19 period, well below the bellwether ratio of 4:1, a level not seen since mid-2008!

In my view, SYP sawtimber prices will remain under pressure for a number of years. Tepid housing starts and a concurrent rise in the number of maturing plantations created a backlog of sawtimber on the stump. While new mills in the South will help reduce the backlog, rising plantation productivity and improved mill recoveries could keep a cap on prices.

Southern Pine Log Prices



Data Source: Timber Mart South, Random Lengths, FEA
Charts & Analysis: WillSonn Advisory

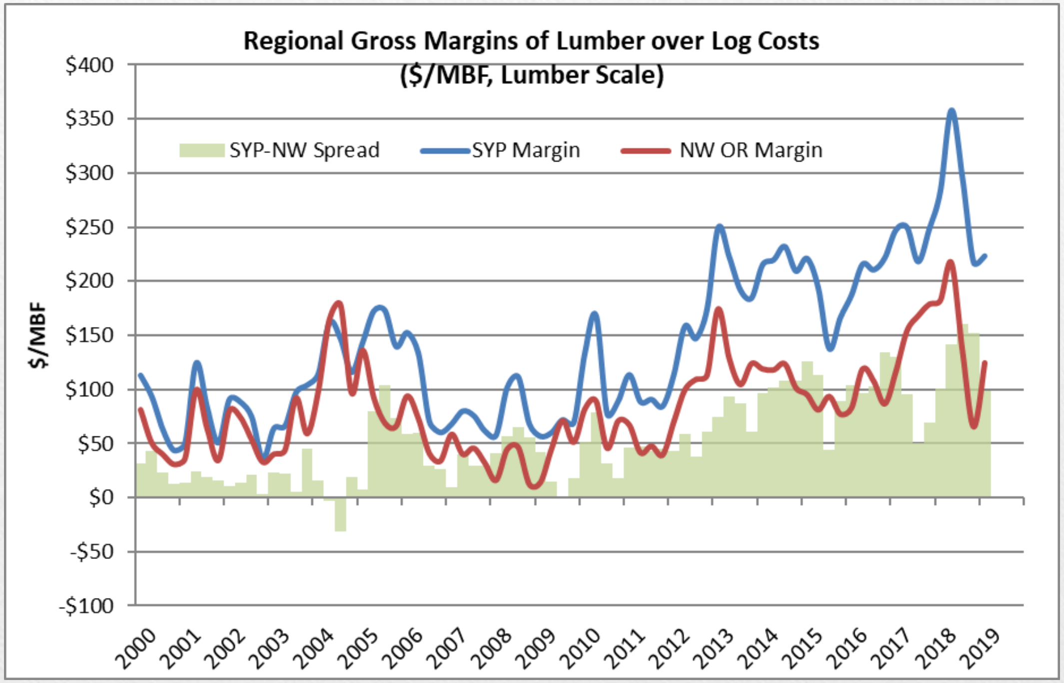
Regional Gross Margins

Sawmill Gross Margins (lumber price minus delivered raw material costs) in the Northwest and South were derived from the figures on the previous two pages. The difference between the two regions is the "spread."

The spread between Southern and PNW sawmills receded in Q1 to $99/MBF, down from an average spread in 2018 of $138/MBF. Gross margins expanded in both regions, from $66/MBF to $125/MBF in the PNW, and from $217/MBF to $223/MBF in the South. Southern sawmills have enjoyed gross margins over $200/MBF in 19 quarters since 2012, while PNW mill gross margins hit that mark only once.

Since the beginning of 2012, log export markets and declining Interior BC lumber production pushed PNW log prices to historical highs. In the South, persistent excess inventories of mature sawtimber on the stump have kept downward pressure on log prices, even as lumber prices have improved. The net result has been that the gap between the PNW's and South's gross margin has swelled to an average of $108/MBF over the last eight quarters, more than 3x the 2000-2013 average of $33/MBF.

In my view, lumber producers will continue to focus capital investments in the US South to capture outsized margins for years to come. In the Northwest, tighter timber supply and exports will keep capacity expansions to a minimum.



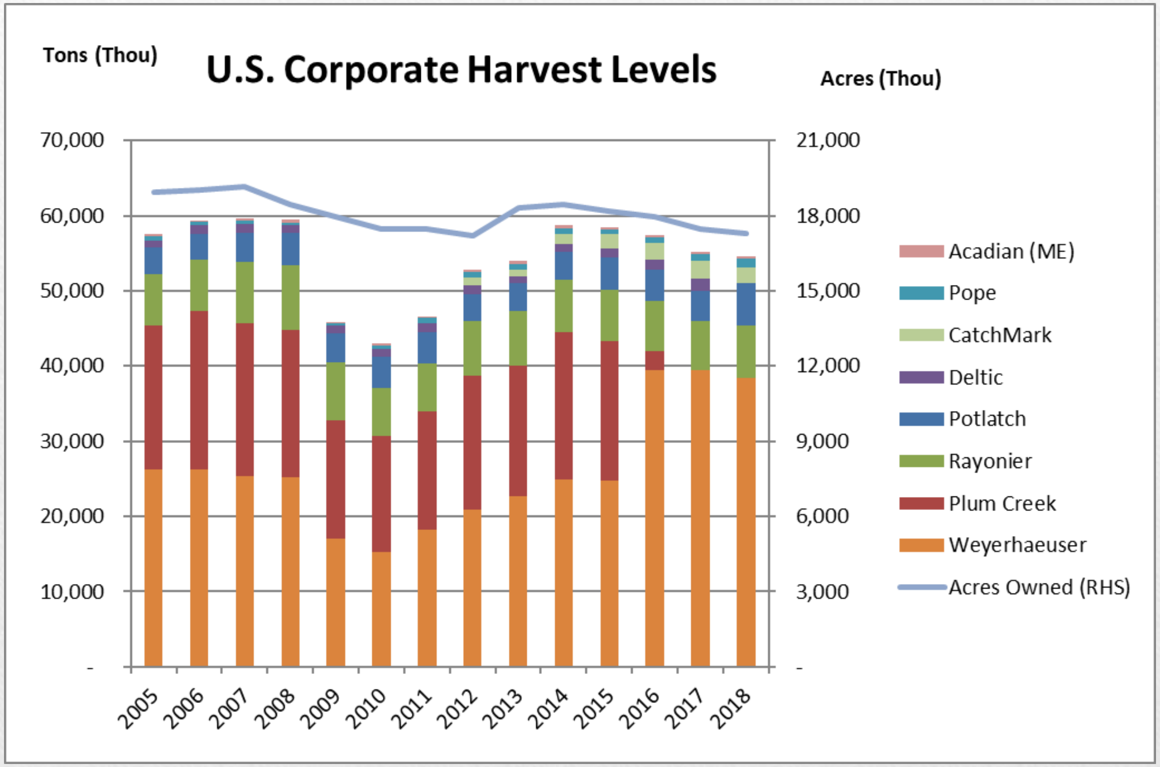
Assumptions: 67/33 weight of DF2saw and WH3saw in the PNW, and a 75/25 weight for S/T and CNS in the South (using 7.5 tons/MBF, along with FEA's estimates of Cut & Haul cost for S/T and CNS). All figures are lumber scale, and regional differences in lumber recovery factors are incorporated.

Data Sources: Timber-Mart South, Random Lengths, FEA, Oregon DOF, WA DNR
Chart & Analysis: WillSonn Advisory

Corp. Timber Company Harvest Levels

Harvest levels by the largest publicly traded timber companies in the United States took another step lower in 2018, 1% below harvest levels reported in 2017, as this group of land owners were net sellers of timberlands, shedding 1% of their ownership during the year.

Comparing 2018 to the average for the 2005-07 period, industry ownership has declined 9% while industry harvest has declined 7% (even with the addition of CatchMark who's 463,000 acres of contributions to both acreage and harvest were not included in the 2005-07 period). The combined Weyco/Plum Creek ownership dropped 16% (2.3 million acres) over this period, the largest decliner. Potlatch grew 37% with the merger with Deltic in 2018 (now Potlatch Deltic) while Pope managed 79% more acres over the time period. On a pro forma basis to reflect the recent merger, PotlatchDeltic ownership is 4% smaller as of the end of 2018, versus 2005-07, while Rayonier is up 4% and Acadian is down 4%.



Data Source: Company SEC Filings and Investor Presentations
Chart & Analysis: WillSonn Advisory

Section 2: Deeper Dive

Timberland Investing: Are We Really Hedged and Diversified?

Prepared by Philip Nash, CFA

Introduction & Methodology

Introduction

- Timberland remains an attractive asset class for institutional investors, especially those who are equipped with information to make an informed investment decision in the current economic environment. Marketing literature tends to highlight timberland's inflation hedging and asset diversification benefits. However, based on empirical evidence, there has been a diminution of these benefits over the past decade. Why is this so and what does this mean for investors?
- Timberland consists of two components (Timber + Land) that drive investment value: a commodity (sawlog and pulplog) component combined with an implied real estate option value. The former adds to current yield through the periodic harvesting of wood fiber. Upon sale of the asset, the latter helps drive the back-ended investment return, along with value ascribed to the future revenue-generating potential of the standing timber on the property.
- Investors differ in their placement or allocation of timberland within a portfolio: Is it real estate? A commodity? An alternative asset? Or does it belong as a type of socially responsible investment, given that it is a renewable resource? We'd like to connect a few dots so that investors can be armed with certain information when considering their exposure to timberland assets as part of a portfolio strategy.

Methodology and Data Used

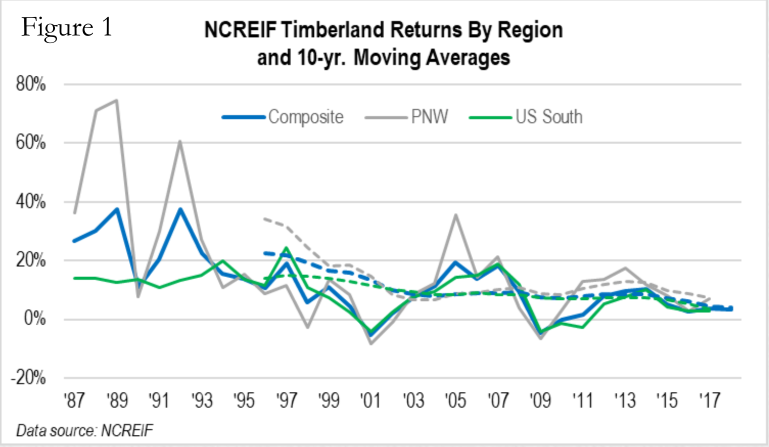
- Correlations for this analysis are done on a rolling 10-year "look back" basis, whereby the bar chart value in any given year reflects *the prior 10 years' data* for comparison purposes. We use a 10-year time period to match a typical institutional investment horizon.
- The primary data source we use is the National Council of Real Estate Investment Fiduciaries ("NCREIF") Timberland Property Index ("NTPI") total return series. This is used for comparison with a variety of interest rate benchmarks, interest rate-sensitive assets, real estate, equities and commodities. There are some well-known limitations of the NTPI return series (e.g. quarterly data series, 4th quarter capture of the bulk of the appreciation component, appraisal "smoothing" and lag effect, and not an "investable" benchmark). That said, NCREIF remains is the longest running return series to work with in analyzing US timberland returns[1].

1 NCREIF Timberland data is reported quarterly, however all comparisons in this analysis are done on an annual total return basis in order to eliminate the impact of quarterly "noise" in NCREIF reporting of income and capital appreciation. NCREIF Composite and sub-region data are also used in this analysis for the Pacific Northwest (PNW) and the US South. The NCREIF Composite has effectively been a "southern index" given its weighting - by acreage and value – historically of between 60% and 70% to US South properties. Composite returns are references for most of this discussion, and we cite any instances where either sub-region has a material difference in correlations.

NCREIF Timberland Returns

- Figure 1 shows the historic return series for the NCREIF Timberland Composite (through 2018), as well as the Pacific Northwest ("PNW") and US South sub-regions (data through 2017 only), as well as the 10-year moving averages. Worth noting is the volatility of the indices in the early years, particularly in the PNW. This was due to fewer number of properties in the index skewing the data set, as well as a supply shock in the region (associated with the spotted owl regulations) which took substantial commercial timberland supply out of the market. This makes indicative returns for that period somewhat less useful as a reference point. Nevertheless, we did want to capture all available data from 1987 inception to the present.
- Other data reviewed:
  - Inflation and interest rate data includes US CPI (year over year, or y/y), the average annual yield on 10-year US Treasuries and the annual total return on US corporate bonds.
  - Real estate data includes the y/y return on the FTS NAREIT All Equity REIT Index[2].
  - Equity index includes the annual total return of the S&P 500 Index.
  - Pine sawtimber (PST) stumpage prices are y/y changes in pricing reported by Timber Mart-South.

Figure 1



[2]The FTSE NAREIT All Equity REITs Index is a free-float adjusted, market capitalization-weighted index of U.S. equity REITs. Constituents of the index include all tax-qualified REITs with more than 50 percent of total assets in qualifying real estate assets other than mortgages secured by real property. Visit FTSE Russell website to learn more about the FTSE Nareit All Equity REIT Index

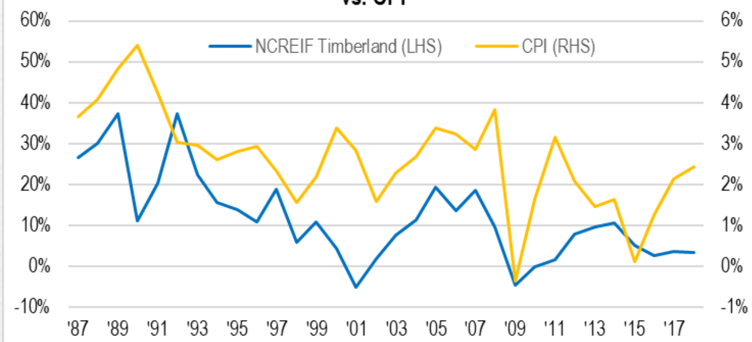
Timberland as an Inflation Hedge

Industry Viewpoint: Timberland is an effective inflation hedge.

Reality: This has generally been the case across most timber markets historically. However, evidence suggests a marked weakening of timberland's inflation hedging benefit in recent years.

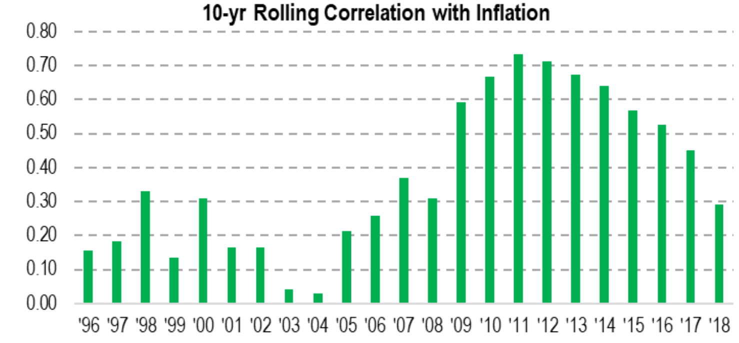
- Figures 2 and 3 show the NCREIF Timberland Composite returns vs. inflation since 1987 and their correlation over time. The Composite shows an historically positive yet weakening correlation with inflation. We ascribe the weakening of timberland's inflation hedge to several factors.
    - Not shown, the PNW correlation chart has a similar pattern as well, whereas the US South moved from negative correlations in the earlier years to positive correlations more recently.
- First, although timberland returns generally moved in line with inflation throughout much of the 2000s (the steepening of positive correlations observed mid-decade), the relatively high correlations did not persist. Robust timberland valuations skewed NCREIF capital appreciation well above inflation, both in the late-90s and early 2000s; this was a departure from lower correlations observed in the earlier periods (Figure 3).
- Second has been the de-linking of timberland returns with the underlying economic and sector fundamentals. This has persisted over the past decade – sustained timberland returns despite weak underlying stumpage pricing - leading to a lowering of correlations.
- Third, is the low inflation environment following the 2008-2009 financial crisis, which by definition effectively negates the opportunity for any such hedging benefit.

Figure 2



Data source: NCREIF, St. Louis Fed

Figure 3



Data source: NCREIF, St. Louis Fed

Timberland as an Inflation Hedge (continued)

- Figures 4 and 5 show the NCREIF Composite returns vs. US 10-year Treasury yields (a proxy for inflation expectations) since 1987 and the corresponding correlation history.
- Over the past several years, while US Treasury yields were steadily tracking downward, timberland returns were being driven higher at times by aggressive allocations by fund managers, resulting in progressively higher acquisition prices, carrying values and capital appreciation in the Index. Two periods of negative correlations corresponded with periods of volatility in the Index - rapid appreciation or depreciation - compared to the more modest yield environment.
  - Not shown, the PNW and US South sub-regions have similar correlation profiles.
- The takeaway for investors? If you want to be hedged against inflation in your timberland program, it will be more of a challenge in the current environment to lock in outsized gains through initial exposure of fully priced timberland assets. Nominal returns from such a high entry point are less likely to keep pace with any unexpected increases in inflation.

Figure 4

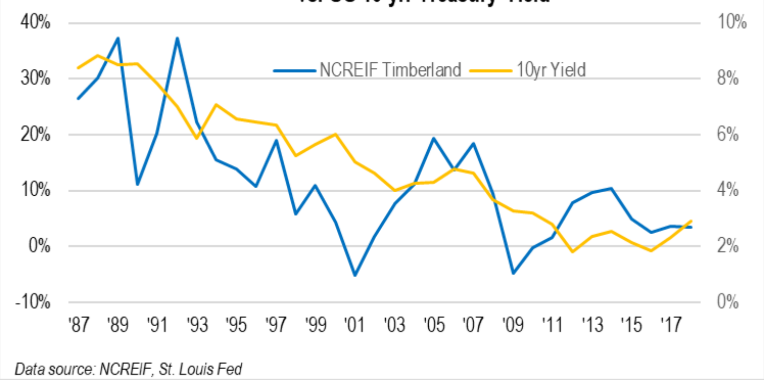
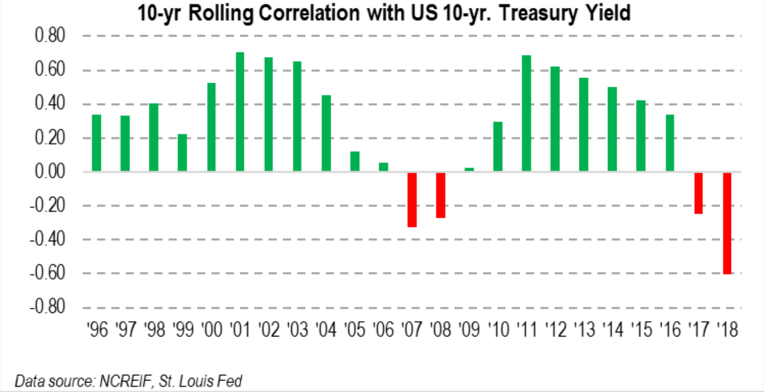


Figure 5



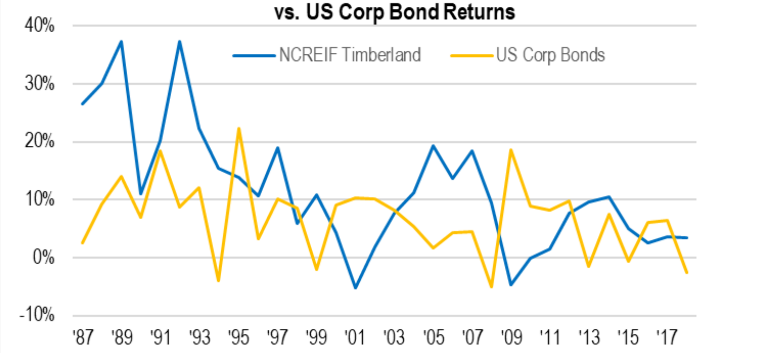
Timberland as an Asset Diversification Strategy

Industry Viewpoint: Timberland investing is an effective asset diversification strategy. Returns have a low to negative correlation with major market indices, as well as a variety of alternative asset classes.

Reality: The evidence suggests inconsistent diversification benefits, depending on the time frame, the assets under consideration, and the region in which one has timberland exposure.

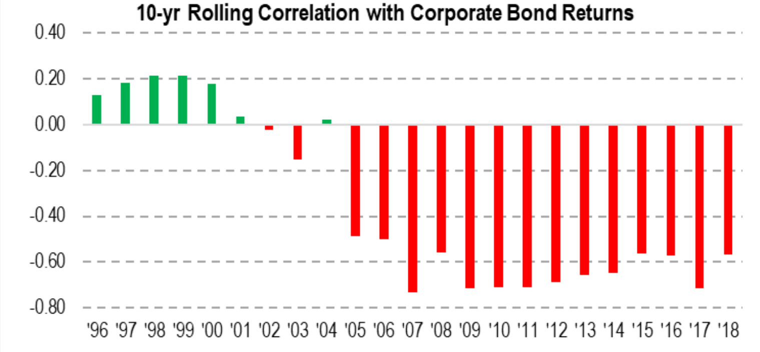
- If you want to be diversified using interest rate sensitive assets, US corporate bonds have been a good bet historically.
- Figures 6 and 7 illustrate this point in showing the respective return history and correlations of the NCREIF Timberland Composite and *total returns* (not yield) on a US corporate bond portfolio. Looking ahead, however, these persistently negative correlations could weaken in a steadily rising interest rate environment, given that both US bond returns and timberland valuations (and returns) would come under pressure.
- We acknowledge that, although there has been little on the US economic news front recently that would suggest any shift in the rate environment, things do change…

Figure 6



Data source: NCREIF, Bloomberg

Figure 7



Data source: NCREIF, Bloomberg

Timberland as an Asset Diversification Strategy (continued)

- When compared to REITs, timberland has had a mixed correlation history (Figure 9), moving from weak positive in the past to increasingly negative in recent years.
- The relative volatility of the REIT returns (Figure 8) has added to this shift in correlations. The number of companies in the REIT universe has expanded over the past couple of decades, which helps to contribute more data observation points for the REIT Index. The publicly-traded REIT universe also benefits from more frequent mark to market valuations (e.g. more reflective of current market conditions) compared to timberland, which adds to negative correlations over time.
    - The PNW had more pronounced positive correlations and the US South more pronounced negative, both following the same pattern.
- The evidence suggests that REITs are another interest rate sensitive asset class that are an option for investors seeking to diversify their timberland portfolio exposure. Along with corporate bonds, they present a similar positive to negative correlation profile. However, in a rapidly rising rate environment, one could expect this diversification benefit to diminish.

Figure 8

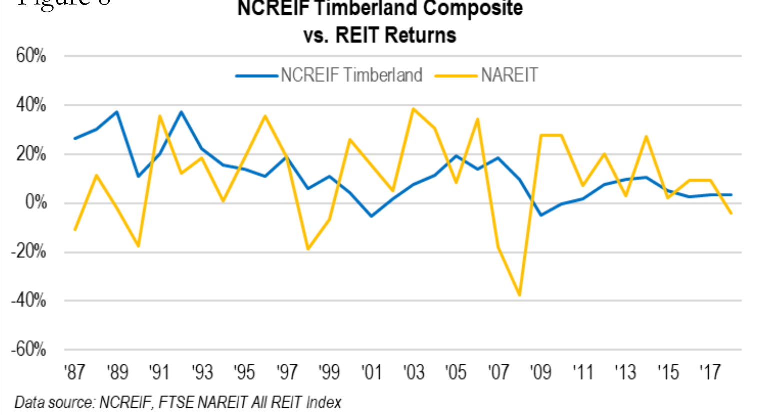
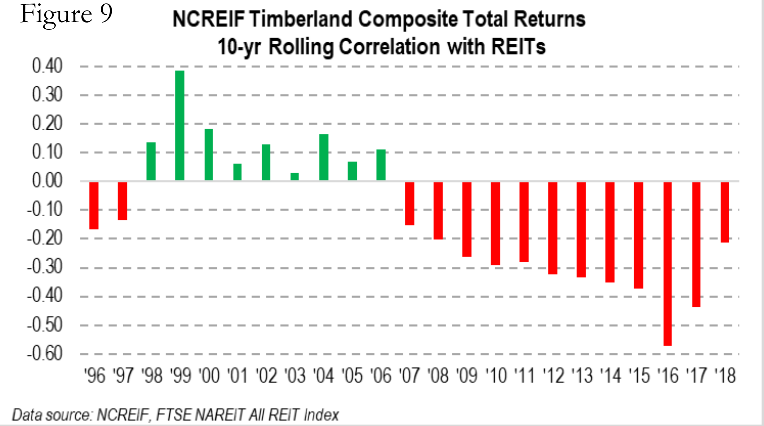


Figure 9



Timberland as an Asset Diversification Strategy (continued)

- In Figure 10, we show the return series for the NCREIF Timberland Composite along with the total return of the S&P 500 Index.
- Figure 11 indicates that formerly positive correlations to the left of the chart have given way to modestly low negative values in recent years.
  - By contrast, the PNW correlation chart shows exceedingly weak 10-year correlations (=/- 0.1) over the past 8 years.
- The commencement of negative correlations coincided with the equity market decline in 2008 and volatility in the market has persisted. Although we are comparing annual data in this analysis, the appraisal lag effect in the NCREIF data will continue to be a factor.
- Equity markets reflect pricing in open, transparent and actively traded markets compared to timberland. One could reasonably conclude that the observed modestly negative correlations to low positive correlations should remain in the future, thereby retaining timberland's diversification benefits for investors.

Figure 10

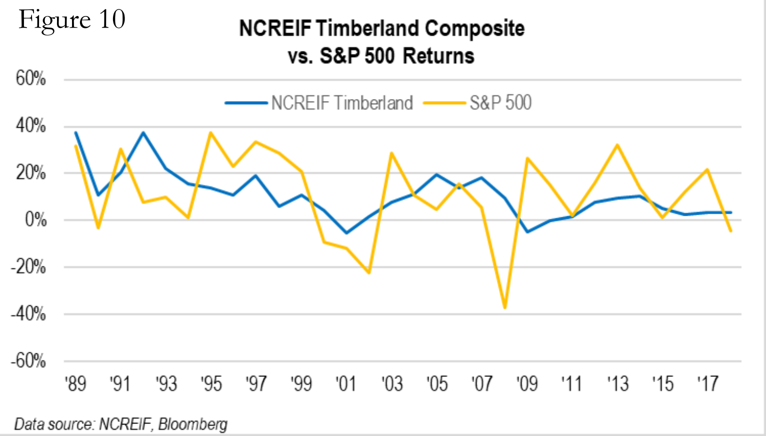
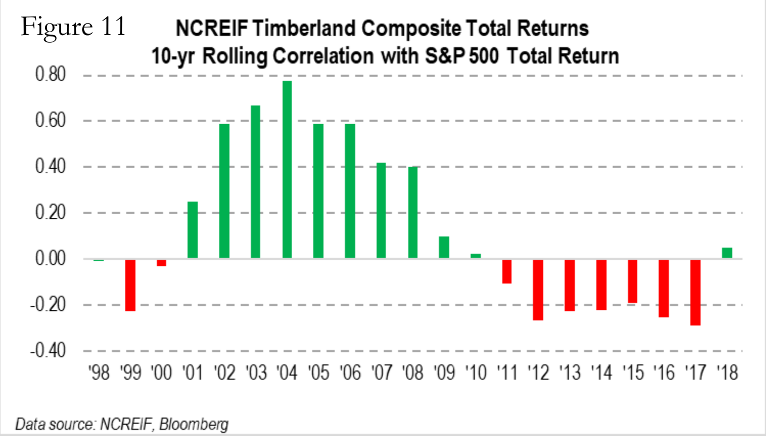


Figure 11



Southern Timberland Pine Sawtimber Stumpage Prices

- Lastly, we can't have a discussion about US timberland returns without looking at sector-specific pricing, such as southern pine sawtimber (PST) stumpage (Figure 12).
- Many timberland properties are managed to a sawtimber regime, so one might expect a southern property return to correlate with regional sawtimber stumpage prices. This has clearly been the case in the past, although this relationship has broken down in recent years (Figure 13) as pine sawtimber stumpage prices have remained mired at historic lows in contrast with sustained timberland values and positive returns.
- This disconnect between robust timberland values and weak underlying fundamentals is well known, and is likely to persist due to supply/demand imbalances for wood fiber in the region that are expected to cap any pine sawtimber stumpage increases for the foreseeable future.

Figure 12

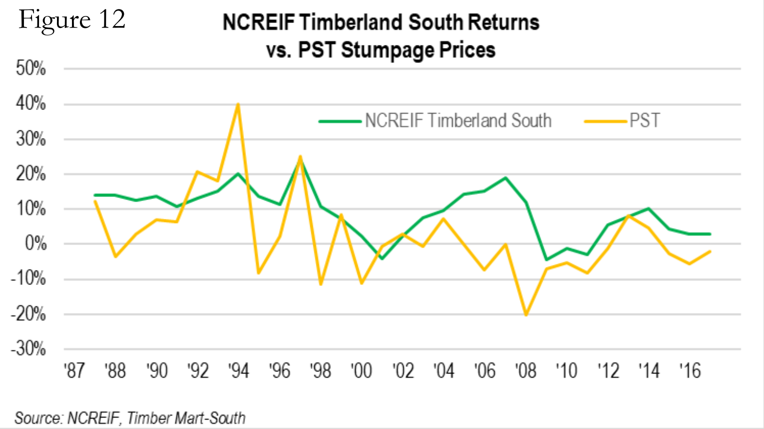
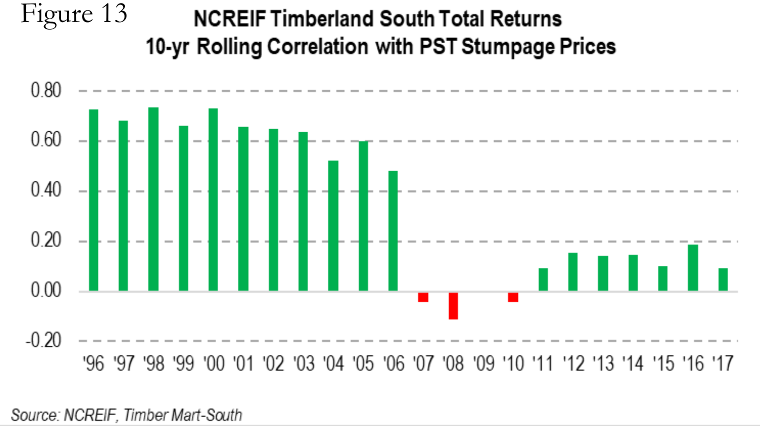


Figure 13



Philip Nash, CFA

- Philip Nash, CFA is a consultant and finance professional with over 35 years of experience in timberland investment, real estate, corporate finance, and asset valuations.
- Particular strengths in global market research and trend analysis, financial analysis, project management and synthesizing data into key insights and implications.
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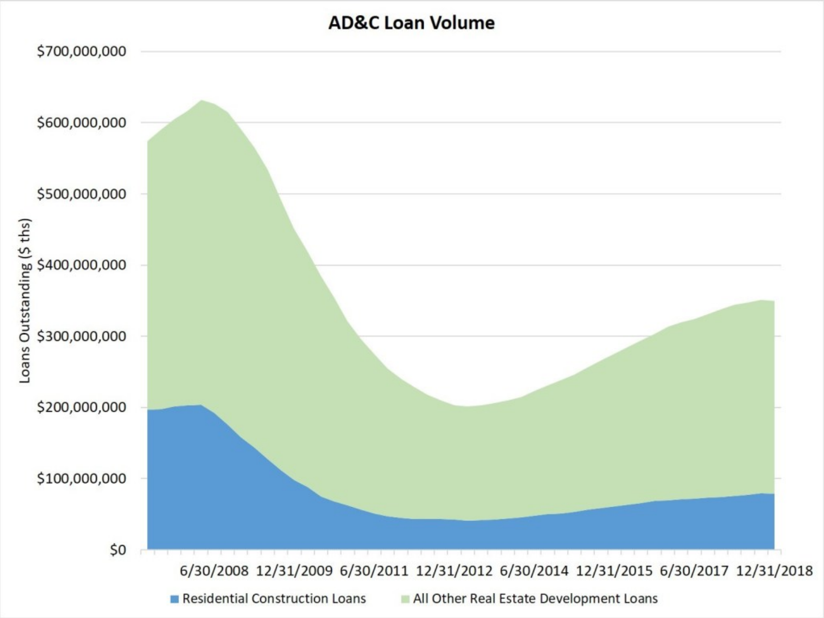
Section 3: In Case You Missed It…

NAHB: AD&C Loan Stock Declines for First Time Since 2013 BY ROBERT DIETZ *ON* MARCH 6, 2019

HTTP://EYEONHOUSING.ORG/2019/03/ADC-LOANS-DECLINE-FOR-FIRST-TIME-SINCE-2013/

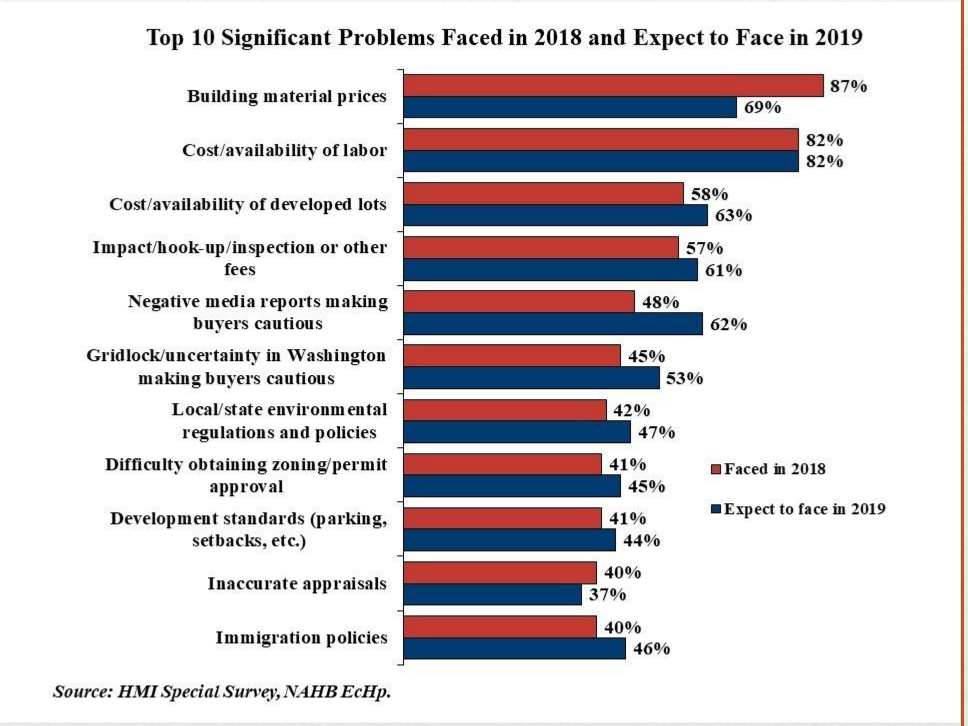
- The volume of residential construction loans decreased 0.2% during the fourth quarter of 2018, ending a period of 22 consecutive quarters of growth. While the decline was small, the slowdown in the stock of lending for development purposes mirrors a recent NAHB survey finding neutral conditions for AD&C lending as interest rates increased.
- Tight availability of acquisition, development and construction (AD&C) loans has been a limiting or cost factor for home building growth, but easing credit conditions and a growing loan base helped, until late 2018, expand residential construction activity, albeit modestly. According to data from the FDIC and NAHB analysis, the outstanding stock of 1-4 unit residential construction loans made by FDIC-insured institutions declined by $142 million during the final quarter of 2018, placing the total amount of outstanding loans at $79 billion.
- On a year-over-year basis, the stock of residential construction loans is up 6%, the lowest rate since 2013. Since the first quarter of 2013, the stock of outstanding home building construction loans has nonetheless grown by 94%, an increase of $38 billion.
- It is worth noting the FDIC data represent only the stock of loans, not changes in the underlying flows, so it is an imperfect data source.
- Lending remains much reduced from years past. The current amount of existing residential AD&C loans now stands 61% lower than the peak level of residential construction lending of $203.8 billion reached during the first quarter of 2008.
- Thus, as lending slows down a gap remains between the current volume of home building demand and available credit. This lending gap is being made up with other sources of capital, including equity, investments from non-FDIC insured institutions and lending from other private sources, which may in some cases offer less favorable terms for home builders than traditional AD&C loans.



NAHB: Top Challenges for Builders: Materials in 2018, Labor in 2019 BY ASHOK CHALUVADI *ON* MARCH 18, 2019

HTTP://EYEONHOUSING.ORG/2019/03/TOP-CHALLENGES-FOR-BUILDERS-MATERIALS-IN-2018-LABOR-IN-2019/

- *Building material prices* topped the list of problems builders faced in 2018, but cost and availability of labor is expected to return to the number one spot in 2019, according to special questions on the January survey for the NAHB/Wells Fargo Housing Market Index. The survey results showed that material prices were a significant issue for 87% of builders last year. In 2019, however, "only" 69% of the builders expect them to continue being a problem. The second most widespread problem in 2018 was *cost/availability of Labor* cited by 82% of builders Unlike building materials, the share of builders expecting cost and availability of labor to be a problem this year is the same as share reporting it a problem last year, making labor shortages the most widespread challenge builders expect to face in 2019.

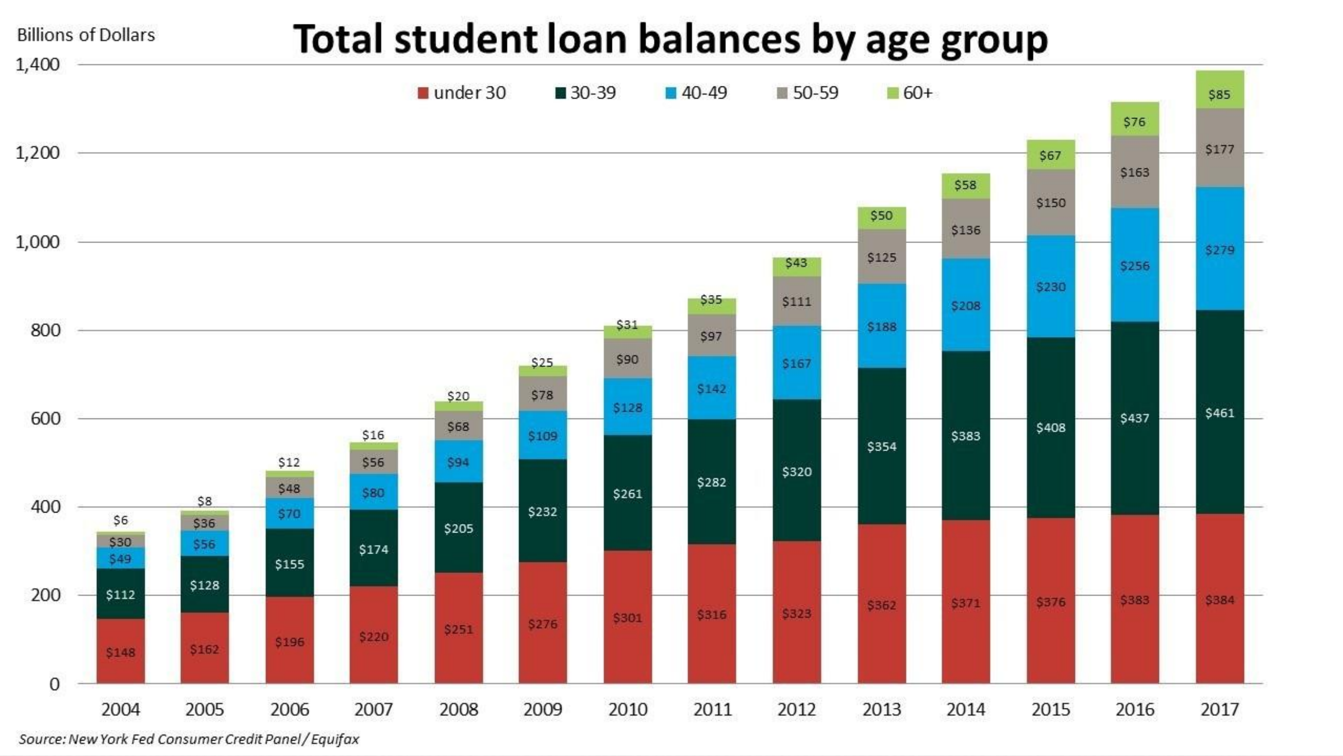


NAHB: Student Loans Crowding Out Home Purchases

BY LITIC MURALI *ON* JANUARY 31, 2019

HTTP://EYEONHOUSING.ORG/2019/01/STUDENT-LOANS-CROWDING-OUT-HOME-PURCHASES/

- For those out there that are still in denial about the impact of outstanding student debt on home purchases, check out this chart.
- My biggest takeaway is that student debt doesn't just affect the Under 30 cohort (relatively low homeownership rates), it impacts the 30-39 and 40-49 cohorts (much higher homeownership rates) as well.



Section 4: About WillSonn Advisory, LLC

WillSonn Advisory

Critical Experience for Critical Endeavors

WillSonn Advisory brings senior management experience, across multiple sectors of the wood products industry, with expertise in leading an array of strategic initiatives

Sectors

- Timber, Manufacturing, Bioenergy
- Private Industry & Institutional Investment
- Corporate Lending
- Consulting
- Domestic and International

Experience

- Mergers, Acquisitions & Divestitures
- Timberland Operations
- Finance & Planning, Financial Reporting
- Loan Origination & Underwriting
- Operations Support

Expertise

- Strategic Planning
- Asset Valuations and Due Diligence
- Project Management
- Contract Negotiations
- Budgeting & Forecasting

WillSonn Advisory Services

- Timberland & Mill Valuations
- Acquisition "Post Mortem" Audits
- Conversion of Acquisition Pro Forma to Lender Financial Projections
- Acquisition and Operational Due Diligence
- Development of Company Enterprise Valuations
- Incorporating Economic Forecasts

Business Assessments & Due Diligence Services

- Acquisition and Divestiture Process Management
- Conduct Regional or Global Market Studies
- Plan and Oversee Inventory & GIS Projects and/or Audits
- Independent Review of Harvest Flow Projections and Processes
- Prepare Offering Memorandums and Prospectuses

Project Management Services

- Fiber/Log Supply Agreements
- Purchase & Sale Agreements
- Timber Deeds and Leases
- Conservation Easements & Carbon Projects
- Service and Offtake Agreements
- Joint Ventures & Partnerships
- Contract Negotiating Strategies

Contract Structuring and Negotiation Services

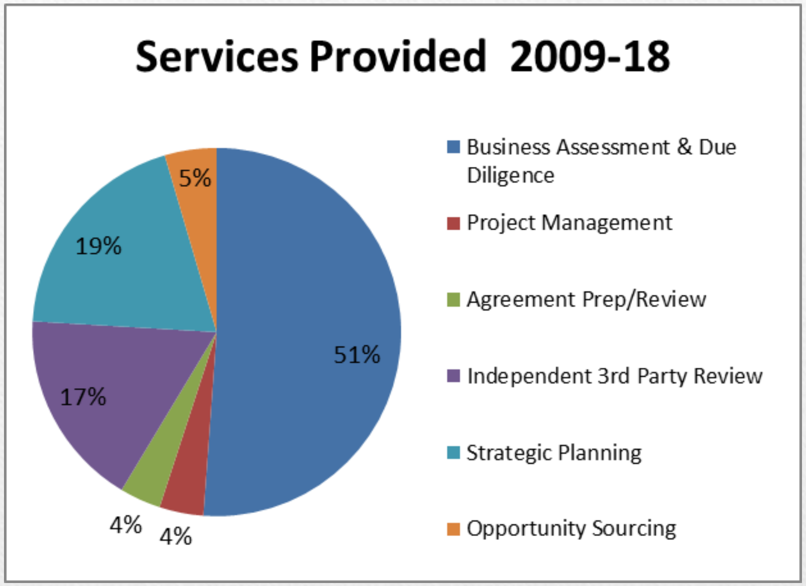
- Strategic Plan Process Design, Facilitation and Documentation
- Company Specific Price, Supply and/or Demand Forecast Development
- Contingency Plan Development and Monitoring
- Financial Planning and Capital Restructuring
- Work-out Strategy Development
- Capital Investment Assessments

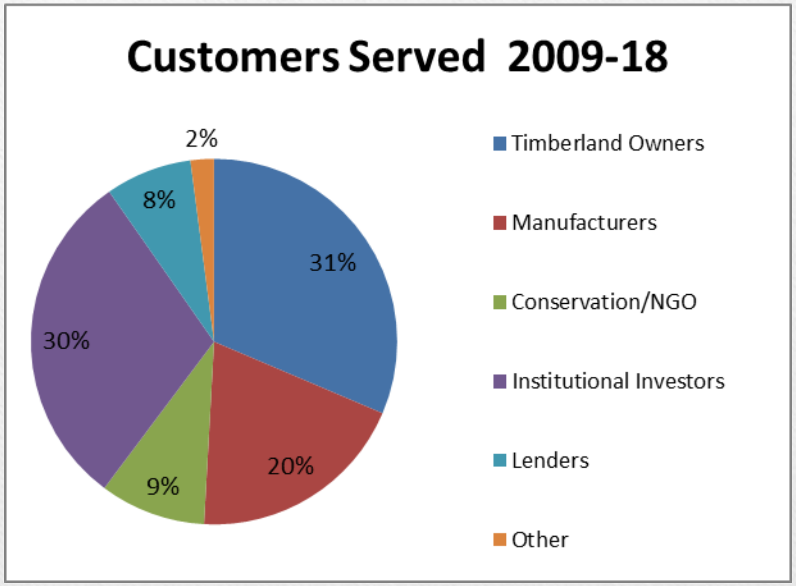
Strategic Planning & Business Restructuring Services

- Validate Acquisition Valuations & Due Diligence Procedures
- Evaluate Existing or Proposed Agreements or Easements
- Interpret Annual Management Plans & Appraisals
- Examine Proposed Transfers of Ownership
- Review Divestiture Timing & Strategies
- Track Investment Performance

Institutional Investor Services

Engagement Profile





Since early 2009, Will Sonnenfeld has been pleased to provide a broad range of consulting services to dozens of clients across the full spectrum of industry sectors.

I look forward to your comments and questions, and welcome the opportunity to serve your consulting needs.

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