

The Influence of Selected Macroeconomic Trends on Timber Markets

Introduction

Frequently we are asked to comment on how various macroeconomic trends affect timber markets. Over the last few years, in light of the challenges faced by the U.S. economy generally, and timber markets specifically, these questions are directed at us with increasing regularity.

As would be expected, specific macroeconomic trends and variables positively bias timber prices, others introduce a negative bias, and yet others have no discernible impact. Here we discuss the impact of ten factors we consider most important and are asked about most frequently. Specifically, we consider the impacts of (1) inflation, (2) interest rates, (3) the business cycle, (4) world value of the dollar, (5) demographics and housing, (6) product substitution and production technology, (7) international competition, (8) manufacturing capacity, (9) timberland transfer trends and (10) Gross Domestic Product.

Inflation

Inflation's impact on timber markets is typically neutral, but at times can be positive. Inflation, as measured by the Consumer Price Index (CPI) has trended downward over the last two decades. Starting in the early 1980s, the Fed's understanding of how to manage inflation began to improve dramatically, as the Fed began shifting away from the Keynesian economic policies employed during much of the post-WWII period, and moved toward implementing the monetarist policies advocated by economists such as Friedman. Inflation was largely arrested in the 1980s, albeit at the cost of a severe, short-lived recession early in the decade. Since that time, however, inflation has not returned to the high levels or had the magnitude of volatility that existed in the 1970s and earlier.

Inflation has averaged about 3.6% since 1950. In 2000, inflation was just 0.97%, an extremely low level. In 2001 the CPI rose to 3.13%, fairly close to its historical average. But 2001 was also the first year in a decade that inflation exceeded 3%. Inflation declined to 2.4% in 2002, and 1.9% in 2003. In 2004, however, due to the sharp rise experienced in energy prices, the year-to-date inflation rate has climbed to 3.5%, which again puts it in line with the historical post-WWII average.

To put this into perspective, the 1980s are widely regarded as "inflationary." But during that decade, inflation was less than 4% in 6 of 10 years. Moreover, between 1982 and the end of that decade, inflation was on a downward trend after the Fed essentially "broke" inflation. Absent further unpredictable short-term supply shocks arising from exogenous factors such as oil prices, the underlying inflation rate is likely to remain low for the foreseeable future. That said, the world energy situation has been increasingly volatile during the past year. However, this volatility has not translated into any visible impact on timber or timberland prices.

There is a widely held – and incorrect – perception that timber prices consistently rise faster than inflation. In fact, timber prices are not highly correlated with inflation when inflation is at low

levels. During such periods, timber prices can rise more rapidly, more slowly, or occasionally in lockstep with inflation.

The notion that timber prices rise faster than inflation is rooted in the U.S. inflationary spiral of the late 1970s. From that time into the early 1980s, timber prices, along with the price of other “hard” assets rose quickly and dramatically, reaching previously unprecedented levels. But this situation abruptly reversed when mortgage rates rose to double digit levels, the housing market subsequently collapsed for several years, and the economy fell into recession. Put another way, over the long term, timber prices are more closely tied to trends that underlie the demand for forest products – such as markets for housing, paper and furniture – than to inflation.

Interest Rates

The impact of interest rates on timber pricing is neutral to positive. As this is written in November 2004, interest rates, despite recent increases, are still not far above their lowest levels in 40 years. Starting in July 2004, the Fed began gradually raising the Federal Funds rate from 1% to its current level of 2%. However, as recently as the beginning of 2001, the rate stood at 6%.

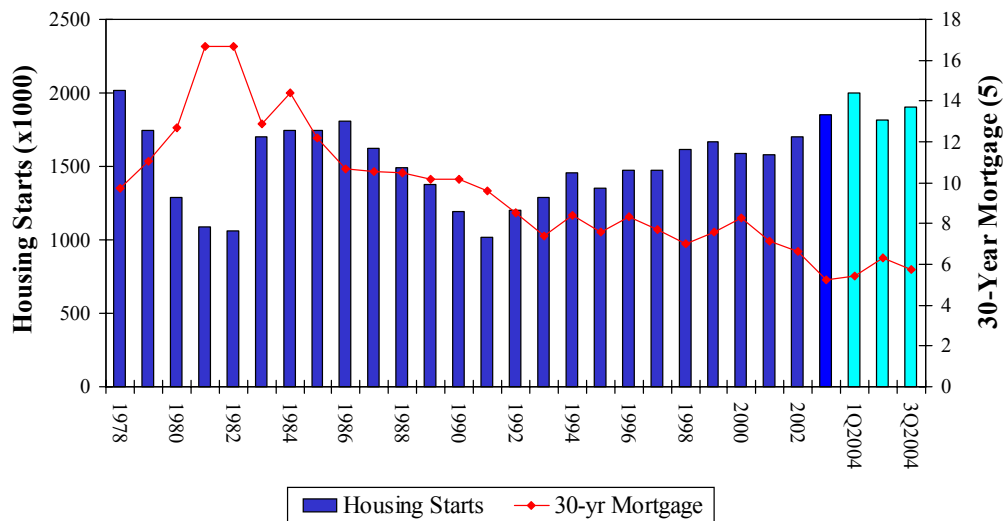
At the long end of the yield curve, interest rates movements during the last year have been volatile, which has caused some distress in fixed income markets. Nonetheless, in a historical context, long rates remain low. Currently, the 10-year Treasury at about 4.2% is at a level last seen in the mid-1960s. Some observers have expressed concerns that, as rates rise towards their historical averages, the housing market will be choked off. We believe these worries are overblown for two reasons.

First, even if the economic recovery continues to be measured, any recovery will inevitably result in declining unemployment and rising personal income. Although some have labeled the current recovery a “jobless” one, the fact is that the unemployment rate has trended downward to 5.1% in October 2004 from 5.6% a year earlier. The current unemployment rate is by no means high in a historical context.

Declining unemployment and rising income increases the pool of potential homebuyers regardless of whether interest rates are rising. Therefore, unless long-term rates climb rapidly and dramatically, the economic recovery is much more likely to support rather than to weaken housing.

Second, Figure 1 compares the 30-year mortgage rate to housing starts. Although there is a negative correlation between the two series, they have not always been dramatically divergent. Even during periods of extremely high interest rates, we see from the figure that housing starts do not decline in lockstep. This is due partly to demographics, family formations, which are discussed in greater detail later. For example, between 1983 and 1988, annual housing starts averaged 1.68 million units while mortgage rates averaged 11.86%. Between 1993 and 2003, starts averaged 1.54 million units annually, but the average mortgage rate during that period had dropped to 7.39%. More to the point, during the earlier period, starts were 9% higher, even though interest rates were 60% higher.

Figure 1. Housing Starts Versus the 30-Year Mortgage Rate



Source: Federal Reserve Bank of St. Louis; National Association of Homebuilders

Since the 1991 recession, mortgage rates have not exceeded 10%, and have ranged between 5.23% and 8.4%. The lower end of the range occurred in mid-2003. Not surprisingly, this historic low also supported an extremely robust housing market. But the point is, there are other periods during which even very high rates did not have a dramatic adverse effect on homebuilding, when viewed over multiple years.

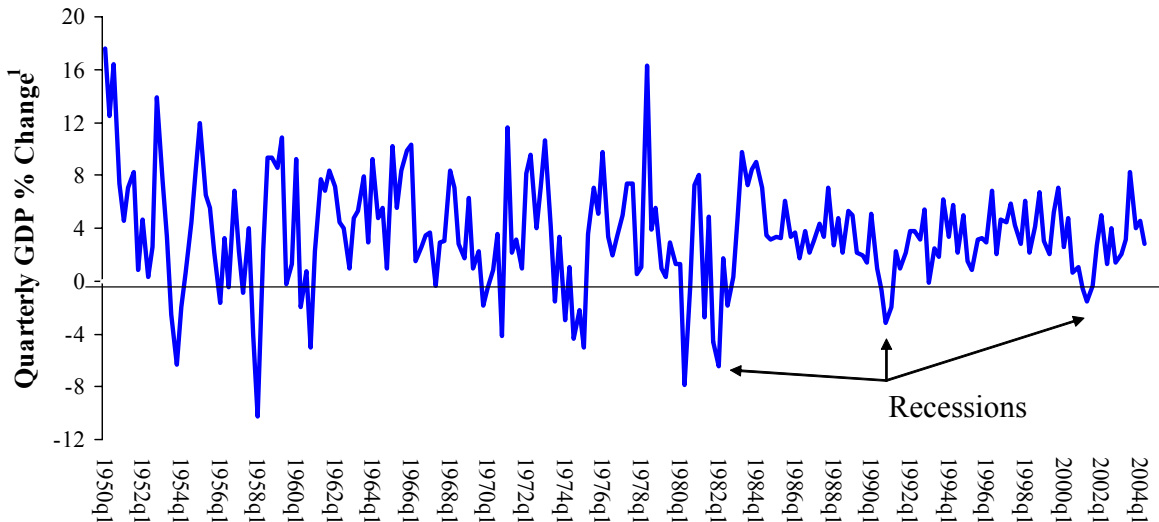
The Business Cycle

Economic growth is never a smooth or continuous process. Some level of volatility invariably accompanies expansion, which is a consequence of the business cycle. The cyclical nature of economic growth means all nations continually face expansion followed by contraction and periods of exuberance followed by periods of despair.

Unfortunately, during a rapid and sustained economic expansion many people forget these simple truths. Economists and financial commentators who should know better begin saying things like “this time it’s different,” or “the business cycle no longer exists.”

Such sentiment was widespread at the height of the tech boom in 1999. This mood ended abruptly as the NASDAQ shed 78% of its value between March 2001 and October 2002. Early in 2001, the economy entered a recession, albeit a very mild one by historical standards, as shown in Figure 2. But a decade had passed since the last recession, and many people had forgotten the fact that economic expansion is eventually – and inevitably – followed by contraction.

Figure 2. Contrary to Pre-2000 Opinion the
Business Cycle was Never Repealed



¹ Chained 1996 dollars

Source: Bureau of Economic Analysis

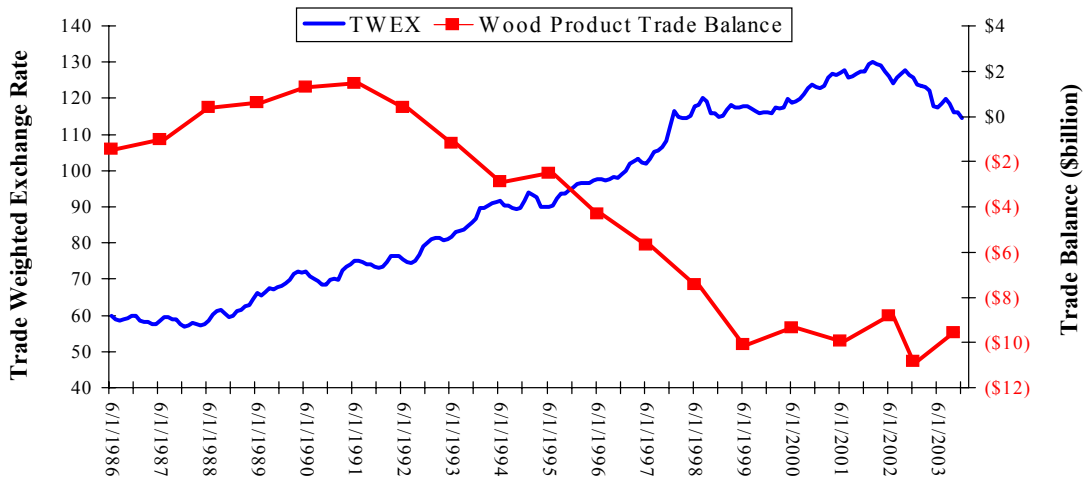
The psychological effects of the recession were worsened by the 9/11 terrorist attacks. Uncertainty was heightened further by the run up to the invasions of Afghanistan and Iraq. Today, near the end of 2004, the economy is recovering. But despite a few quarters of strong growth, that recovery has been uncertain and tentative. In our view at least part of the uncertainty is due to the fact that many in the U.S. and Europe have not yet accepted the fact that the War on Terror is first of all, a war, and second, is going to be a long-term proposition. This has exacerbated already jumpy equity markets and led to ongoing sub-optimal capital investment.

Going forward, however, we believe the domestic economy will continue its recovery, although the pace will be uneven and at times volatile. Nonetheless, a cyclical expansion will inject a positive bias to forest product markets and by extension, to timber prices.

World Value of the Dollar

Until 2002, the super strong dollar presented an undeniably negative bias to timber prices. A strong dollar discourages exports and encourages imports. Because of this, U.S. timber and forest product exports dropped at least partly in response to this factor. The inverse relationship between the value of the dollar relative to other currencies (measured by the Trade Weighted Exchange Rate) and the U.S. forest products trade balance (value of exports minus value of imports) is shown in Figure 3.

Figure 3. U.S. Forestry Exports & Imports are Inversely Related to the Value of the Dollar



Source: Federal Reserve Bank and USDA Foreign Agricultural Service

Since its 2002 peak, the dollar has trended downward against the currencies of many major U.S. trading partners, and in November 2004 hit an all-time low against the Euro. The full impact of the decline has yet to be fully felt in the forest products trade balance for two reasons. First, there is a lag between export and import markets and currency movements. Second, as the dollar rose to unprecedented levels during the 1990s, some substitution occurred with respect to the U.S. log and lumber exports. Japan, for example, began importing more of its timber from the Russian Federation.

Nonetheless, to the extent that the dollar maintains its current more sustainable valuation level, we expect U.S. forest products exports to rise moderately, and forest product imports into the U.S. to decline over the next one to two years. This should have a positive impact on timber prices going forward.

Demographics and Housing

Demographics and housing should have a long-term positive impact on timber prices. Despite the current measured economic recovery, the U.S. economy continues to be supported by both population and demographic trends.

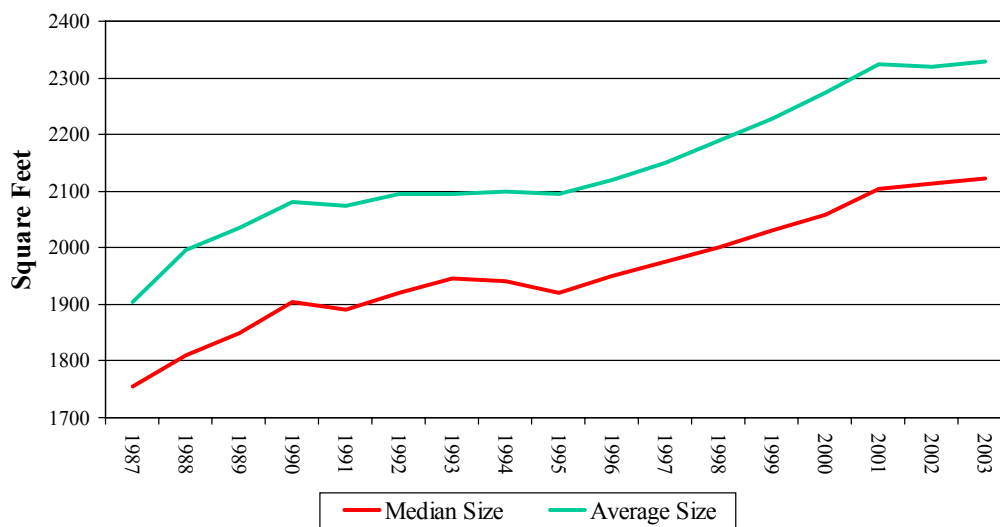
Housing starts are determined by population growth and household formations. New homes are also needed to meet the demand for second homes, and to replace older houses that are removed from the existing housing stock.

The size and age distribution of the population can be predicted relatively accurately because the population segment that constitutes future households for at least the next decade are already

born. The National Association of Homebuilders (NAHB) estimates that in the 2000-2010 period, the total number of households in the U.S. will grow by 1.2 to 1.3 million per year, based on the current total population and age-class distribution.

In addition, the household “headship rate” is projected to rise over the next decade. The headship rate refers to the share of the population who are household heads. Rising headship rates are positively correlated to the tendency for households to buy homes. Over the next decade, the NAHB projects that the headship rate will rise from its current level of 48.9%.

Figure 4. Between 1987 and 2003, the Average and Median U.S. House Size Rose 22% and 21%, Respectively



Source: National Association of Homebuilders

Through 2005, the NAHB forecasts annual household formations will be in the range of 1.2 million. After that time, the members of the “echo baby boom,” (those born between 1977 and 1990) will be establishing households, meaning that the net increase in households will accelerate. It is worth noting that *the 4.2 million children born in 1990, the peak year of the echo baby boom almost equals the 4.3 million children born in 1957, the peak year of the post-WWII baby boom.* This suggests that the current period of flat timber pricing may be short-lived.

An important trend not captured in housing start statistics is that home size has steadily increased over time. Since 1987, the average U.S. home size rose over 22%, and the median home size grew 21%, as shown in Figure 4. Therefore, even if housing starts remained flat, the continued rise in the square footage of new homes would continue to incrementally add to lumber demand.

Another factor that introduces a strongly positive bias to the demand for timber is repair and remodeling (R&R) activity. R&R is an aggregate statistic and is measured in dollars, meaning that it includes the value of both forest and non-forest products. So in addition to lumber,

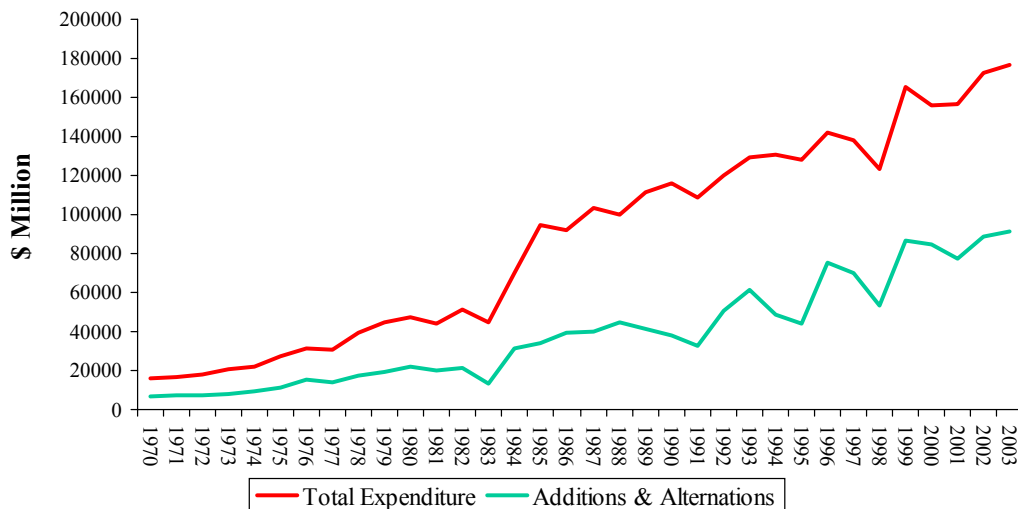
windows, doors and flooring, R&R includes the value of gypsum board, roofing material and bricks. So while R&R statistics do not directly reflect the demand for lumber, they are extremely useful for examining general trends.

R&R is poised for continued strong growth because of the extensive stock of aging homes built during and since the 1950s. Approximately 78% of the existing homes in the U.S. are at least 16 years old and will soon need new windows, doors, siding and roofs. This will result in continued growth in repair and remodeling. This is especially true in the Northeast and North Central regions, both of which contain a high proportion of older housing stock, where new home prices are high relative to other regions, and where fewer new homes are being built due to land limitations in urban and suburban areas.

A study by the National Association of Homebuilders Research Center found that about 24% of all lumber, 23% of structural panels, and 15% of all non-structural panels consumed in the U.S. are used in repair and remodeling. And these figures do not even include engineered wood products. In short, R&R activity will keep demand for solid wood products strong.

Figure 5 shows total R&R expenditures, plus expenditures for Additions and Alternations, the largest component of the total figure (the other components are Maintenance and Repairs, and Major Replacements). Since 1970, these components have risen at annualized rates of 7.6% and 8.0%, respectively. The NAHB projects that R&R will rise more quickly in upcoming years, which supports our view of a positive bias in lumber demand.

Figure 5. U.S. Residential Repair & Remodeling Expenditures Continue Rising Rapidly



Source: U.S. Census Bureau

Product Substitution and Production Technology

Product substitution and production technology are closely related because changes in technology frequently drive substitution. For example, the technology used to manufacture Oriented Strand Board (OSB), which first became operational in the late 1970s, has resulted in an ongoing substitution of OSB for plywood. Today, OSB accounts for the majority of the US structural panel production. The impact of OSB on timber prices is to raise the demand for small diameter trees in markets where new OSB manufacturing capacity is being built.

A second example comes from the paper industry, where technological improvements and refinements to the sulfate pulping process permitted increased substitution of hardwood fiber for pine. During the 1990s, this had the effect of dramatically increasing hardwood pulpwood prices in much of the South.

Over time, product substitution should have a positive bias on the value of small-diameter trees used for pulpwood, chip-and-saw and OSB. Product substitution will probably be neutral for sawtimber. The increased use of engineered wood for homebuilding has been rapid, especially over the last decade. In addition to OSB, products such as wood I-beams and laminated veneer lumber have made significant inroads. I-beams now account for well over 40% of the U.S. floor joist market.

This means there will be continued movement towards a more “fiber based” forest economy in the U.S. and overseas. In the U.S., substitution of small diameter trees for large ones will be most evident in mid- and deep South timber markets. In the mid-South, the 1990s witnessed significant new capacity additions to this low-cost timber area, particularly in eastern Virginia and north-central North Carolina, where several new OSB plants were built. This had the effect of driving up pulpwood prices in that region far above historical norms.

Rationalization of pulp and papermaking capacity in the late 1990s depressed pulpwood prices. But this plentiful and newly inexpensive raw material is now leading to the construction of either newly built, or modernized solid wood processing facilities in the region. Last year, a new large-scale OSB plant and sawmill were opened in eastern Oklahoma, a region that historically has been a low-price timber market. In 2004, Louisiana-Pacific announced plans to build an OSB plant at an as-yet undisclosed location in Alabama. More recently, Martco a plywood and OSB manufacturer, announced it will open a new OSB mill in either Louisiana or Texas. Martco also announced it will expand and modernize an existing plywood mill in Louisiana to utilize smaller diameter logs. Finally, International Paper Company opened a new small-log sawmill in McDavid, Florida. This mill uses primarily small diameter trees to produce lumber. This trend will continue, and new or upgraded capacity will gravitate toward other low-price markets.

The long-term impact of product substitution on large diameter sawtimber will be neutral, for two reasons. First, the move toward a fiber based forest economy means that on average, the rotation length for forests will decline. This means more trees will be cut at younger ages and at a smaller diameter. Fewer acres will therefore be used to grow large diameter trees, so the relative proportion of large trees, as part of the total forest growing area, will decline. Consequently, even if future demands for large diameter sawtimber decline in favor of smaller trees, the demand for large trees will increasingly be met from a smaller timber resource.

Second, the impact on large-diameter sawtimber will be neutral because, despite the growing move toward engineered wood in house construction, homebuilders are notoriously cost-conscious. If the price of softwood lumber drops relative to a competitive building material that performs an identical function such as engineered wood, builders will switch back to lumber, thereby supporting its price.

We saw this happen in the early 1990s, when timber prices were at an all time high. At that time a few builders turned to steel frame construction for homebuilding, leading some forecasters to predict that steel frame construction would become a less expensive alternative to lumber. Some went as far to state that: “By 1996, 40% of all homes in America will be made of steel.” Obviously this did not happen. Increased competition from both steel and engineered wood was part of the reason that lumber prices declined to more competitive levels. Consequently, steel frame homes currently constitute just 3% of all new homes, slightly higher than a decade ago.

International Competition

Until recently, international competition negatively impacted U.S. timber prices. Currently the influence is neutral, and going forward we believe it will be positive. As already mentioned, U.S. producers were badly hurt by the strong dollar, which led to declining softwood lumber exports and increased forest products imports to the U.S. Offshore firms, especially European and Latin American paper producers, also invested heavily in capital and become much more efficient producers than was previously the case. Finally, until recently Canada was steadily increasing its lumber exports to the U.S.

Canada has long been America’s major international competitor both domestically and in softwood export markets. Up until the past few years, non-Canadian softwood lumber imports never accounted for more than 1% to 2% of U.S. lumber consumption. In contrast, Canadian lumber has for many years accounted for between 29% and 33% of U.S. lumber consumption for more than 20 years. Canadian lumber exports to the U.S. are now at the high end of this range, for two reasons: the expiration of the U.S.-Canada 1996 Softwood Lumber Agreement in 2001, and the strong U.S. dollar.

The expiration of the Softwood Lumber Agreement, and an increasingly rancorous debate between U.S. and Canadian lumber makers resulted in the imposition in 2002 of countervailing duties and antidumping penalties on Canadian lumber, which were as high as 27.2%. At that time, most observers predicted that lumber prices would rise sharply and quickly. This forecast was based on the assumption that the duties would force Canadian producers to raise the price they charged to U.S. buyers in order to pay the duties. U.S. producers, the argument went, would take advantage of this situation by increasing the price of lumber they sold domestically.

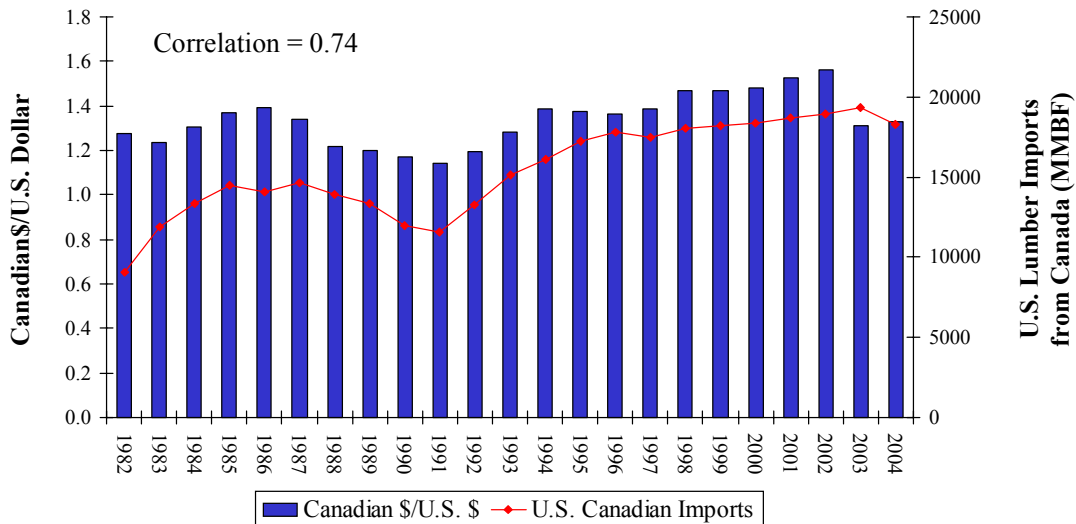
Instead, lumber prices dropped sharply. What was not factored into most forecasts was the manner in which a penalized industry like the Canadian lumber producers might respond to a non-market intervention that directly threatened their largest market.

Canada’s lumber industry responded to the duties by ramping up production to full capacity and continuing to export lumber to the U.S. at pre-duty export levels. This had the short-term effect of depressing lumber prices both to Canadian and to U.S. producers. This occurred in the face of

an extremely strong housing market. This led to a glut of lumber, with closures of marginal mills on both sides of the border. On the plus side, these closures have had the positive effect of better rationalizing capacity.

Equally important, the Canadian dollar has steadily risen against the U.S. dollar since the end of 2002. And as Figure 6 shows, U.S. lumber imports from Canada are very highly correlated to the relative strength of the two country's currencies. Through first quarter 2004, lumber imports from Canada (on an annualized basis) had declined close to 6%.

Figure 6. U.S. Imports of Canadian Lumber Are Strongly Correlated to the Relative Value of the U.S. and Canadian Dollar (1982-1Q2004)*



* Source: Random Lengths; Federal Reserve Bank of St. Louis

This imbalance will continue to abate as the U.S. dollar maintains a more realistic and sustainable exchange rate in world markets. Domestically produced lumber is today becoming more competitive both within the U.S. and overseas. Non-U.S. lumber will simultaneously become less competitive in the U.S., thereby reducing shipments from both Canada and other offshore producers.

Manufacturing Capacity

The impact of manufacturing capacity changes on timber prices over the past several years has been negative. Over the next few years, however, this bias should turn neutral to positive. Since the late 1990s, substantial new lumber making capacity came on line in the U.S., either from new mills that were opened or from upgrades to existing mills. Until 2000, incremental capacity was not being offset by matching mill closures, meaning that until that time, net U.S. production capacity was rising.

Net capacity curtailments only began occurring since 2000. So in addition to an overvalued dollar and record Canadian production, the recent U.S. curtailments are still working their way through the supply system. More important, viewing these trends in aggregate usually always masks what is happening in individual markets. And it is investment in individual markets that determines the ultimate success or failure of an investment strategy.

From 2000 to 2002, a total of 36 North American softwood sawmills shut down (U.S. and Canada) accounting for about 2.5 billion board feet of production, or roughly 3.7% of total North American production. At first glance this sounds like a very large number. But consider the distribution of those shutdowns in the table below:

Region	Million Board Feet	Percent of Total
Deep South	670	28%
Mid South	49	2%
Pacific Northwest	704	29%
Northeast & Lake States	180	7%
Intermountain West	505	21%
Canada	305	13%

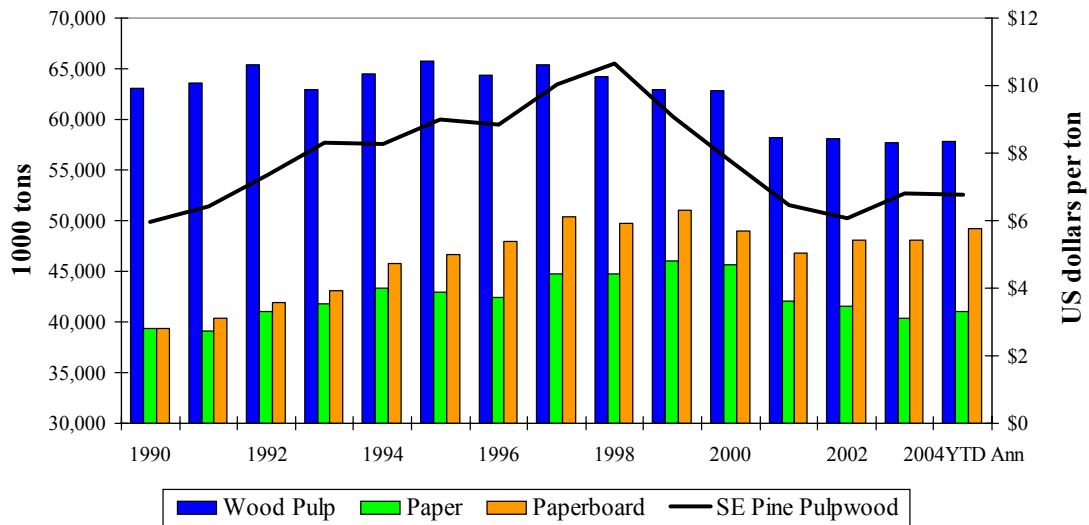
Almost no capacity losses occurred in either the Mid-South or Northeast/Lake State (the Mid-South region includes North Mississippi, North Alabama, and West Tennessee). The Northeast and Lake states are areas where we currently advocate acquiring Established and Mature Growth timberland. The Mid-South is an area where, in addition to Established and Mature Growth timber, we also advocate buying Emerging Growth, because we believe the long-term fundamentals are positive for all three growth stages.

A major capacity reduction occurred in the Deep South. In this region Mature Growth is often overvalued, and our foresters are now primarily pursuing Emerging and Established Growth forests in these markets.

Substantial capacity declines occurred In the Pacific Northwest and Intermountain West. We believe that Emerging and Established Growth are undervalued in these markets relative to Mature Growth. Moreover, economic returns in the Emerging and Established stages usually are higher because of their faster biological growth rate relative to Mature Growth. Our view in this regard contrasts sharply to that of many competitors.

In the pulp and paper industry, the long-standing over capacity situation that has existed is today largely rationalized. This is not to say that the transition has not been wrenching. Between 1998 and 2001, U.S. production of paper, paperboard, and wood pulp trended downward steadily, in response to temporary and in many cases permanent mill closures. As a consequence, pulpwood prices also fell steadily. This is shown in Figure 7.

Figure 7. U.S. Pulp & Paper Production Versus Annual Average Southeast Pulpwood Price



Sources: AF&PA and Timber Mart-South

But the figure also shows that production bottomed in 2001, and paperboard production actually increased in 2002. Moreover, pulpwood prices have bottomed; in 2003 pulpwood prices in most southern markets rose. Region wide, these levels have held up through 2004 year-to-date. Although part of the rise is likely due to abnormally wet weather, support also exists because pulp and papermaking capacity rationalization has slowed substantially.

That said, it is likely that southern pulpwood prices will remain below long-term trend levels for several more years. However, as we have already discussed, those areas where timber prices have declined most sharply will also be the ones to attract new investments, which ultimately will raise prices.

Finally, compared to the rest of North America, southern forests hold a significant comparative advantage in terms of biological growth rates. Well-managed southern pine forests can easily grow in excess of two cords of wood per acre annually, versus less than half that rate in northern forests. It is also true that forest value grows faster in southern forests than in other parts of the country. Rapid biological growth also has the effect of mitigating downside return volatility during periods of weak timber pricing.

Timberland Transfer Trends

Timberland property that has been placed on the market by large industrial timberland owners will introduce a positive long-term pricing bias. This is because the sale of industrial properties to numerous smaller entities means that ownership objectives will undergo certain changes.

Industrial forestland owners historically viewed their holdings strictly as sources of raw material. But institutional timberland managers view acquisitions from an investment perspective and demand higher investment returns. When institutional property managers perform this role correctly, they withhold timber from the market during periods of cyclically low stumpage prices, thereby placing a floor under prices. Similarly, institutional timberland managers should also constantly search for ways to add value to the properties they manage for clients.

For example, some pieces of formerly large ownerships are often sold quickly at retail prices to non-industrial owners. The immediate effect is to enhance client investment returns. Longer term, however, it has the corollary effect of creating a larger number of property owners. The larger ownership base, in turn, results in a greater diversity of ownership objectives. Since many small owners do not view timber sales as a primary objective, less timber will enter the marketplace over time, and prices in individual markets will be supported.

The specific impact of the large amount of property on the market will depend on the region in which the land is acquired and the age class that predominates on specific properties. Put another way, not all forest age classes in all forest regions represent equally compelling acquisition opportunities.

Although precise figures are difficult to obtain, from 1997 through 2002, approximately 12 million acres in “major” timberland transactions occurred in the U.S. Of this, 42% was in the South, 45% in the North, and the remaining 13% in the West.

Virtually all of the timberland sold came from forest products firms selling off what they term “non-strategic” assets. But it is interesting to note that the buyers varied widely by region. In the South, 80% of the acquisitions were made by timberland investment management companies. Of these acquisitions, the vast majority (90%) were made in the Deep South. Only about 10% were in the Mid-South.

In the Northeast and Lake States, only 11% of acquisitions were made by institutional buyers. The rest were made by conservation groups, forest products firms, and individual investor groups. The lower per-acre prices paid for these properties, and their acquisition by investors not strongly motivated by investment returns, suggests to us that properties in this market area remain very inefficiently priced.

In the West, institutional investors made only about 20% of the acquisitions; the remainder was made by a combination of lumber companies, publicly traded limited partnerships and private investors. Moreover, most of the properties bought in the West consisted of Mature Growth, which we do not view as an appropriate investment strategy for that region. Again, given that buyers who do not necessarily consider maximizing investment returns a top priority made many of these purchases, this suggests that this market remains relatively inefficiently priced.

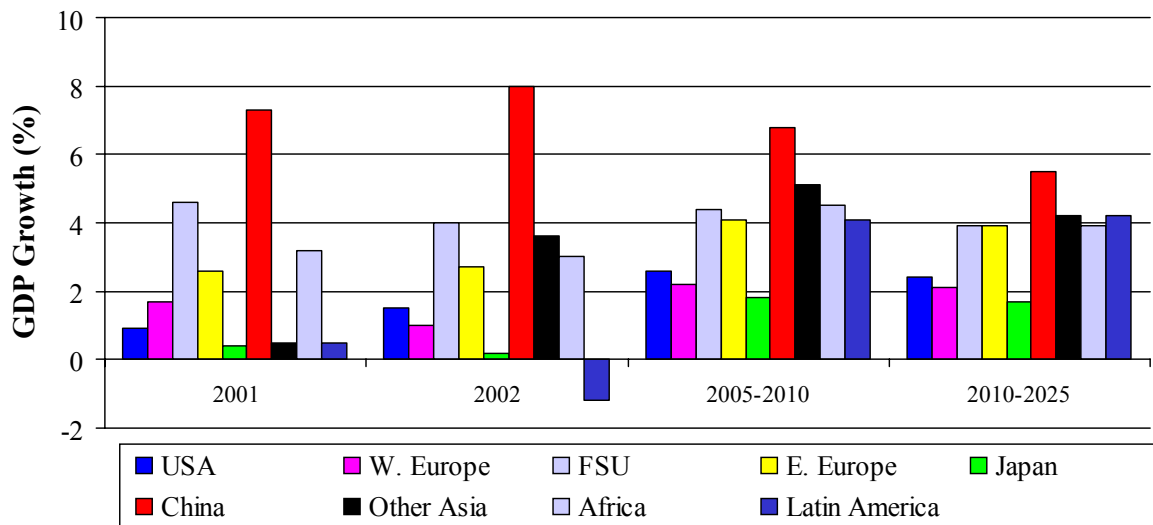
Gross Domestic Product

The state of the economy, as measured by GDP, is often reflected in the general health of timber markets. The long-term trend for GDP is positive for both U.S. and international timber markets.

Figure 8 shows historic and projected GDP growth rates, as forecasted by the Department of Energy International Energy Outlook. They forecast that going forward, U.S. GDP will grow

approximately 2.5% annually over the next two decades. It is worth noting that DOE estimates of regional GDP growth have historically tended to be conservative.

Figure 8. Growing Demand: Rising World Income Implies Continued Timber Consumption Increases



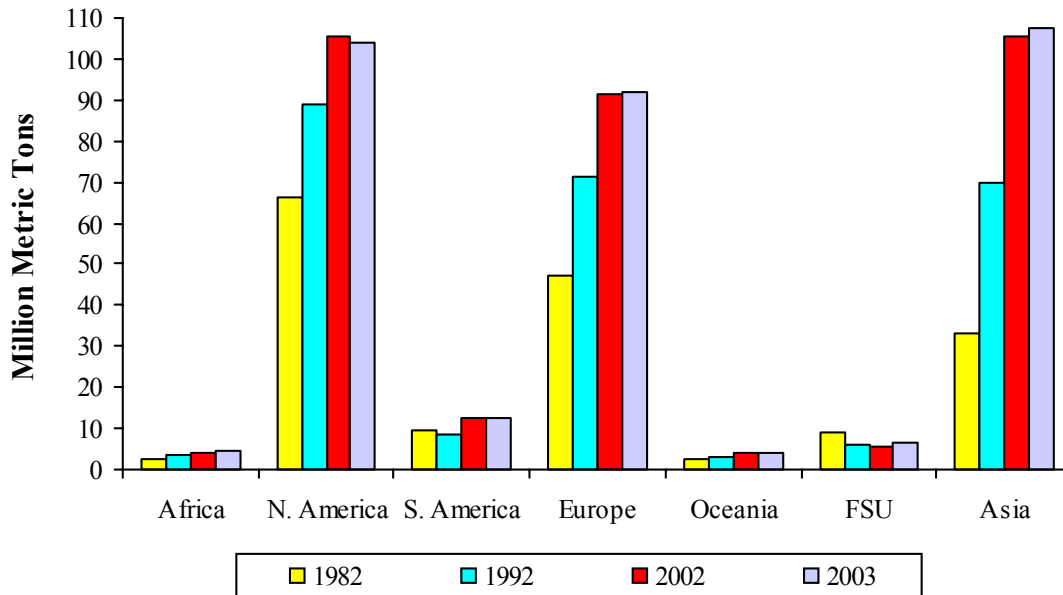
Source: DOE Energy Information Administration Int'l Energy Outlook

Equally important, the GDP projections for most of the developing world (developing Asia, Africa, Eastern Europe and Latin America) are projected to be in the 4% to 6% range going forward. With the exception of Latin America, these are all timber deficit regions relative to their populations. As a result, the demand for timber should continue to grow strongly.

Forest product demand is closely and positively tied to income and population. As income grows in the emerging economies of Asia, Eastern Europe and the Russian Federation, major increases in consumption will also take place.

Figure 9 illustrates the dramatic rise in the consumption of paper and board in Asia. In 1980, Asia consumed roughly half as much paper and board as the U.S. and 2/3 that of Europe. By 1990, the region consumed almost as much as Europe. Today Asian consumption is well in excess of Europe's and in 2002 eclipsed that of the U.S. Even at these levels of absolute consumption, per-capita paper and board use in Asia remains at 1/10 of the level of the U.S. Although not presented here, similarly rapid growth is taking place in Asia with respect to the consumption of lumber and wood panels. Simply put, tremendous potential demand exists in the region, which will increase along with GDP and population.

Figure 9. Growing Demand: Asian Paper and Board Consumption Continues to Climb



Source: FAO

Steady albeit less dramatic increases in forest products consumption will also occur in Eastern Europe and the Russian Federation. In the latter country, much of this increase will be satisfied by internal timber resources. However, this should positively impact U.S. timber prices because it means less Russian grown timber will be competing with North American timber in world markets.