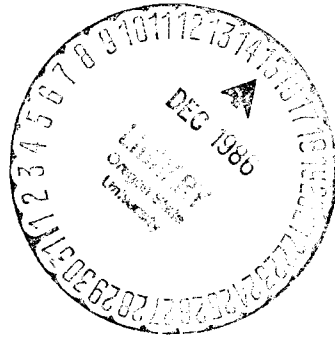


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Studies in Management and Accounting for the

FOREST PRODUCTS INDUSTRY

**Perspectives on the Timber Industry from a
Lender's Standpoint
(as of June 1986)**

**Wayne Haslett
First Interstate Bank of Oregon**

**Monograph Number 27
October 1986**

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Wayne Haslett is the forest industry specialist for First Interstate Bank of Oregon since 1971. Previous experience includes a 20-year background in Pacific Northwest timber, logging, lumber and plywood in areas of production, sales and supervision. His principal function is to furnish expertise to bank officers involved in forest products lending.

INTRODUCTION

Economic recovery in the Pacific Northwest's forest products industry has been fully in place for well over three years, according to the data. And we shall find that if a sawmill here was operating profitably on U.S. Forest Service timber in the booming late 1970s, it would have been profitable in the recovery year 1983 and every year since.

Further, since wood products started out of recession in late 1982, the industry has exhibited more stability than at any time since 1970, and perhaps before that. But for our purposes, we need not look back any further than 1970.

Beginning in roughly 1980, the timber industry went through one of the largest collective transitions in recent history. Powerful forces came together within a relatively short period to alter dramatically the course of the largest sector of the region's economy -- perhaps permanently. If not permanent, at least the shift substantially modified the economic base, a condition that has lasted several years now.

This altered economic condition is the stage for new operating strategies in the forest products industry. To better appreciate where we are now and where we may be headed, it is appropriate to look back a few years.

Several major factors interacting upon one another are influencing industry prosperity:

- Timber costs
- Housing starts
- Interest rates
- Product markets
- Canadian policy
- Inflation

Before considering these, it is necessary to define within the past 16 years, four distinct periods used as a foundation for comparison:

- P1, 1970 through 1974
- P2, 1975 through 1979
- P3, 1980 through 1982
- P4, 1983 through 1985

These periods contain enough distinct features to isolate each from the other. At the same time, strong relationships exist between succeeding periods, suggesting a metamorphosis.

P1 and P4 in TABLE 1 are quite similar with respect to low timber costs, interest rates and inflation.

P2 has no equal in industry history, with extremely high timber costs, interest rates, inflation and wood products prices at market. High bid prices for much of the U.S. Forest Service stumpage sold during P2 (1975-79) could not have been converted profitably at any time during the 16-year span under consideration.

TABLE 1

	<u>Period 1</u> <u>1970-74</u>	<u>Period 2</u> <u>1975-79</u>	<u>Period 3</u> <u>1980-82</u>	<u>Period 4</u> <u>1983-85</u>
Housing (1)	1.85	1.69	1.15	1.72
Inflation (2)	6.10	8.10	10.00	3.70
Interest (3)	7.60	9.00	16.20	10.90
Timber (4)	71.00	87.00	106.00	94.00
Lumber (5)	127.00	200.00	185.00	198.00

- 1) millions of privately owned units started - average for period
- 2) average of high and low rates for each year (CPI 1967=100)
- 3) bank prime lending rate - average of high and low for each year
- 4) average price paid for all species harvested in Region 6 - \$/MBF (thousand board feet)
- 5) average market price for Hem-Fir and Doug Fir 2X4 - \$/MBF

P3 represents a severe national recession resulting in economic indicators tumbling from all-time peaks at the beginning to new lows by the end. Plant closures were rampant as large companies discontinued obsolete facilities and smaller firms, lacking sufficient war chests to survive, went out of business. Housing starts, a long-time gauge of industry prosperity, barely cleared the one-million-per-year-mark throughout P3 (TABLE 2 and FIGURE 1).

TABLE 2

HOUSING STARTS
Privately Owned Units
Annual Average in Millions

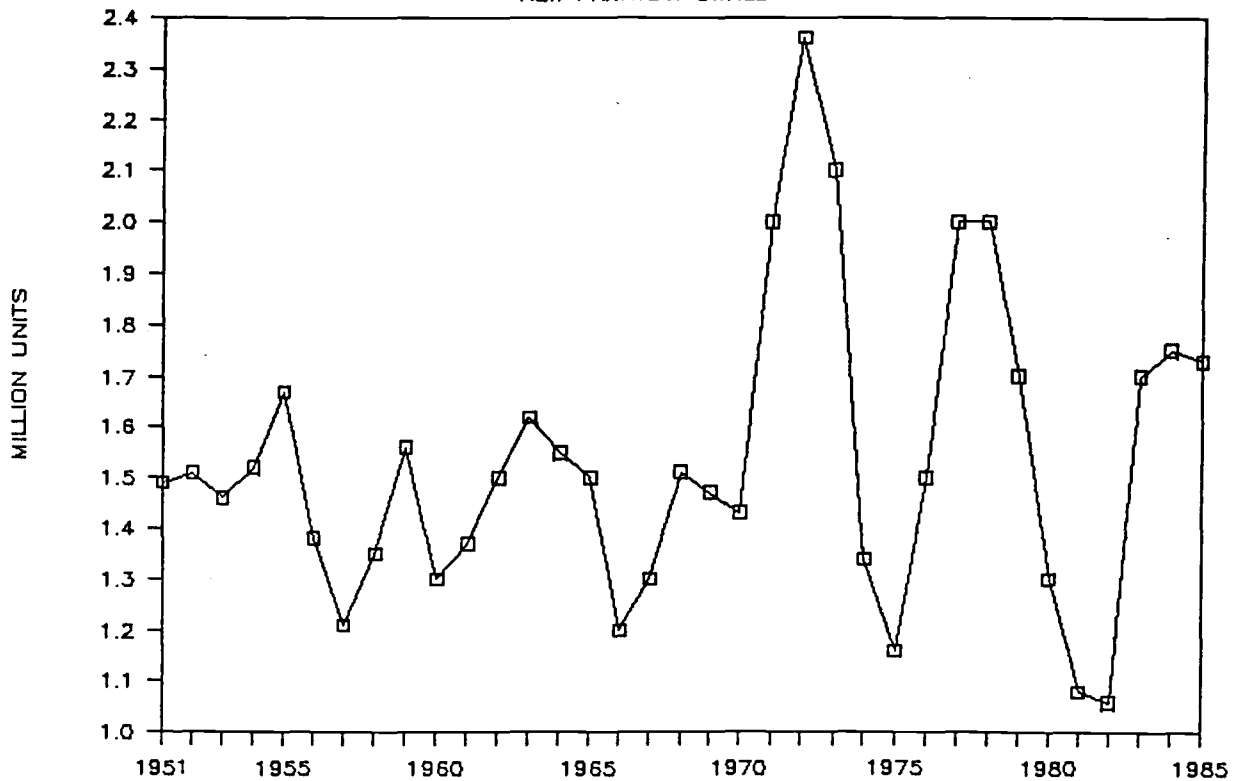
P1 (1970-74)	1.85
P2 (1975-79)	1.69
P3 (1980-82)	1.15
P4 (1983-85)	1.72
Average (1970-85)	1.64

Comparisons of market prices for commodity lumber and plywood products are difficult to relate among the four periods as they are affected by a host of factors resulting in wide fluctuation. Prices may vary by \$50 per MBF or more during any single year regardless of whether the economy is in recovery or recession. Usually, seasonal elements such as climate, building activity, production levels and speculation are responsible.

FIGURE 1

US HOUSING STARTS

NEW PRIVATELY OWNED



Over longer periods in the economic cycle, prices may fluctuate in excess of \$100 per MBF, moving up during recovery and down in recession. Inflation was the primary factor responsible for the near doubling of prices between P1 (1970-74) and P2 (1975-79), recognizing the annual inflation rate averaged slightly over 7% through the 1970s. But costs cannot be passed directly to the consumer and therefore do not affect market prices for lumber and plywood. However, demand for wood products has a profound impact on timber prices.

Let us examine lumber prices (TABLE 3) for P1, P2 and P4 in an attempt to compare profit opportunity. (P3 is not comparable as it represents recession with drastic contractions in all categories.) This examination compares the price of the common 2 by 4:

TABLE 3

PRICE AT THE MILL
2" X 4"
Standard and Better
Random Length 8/20"
Mean Market Price in Dollars per MBF net
f.o.b. mill

	<u>Douglas Fir Green (Portland)</u>			<u>Hem-Fir Inland Dry (Spokane)</u>		
	<u>Low</u>	<u>Ave</u>	<u>High</u>	<u>Low</u>	<u>Ave</u>	<u>High</u>
P1 (1970-74)	95	120	145	100	135	160
P2 (1975-79)	185	205	245	180	195	203
P4 (1983-85)	180	195	215	192	202	213

It would seem apparent that P4 more closely resembles P2 than it does P1. We know that inflation was an important factor during the three periods, especially in P2. My contention is that if P1 and P2 were adjusted for inflation, you would see very little difference (using constant dollars) between them. If this logic prevails, P4 could be economically superior to P2.

A more important consideration is the relationship between timber costs and lumber markets. We know that bid prices for public sawtimber escalated rapidly during the late 1970s and early 1980s until those prices finally crashed in 1982. The result has considerable significance to our discussion: Most of that expensive timber has not been harvested to date.

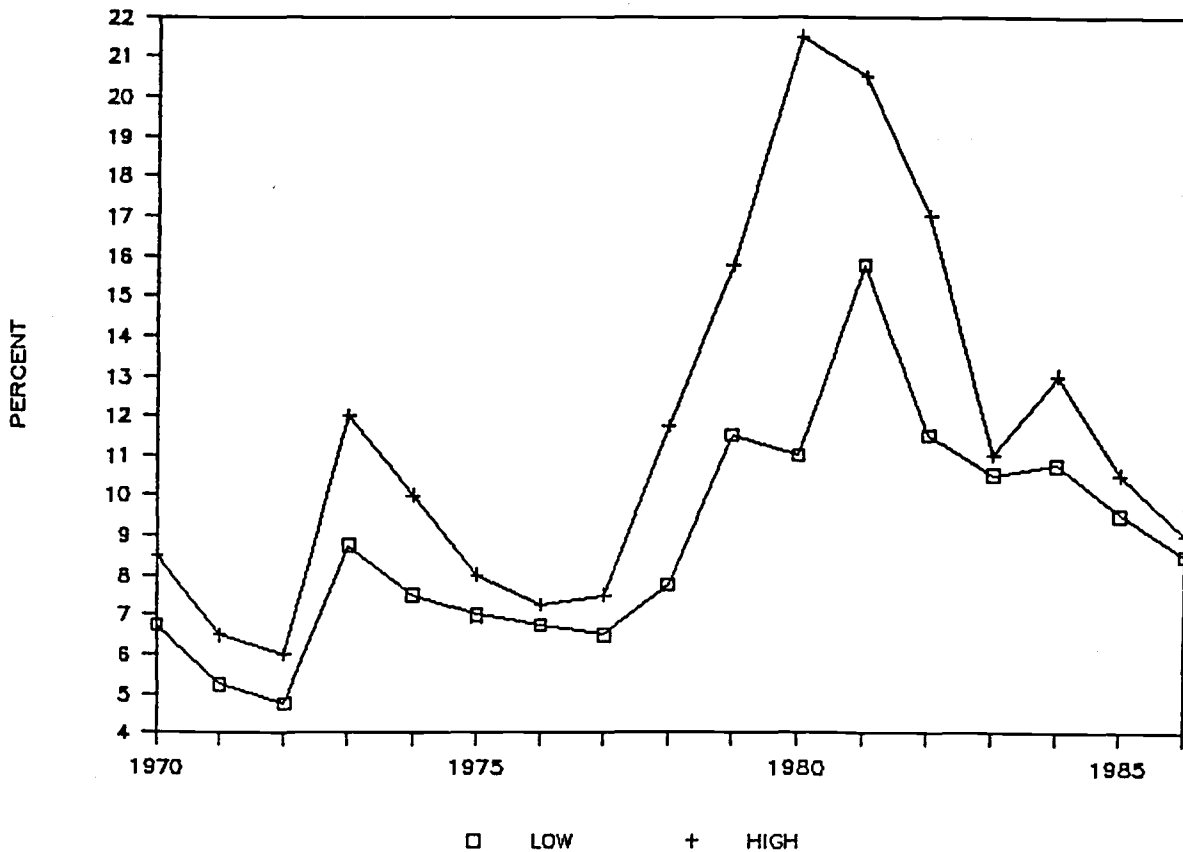
We know that collectively P1 and P2 were prosperous periods. Both began and ended with recessions. Both had mid-points strong in housing starts and market prices. And both exhibited similar interest rate patterns except that P2 displayed erratic behavior.

When P1 started (1970), the bank prime rate (FIGURE 2) was 8.5%, then dropped to a low of 4.75% in 1972 and rose to a high of 12.0% in 1974. P2 showed a decline to 6.5% by early 1977 and then rose consistently to 15.75% near the end of 1979.

There were 74 changes in the prime rate during P3, from 20% in April 1980 to 11% in July back to a peak of 21.5% in December. There were 37 prime changes in 1980 alone, the most in any single year to date and more than in the entire 20-year period from 1950 to 1970 (31 changes). Prime bounced a few more times before finally settling at 11.5% by the end of 1982.

In P4 (1983-85) there were only 18 changes, from a June 1984 high of 13%, gradually reducing to 11.5% by the end of 1985. There were only three changes in 1985. And in the spring of 1986, prime had come full circle -- back to 8.5%.

FIGURE 2
BANK PRIME RATE



TIMBER PRICES BID AND PAID

It can be demonstrated that prices bid for public stumpage in 1979-81 bore no resemblance to prices paid for timber harvested. Oregon's two most important commercial timber species, Douglas fir and Ponderosa pine, were being bid at record levels during the 16-year period under study, and the graph "Timber Stumpage Bid Prices" (FIGURE 3) shows the average bid price for Douglas fir was \$435 per MBF in 1980.

At the same time, we see from the graph "Value of Timber Harvested" (FIGURE 4) that the average bid price for all species sold by the United States Forest Service in Region 6 (Oregon and Washington) never exceeded \$260 per MBF, despite the considerable flap about \$500 stumpage. (There is nothing wrong with \$500 stumpage if it happens to be high grade old growth Douglas fir that will result in \$900 lumber.)

Most significantly, the average prices paid for USFS stumpage ("Value of Timber Harvested") never even reached \$140 per MBF in any year (and averaged closer to \$100 per MBF over the entire period) regardless of what prices were actually bid for certain sales (TABLE 4).

FIGURE 3
TIMBER STUMPAGE BID PRICES
USFS PACIFIC NW REGION 6

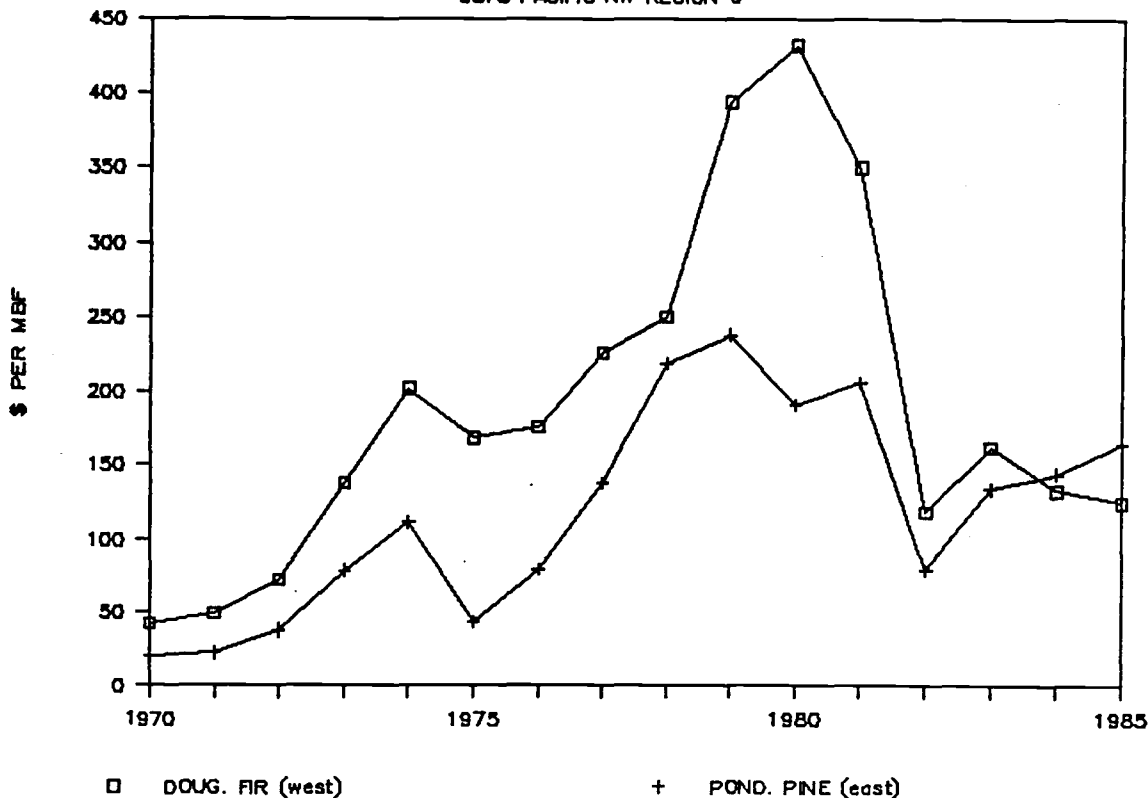
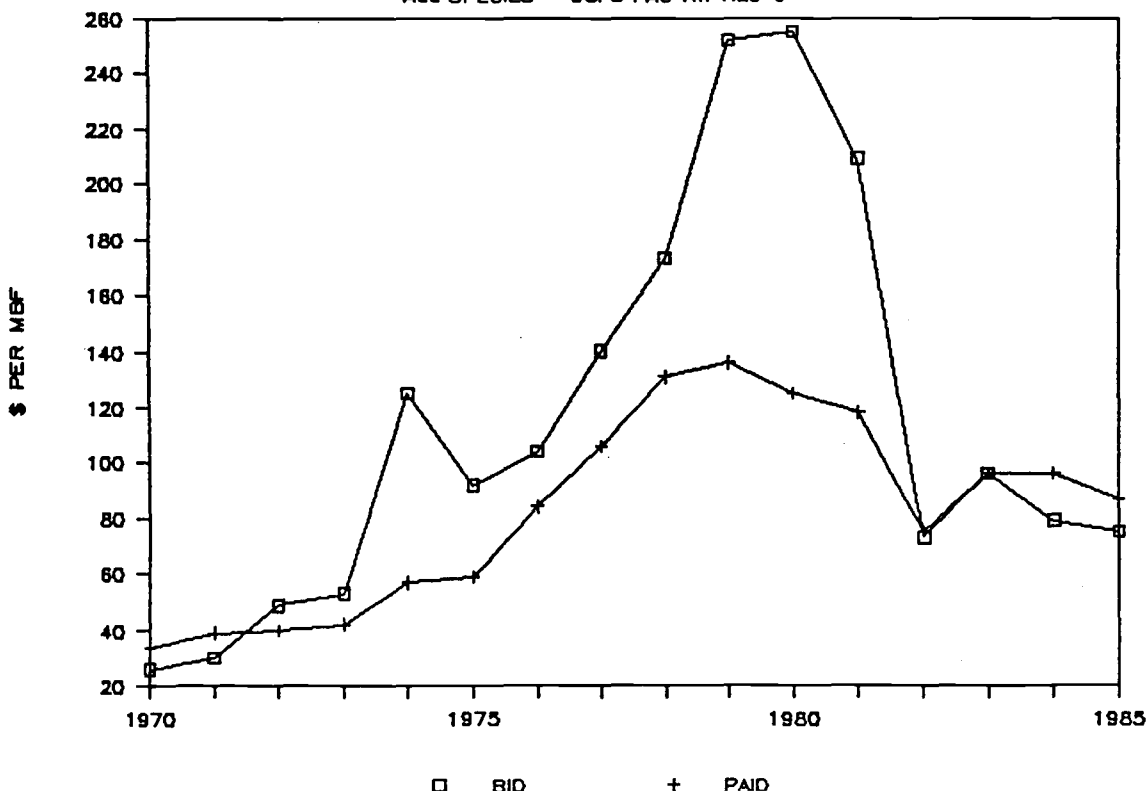


FIGURE 4
VALUE OF TIMBER HARVESTED
ALL SPECIES - USFS PAC NW REG 6



Possibly a few purchasers of public timber stumpage cut some of their expensive volume. But most of that timber was returned under relief legislation. Our graph "Value of Timber Harvested" indicates the remainder, or that which purchasers were required to retain, still is being deferred.

This raises major questions: How many companies will choose to perform on the contracts? And how many will default as an alternative? Either could be hazardous to corporate health.

Lending institutions are well advised to scrutinize this activity closely. Default obviously is an unwelcome result. On the other hand, retaining expensive timber under contract, whether public or private, could represent a large liability and a formidable obstacle to future profitability, cash flow, debt service, etc.

Returning to our comparison of actual timber costs in P2 and P4, we find a remarkable similarity:

TABLE 4

PRICES PAID
Mean Average Stumpage
All Sawtimber Species
USFS Region 6
Dollars per MBF

	<u>Low</u>	<u>Average</u>	<u>High</u>
P2 (1975-79)	60	100	125
P4 (1983-85)	70	85	100

This demonstrates that if timber costs and lumber markets are the only two factors considered, profit opportunity during P2 and P4 were much the same.

SAWMILL MODEL SIMULATION NO. 1

This exercise demonstrates that if a sawmill could make a profit on USFS timber in the late 1970s, it could do so in 1983 and thereafter.

We know that toward the end of the '70s, lumber markets achieved record highs. On the heels of that period, bid prices for public stumpage skyrocketed to unprecedented peaks. Then by 1982 timber bidding had dropped to levels of the early 1970s.

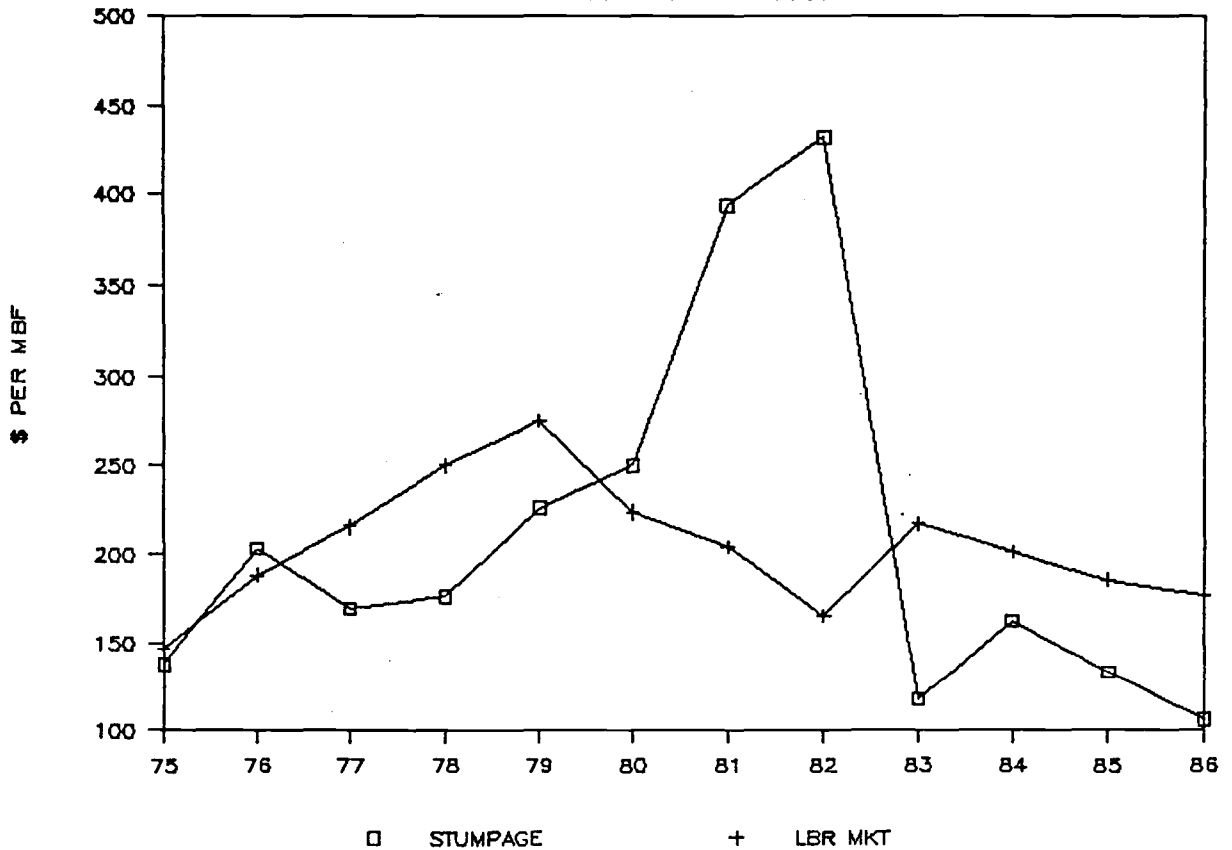
Parameters:

Timber Costs (FIGURE 5) - The average of bid prices for USFS westside Douglas fir stumpage in Oregon and Washington. (There is a two-year lag

between purchase and consumption. For example, the 1978 stumpage cost to the mill was \$176 per MBF, the same as the average bid price two years earlier, in 1976. However, starting in 1982, the lag time between timber purchase and usage shortened to one year, so that 1982 bid became 1983 cost.)

FIGURE 5

SAWMILL OPPORTUNITY TIMBER COSTS & LUMBER PRICES



Lumber Market - The average wholesale price at the mill for green Douglas fir 2 by 4s, 8 to 20 feet long, graded standard and better, as published by Random Lengths weekly newsletter. (This lumber is representative of a weighted average of a mill's sales realization.) Since a mill's product sales is a composition of higher grades (structural and stress) and lower grades (utility and economy), the importance here is tracking a product consistently throughout the model.

Thus, timber costs and lumber markets are the only variables in our model. All other factors remain unchanged: manufacturing costs, wages, inflation, production levels...everything.

Admittedly, the risk of considerable distortion exists because of the omission of an adjustment to a base index and/or a constant dollar level. It is a recognized fact that there was significant variance between economic factors in the mid-1970s and the mid-1980s. However, since the only purpose here is to demonstrate the relationship of stumpage prices to lumber markets, all other factors must remain static in the interest of statistical integrity.

The base year from which all other comparisons are drawn is 1978.

Our sawmill is assumed to be a random dimension facility, operating in western Oregon and producing green Douglas fir surfaced lumber, marketed primarily in California. All lumber could have been produced from second growth timber, but our mill paid average bid prices which would include substantial volumes of old growth timber. This would effectively place the mill under a handicap that would make profitability more difficult to attain. It could probably have purchased second growth timber for less than the weighted average containing the old growth.

The volume our mill produces and sells is 100MMBF (million board feet) of lumber each year, and the recovery rate is 2.0 (100% overrun). Taken together, this means the mill consumes 50MMBF of logs annually. (Any west-side dimension mill which has not attained that standard of efficiency is not competitive today. Looking back, quite a few mills were capable of that performance level in the late '70s.)

The final assumption is that the mill's operating profit in 1978 was \$5MM or 20% of net lumber sales of \$25MM. The lumber market average was \$250 per MBF that year.

Results suggest that if our mill had been profitable during the last three (banner) years of the 1970's, it would have been profitable during the three years ending with 1985 (P4) (FIGURE 6).

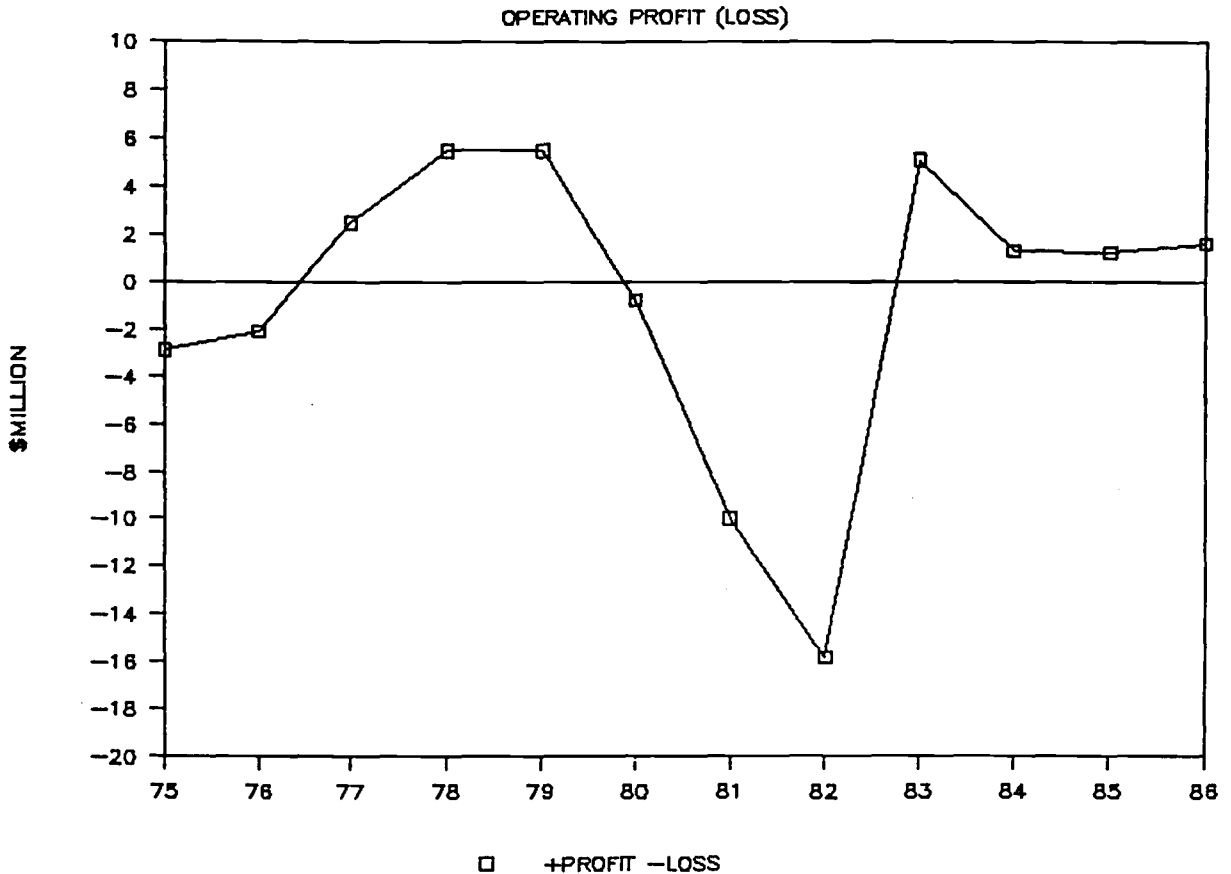
This should serve as a clear signal to lending institutions that the wood products industry has not been in perpetual recession since 1980 as many observers have argued. Accordingly, wood products does not deserve to be treated as though it has the plague.

SAWMILL MODEL SIMULATION NO. 2

This simulation is intended to come as close as possible to a "pure" average using real lumber market prices and actual prices paid for stumpage harvested. Simulation No. 2 is valuable because Simulation No. 1 may not have been representative of a plausible situation. The reason is that Simulation No. 1 contained a significant amount of very expensive public stumpage, and we are reasonably certain that very few mills cut an appreciable amount of that.

FIGURE 6

SAWMILL PERFORMANCE



This illustration is purely hypothetical. Its two governing factors are:

- Framing lumber composite price. "...a weighted average of nine key framing lumber prices, chosen from major producing areas and species" reported in Random Lengths Yearbook.
- Volume and average value of timber harvested. As reported in Forest Service Resource Bulletin PNW-129 Jan. 1986 for Forest Service Region 6.

Obviously, no such mill could exist because no one mill could process the stated range of timber species which in some instances occur in distant geographical areas from one another. There are other reasons too. Still, the model is valuable because the main objective here is to find that pure average using real prices.

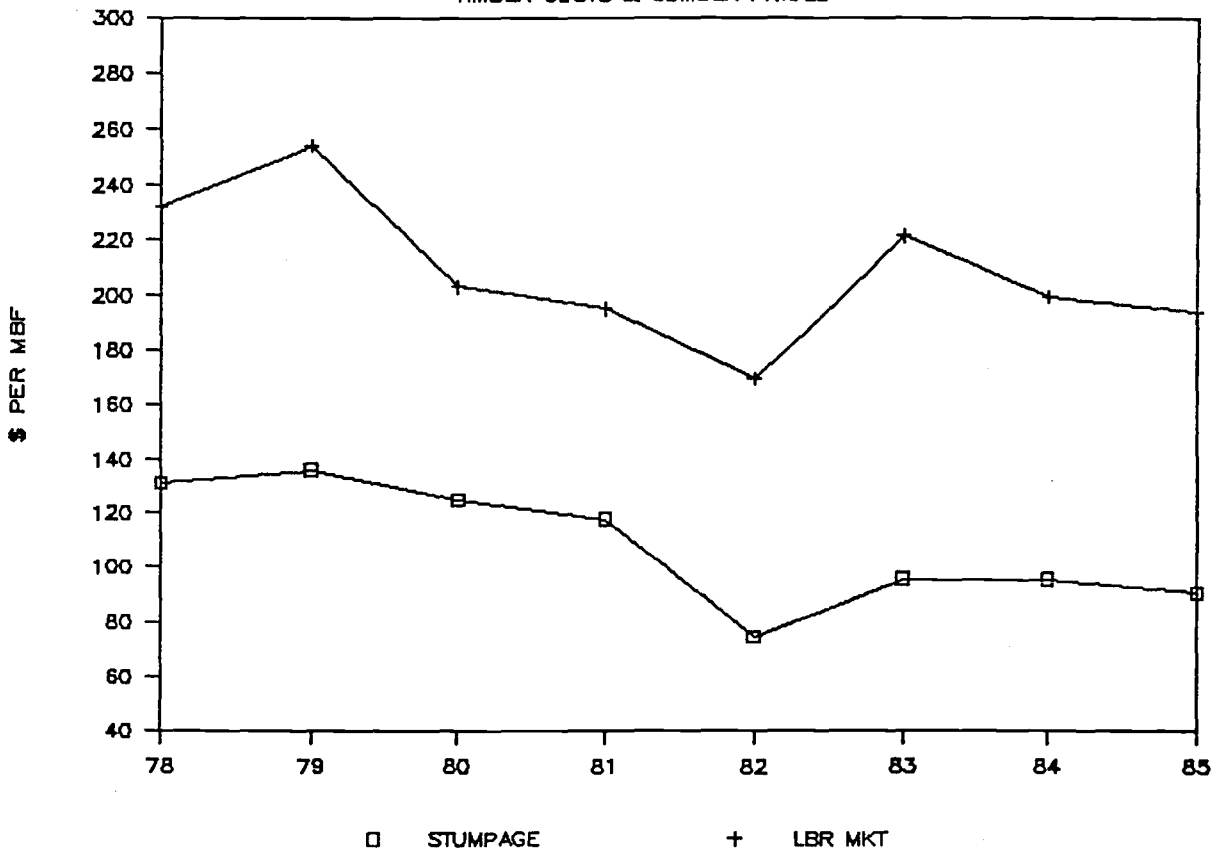
Simulation No. 2 contains several major differences from Simulation No. 1:

- Mill production is only half, or 48MMBF. This is arbitrary in that it has no bearing on unit costs (from the standpoint of the production divisor) since our only two variable factors are stumpage cost and lumber price. But it is easier to identify with the reduced production volume of a smaller operation with lower profit opportunity.
- Operating profit in the base year of 1978 is reduced to 10% (TABLE 5).
- No time lag exists between timber purchase, harvest and lumber production.

FIGURE 7

SAWMILL OPPORTUNITY 2

TIMBER COSTS & LUMBER PRICES



As in Simulation No. 1, the sawmill recovery factor remains at 2.0 in Simulation No. 2. As stated before, any dimensional mill incapable of that efficiency level is not competitive.

TABLE 5

SIMULATION NO. 2 FACTORS
 Logs Consumed 24MMBF
 Lumber Produced 48MMBF
 Sawmill Recovery 2.0

	Log Cost			Lumber Sold		10% Operating
	\$MBF	(\$000)		(\$000)		Profit (Loss)
1978	131	3144	±base	11136	+base	1114
1979	136	3264	-120	12192	+1055	2049
1980	125	3000	+144	9744	-1392	(134)
1981	118	2832	+312	9360	-1776	(350)
1982	75	1800	+1344	8112	-3024	(566)
1983	96	2304	+840	10608	-528	1426
1984	96	2304	+840	9552	-1584	370
1985	91	2184	+960	9312	-1824	250

Timber Relief

Major distinctions between P1 and P2 were: rising prices for timber and wood products, higher interest rates and double digit inflation during P2. While it was probably true that escalating lumber and plywood prices were primarily a function of inflation, glamorous economic forecasts and a perceived timber shortage stimulated heavy speculative upbidding of public stumpage. Many timber purchasers fell into the same trap...baited with illusions of the continued upward spiral predicted for wood markets. The bubble burst with the crash in P3. Two items characterized almost precisely the timing and agony of the recession that ensued. In September 1979, Hem-Fir (Inland) KD 2X4, the futures item, peaked at \$293 per MBF. Three years later in September 1982, it bottomed at \$163 per MBF...a decline of \$130 or nearly 45%. The other item, bids for westside Douglas fir sawtimber sold on National Forests in Oregon and Washington, reached an all-time average high of \$489.80/MBF for the first quarter 1980. For the third quarter 1982, that same number was \$91.70/MBF, the lowest since 1972.

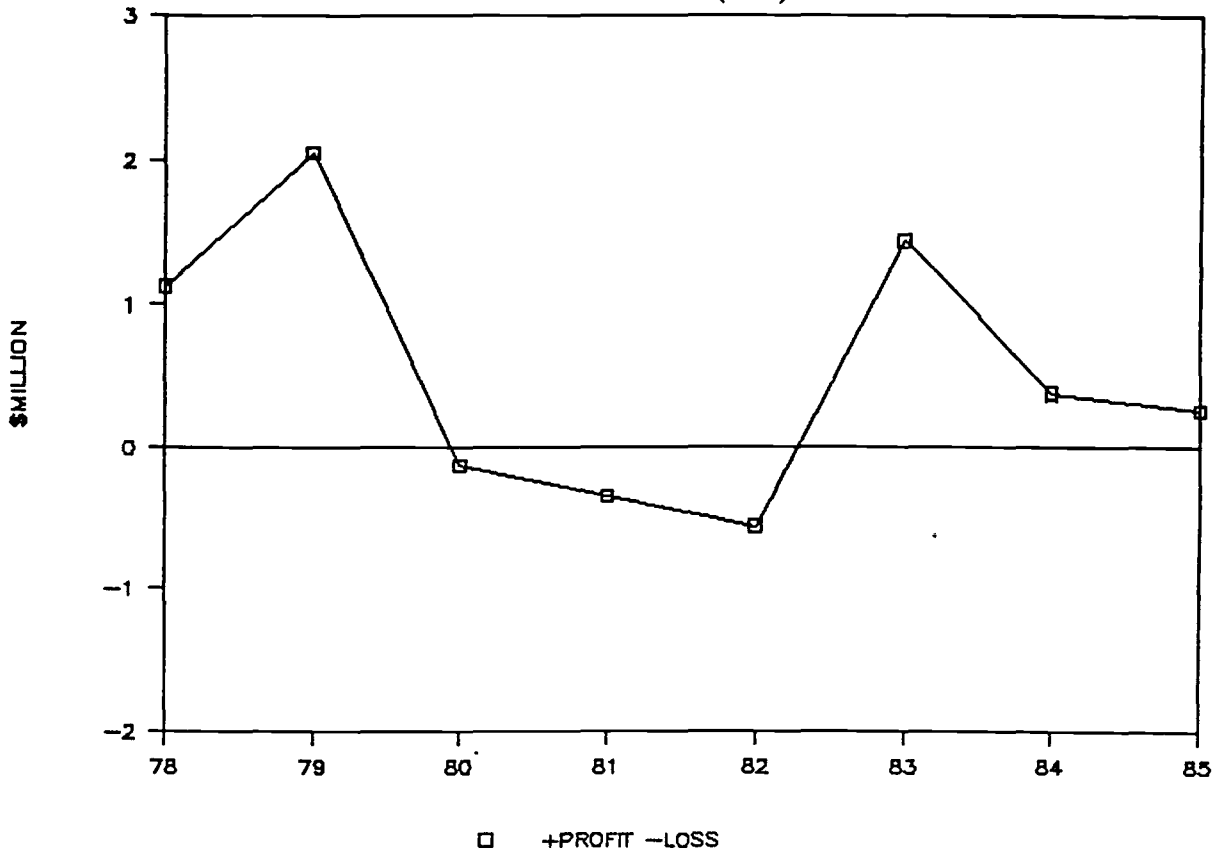
In this exercise we find:

1. If the mill was profitable in 1978-79, so it was in 1983-85 (FIGURE 8).
2. The mill did not incur inordinate operating losses in 1980-82 since it did not convert any very expensive timber.

FIGURE 8

SAWMILL PERFORMANCE 2

OPERATING PROFIT (LOSS)



Aside from the sensational fluctuation in markets, the interesting feature of these occurrences is that they exactly coincide with the beginning and ending of the last major national economic (industry) recession. More important is the significance of the violent transition that ended in 4th quarter 1982 and signalled the beginning of a new period. P4 has endured to present as the most stable of all four.

All was (is) not well in the timber camp, however. Purchasers of public stumpage found themselves with between 15 and 20 billion board feet of expensive timber contracts. A great deal of this volume could not and cannot be converted profitably under any market situation we have known or can reasonably anticipate. Briefly, a new law enacted in October 1984 (The Federal Timber Payment Modification Act) permitted some 170 companies in Oregon and Washington to give back 7.8 billion board feet of federal stumpage contracts purchased prior to January 1, 1982. Nationwide, 9.7 billion board feet of timber was returned with a total contract worth of \$2.9 billion. The bulk of turned back volume came from USFS Region 6 (OR&WA) in the amount of 6.6 billion board feet for \$112 million involving nearly 1000 contracts. The Bureau of Land Management's portion was 1.1 billion board feet in returned sales.

This timber will be promptly resold, probably at a fraction of its original bid price. Each purchaser can return 55% of its qualifying contracts up to a maximum of 200 million board feet per purchaser. Buyout penalty costs were imposed according to a net worth test. In many cases, the penalty was \$10 per MBF on all returned volume. The law was not and could not be equitable to all; smaller companies realized greater benefits than larger firms. I reviewed a dozen timber companies who, collectively, could return in excess of 1 billion board feet. This represented a reduction in potential operating losses of around \$300 million, and at \$10 per MBF penalty, would cost them \$10 million to avoid the \$300 million loss. All will be affected differently. Some had their potential loss completely eliminated; others will have a substantial loss remaining...and everywhere in between.

Contract volume which could not be returned (45%) must be harvested in a uniform manner over the next 4 or 5 years, in most cases. In a few instances, where residual timber still represents heavy potential losses, resolution of the problem is uncertain. This particular segment could be embroiled in litigation for many years. It may be tough on these, who do not constitute a large enough block to make a unified stand, or to expect support from the industry, who has no reason to be sympathetic. Moreover, the USFS will be forced to protect its (administrative) position which means bad news for companies who default on timber contracts. Each company will require individual analysis to determine future opportunity.

Timber Shortage: Fact or Fantasy?

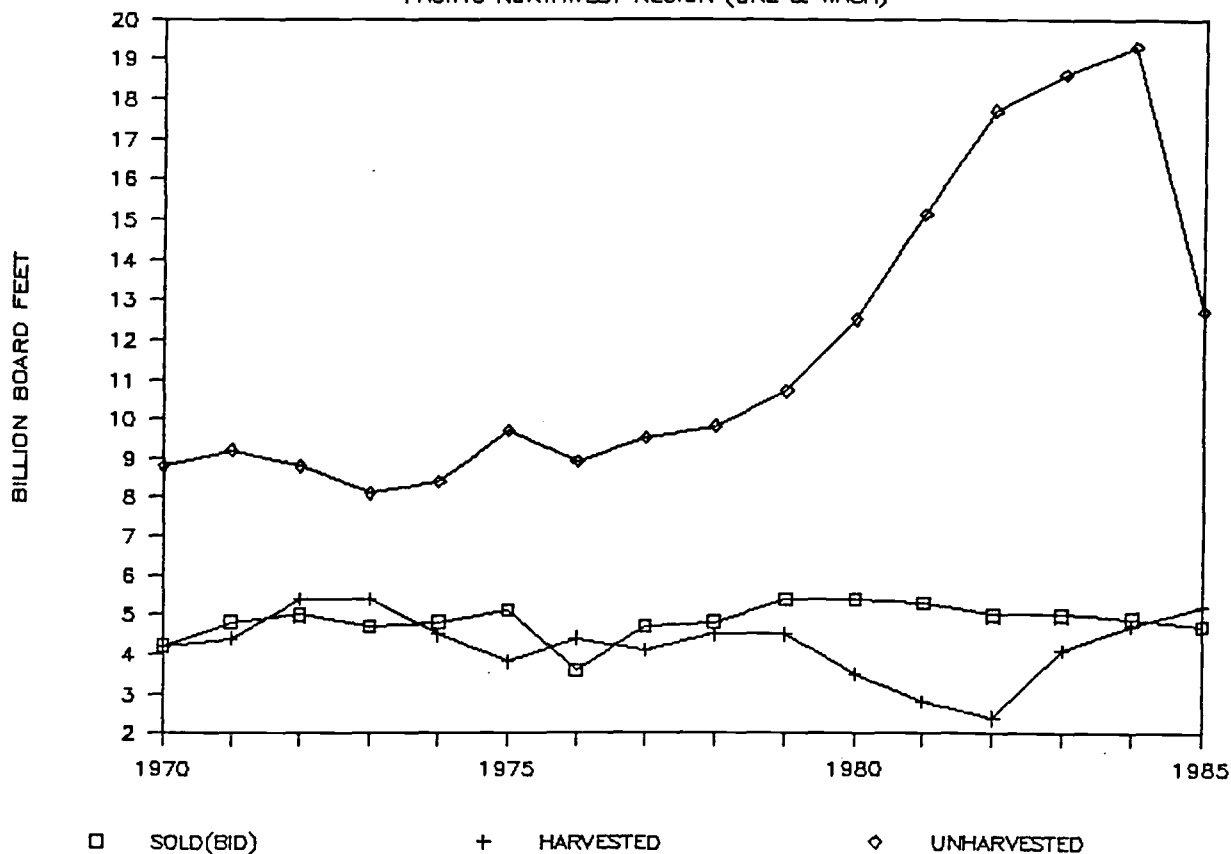
It seems like every time we experience a few years of economic recovery, some faction starts beating the timber shortage drums again. Make no mistake, there is a large following, as evidenced by sensational timber upbidding in P2. Perhaps we actually could have a shortage someday; if Canada and the South run low on timber; if public policy is successful in causing sufficient timber to be removed from the commercial base; if investment incentive to grow timber (or the perception) is reduced; if world demand increases; if the private sector overcuts its lands; if housing starts exceed 2 million annually for a sustained period; if restrictions on imports from Canada are imposed; etc. Any and/or all of these things could occur, and if they did, we would have near-panic and, at the very least, a return to siege mentality. I do not believe it is meaningful to weigh the probability and severity of these possible occurrences, either individually or collectively.

Consider the fact that we have not had anything resembling a timber shortage or even a supply problem in our 16-year period or at anytime prior. If anything, just the opposite. The USFS developed a 10 billion board foot increase in the unharvested stumpage backlog during late P1 and P2 (FIGURE 9). The accumulation peaked at 19 billion board feet as the combined result of unpalatable, expensive timber contracts and a reduction in harvest levels caused by poor markets (the recession). The sharp decline between 1984-85 was from timber returned under the relief law rather than accelerated harvest.

FIGURE 9

USFS STUMPAGE

PACIFIC NORTHWEST REGION (ORE & WASH)



Timber harvest in Oregon and Washington declined between 1972-82 on average in both private and public sectors (FIGURE 10). In Oregon alone, the harvest level decreased from 9.6 BBF in 1972 (P1) to 5.8 BBF in 1982 (P3), or nearly 4 BBF! Primary factors causing this decline were: increasing lumber imports from Canada, the recession in P3 and improved recovery from modernized facilities. Increased mill recovery is the most significant. We could be squeezing 25% to 30% more product from the same timber volume during this decade compared to last. This feature could represent the greatest single contribution toward conserving our timber resource, thereby reducing the potential for "shortage." (Canada may be doing us a big favor by "sharing" her timber reserves.)

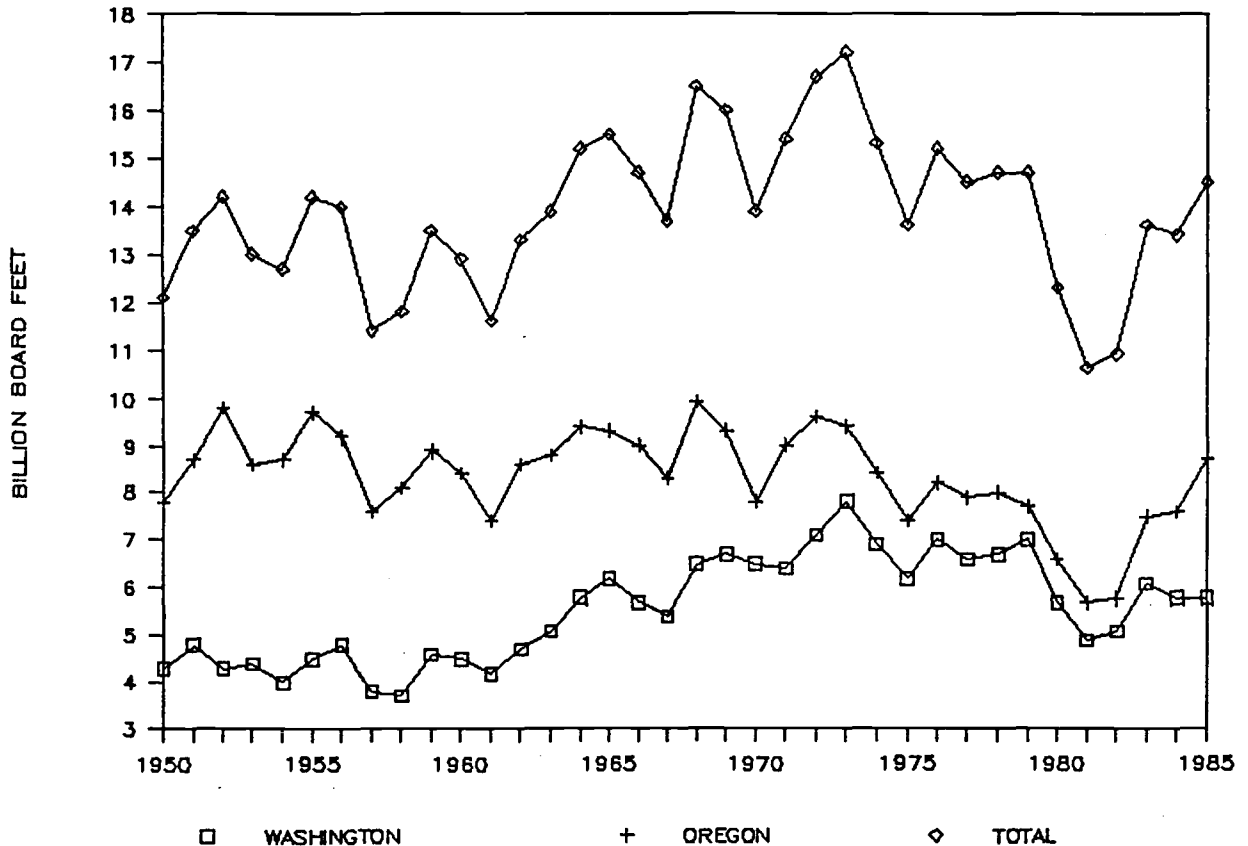
Note how the USFS continued to sell at the 5 billion board foot level all during the recession (P3), even though harvest dropped to a 2.4 BBF low in 1982. There are two explanations: 1) the USFS was trying to flood the market with cheap stumpage in order to avert massive default of expensive timber, or 2) the USFS wanted to create a sufficient backlog of cheap stumpage so that the expensive sales could be absorbed by diluting with low cost timber. As it turned out, neither of these situations prevailed. It could be a combination of both since the last chapter has yet to be

written. The important point is, knowingly or otherwise, the USFS neatly avoided a potential timber shortage (supply problem, actually) by the circumstances which prevailed.

FIGURE 10

TIMBER HARVEST IN ORE & WASH

ALL SOURCES — PUBLIC & PRIVATE



Timber harvest levels and values have always been dictated by economic conditions, not supply problems or perceived shortages. The probability that this pattern will continue for several more years is much greater than the possibility of some major disruption. Currently, Oregon is supposedly growing more timber than is being harvested and, if so, can easily maintain that position if the next 15 years resemble the last. This state has excess capacity to grow more timber, but not the investment incentive or political commitment. Growing timber is an extremely long-term proposition which requires a great deal of dedication and capital. As an investment, it is often correctly perceived as having a poor rate of return.

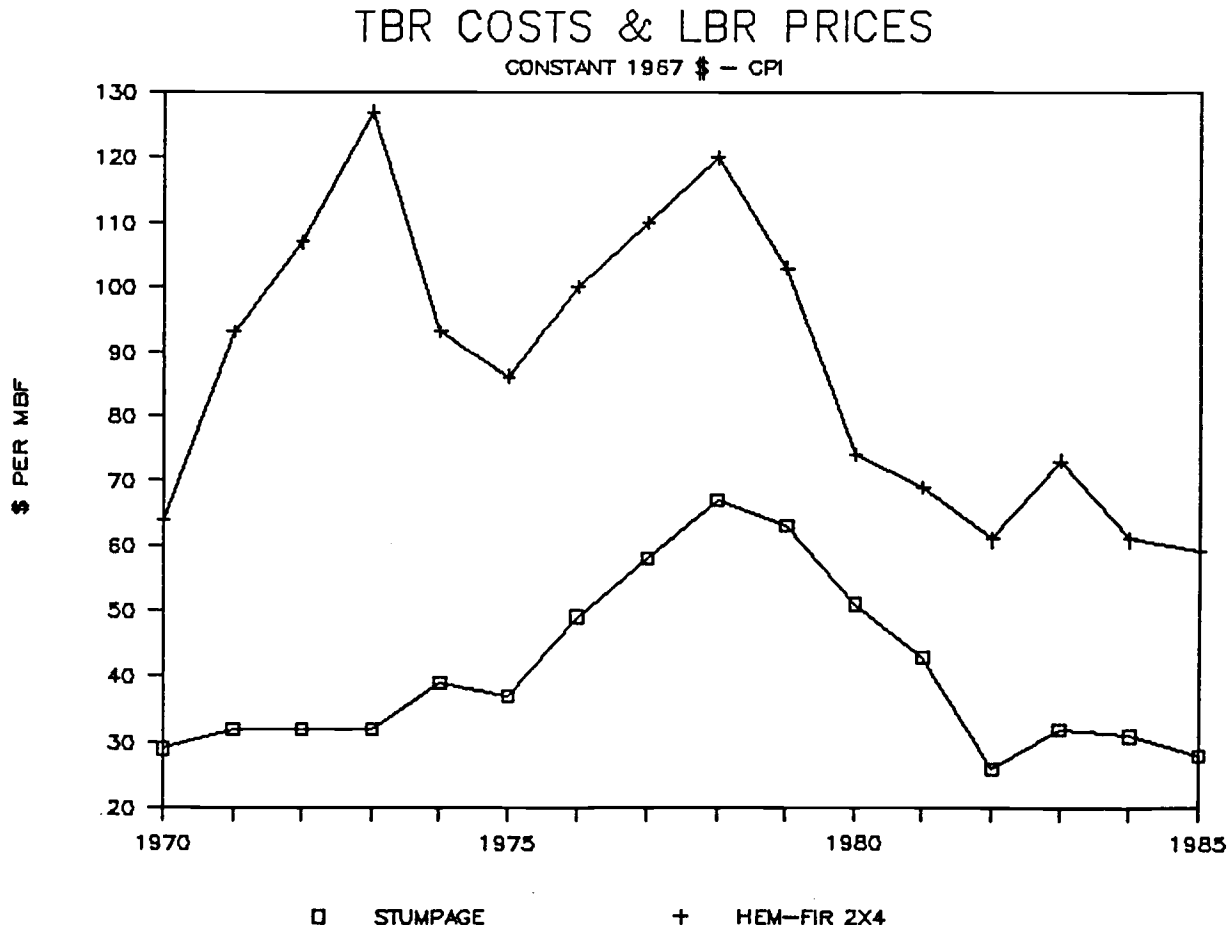
Inflation

Inflation is truly insidious. Sometimes we have a tendency to treat it rather casually, like the weather which in some respects it resembles. So long as it doesn't get too violent, a little bit can't be too bad. There are some who even claim to make inflation work for them. But the sorry fact is, it creeps up on us with a cumulative effect; the results of which can be both deceiving and debilitating, as we shall see.

In order to gain a better insight into its impact on our timber industry, I selected the Consumer Price Index (1967=100) to adjust lumber and timber prices (Hem-Fir 2X4 Std & Btr Ran 8/20" fob mill, and average stumpage prices paid for all species of USFS harvested in Region 6).

Looking at the graph "Timber Costs & Lumber Prices" (FIGURE 11), we see some rather revealing information. Adjusted lumber prices in P2 were stronger longer but not higher than P1, thus confirming our contention that inflation was principally responsible for all-time peak market prices in late P2. P3 and P4 resemble each other and are substantially lower than either P1 or P2. The primary reason for operating losses in P3 was due to a disparity between timber costs and lumber prices. This feature was corrected in P4, thus creating an opportunity for profit again.

FIGURE 11



The startling evidence is that it doesn't make much difference at what level timber and lumber prices are, so long as the margin between them is conducive to profitability. It is all relative.

I think we are close to explaining why the tremendous upbidding surge of public stumpage occurred in late P2. Inflation was the principal culprit (FIGURES 12 and 13), obscurely stimulated by some pervasive psychology dealing with perceived timber shortages. It certainly cannot be attributed to any real changes in lumber markets, because in terms of constant dollars, up to that point in time, no real changes had occurred.

FIGURE 12

INFLATION RATE

CONSUMER PRICE INDEX 1967=100

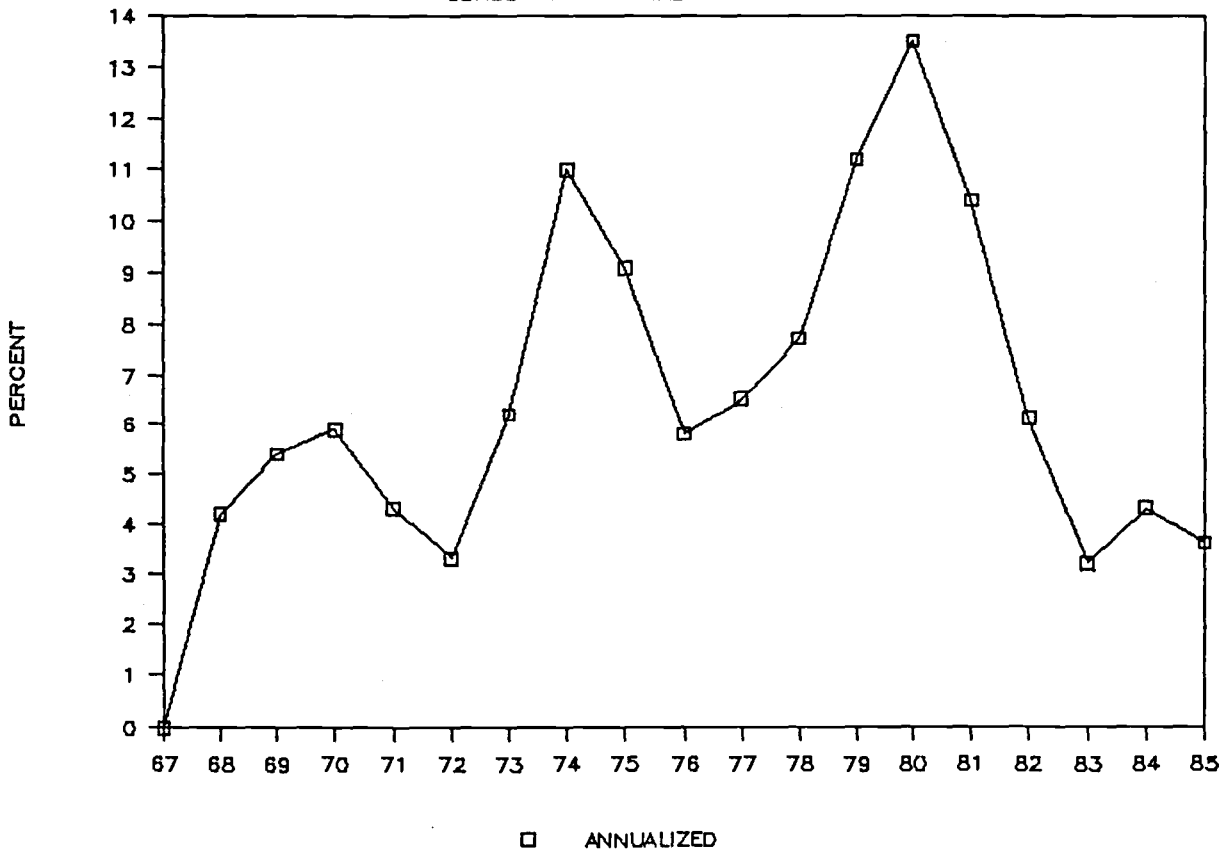
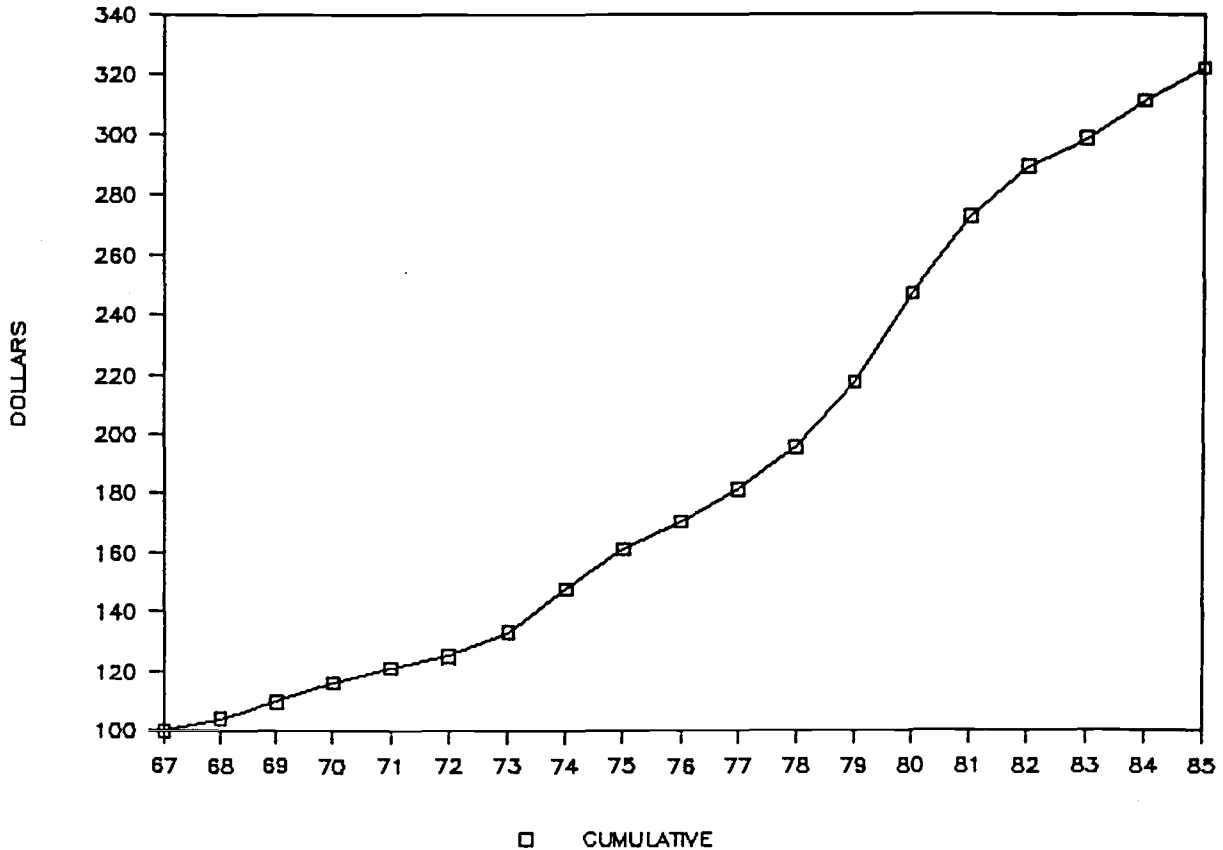


FIGURE 13

INFLATION RATE

CONSUMER PRICE INDEX 1967=100



Of course this explains the big push to reduce labor costs through wage reductions in P4. Earlier (P2 and P3), plant modernization and automation were responsible for productivity increases; not smarter or harder workers. Labor cost is one of the few big-ticket items remaining that is still in the process of dramatic adjustment. High capital cost of equipment is another. It will be interesting to see if and how industry copes with all the tremendously expensive new machinery. Perhaps the value justifies the cost.

CANADA

Lumber imported into the U.S. from Canada in 1985 amounted to 14.5 billion board feet or 33% of the 43.8 billion board feet consumed in this country. Ten years ago the figure was around 6 billion board feet. Canada will continue to represent formidable competition to domestic mills throughout the U.S. for several principal reasons:

- low cost Crown timber
- reduced rail freight rates
- freedom from the Jones Act for vessel shipment to U.S. ports
- favorable currency exchange rate

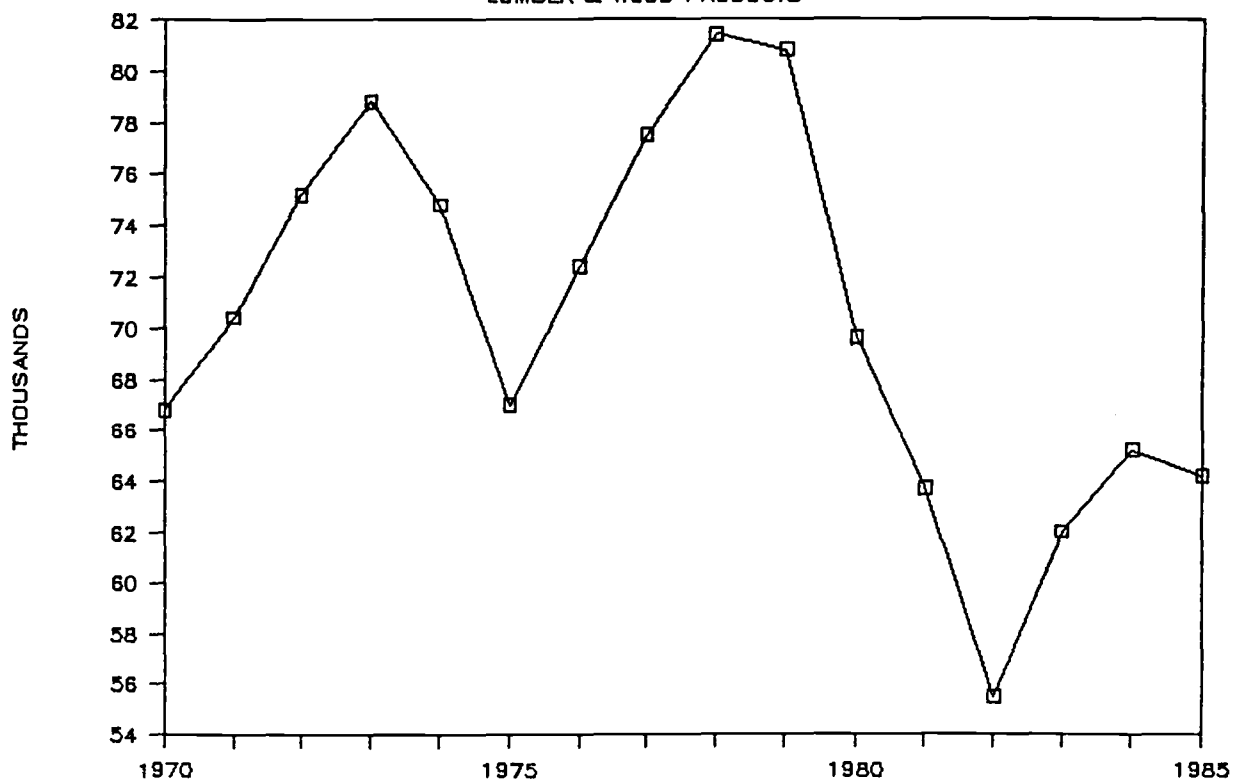
Countervailing duties and/or quotas on Canadian lumber to the U.S. have not been imposed to date because it is not politically expedient. However, a case could be constructed to adjust Canadian lumber prices by the differences in currency exchange and freight rates. One argument was heard recently that if the two countries' currencies were at par, Canadian mills could not compete with their U.S. counterparts. Another faction claims there is evidence of overcutting on Crown lands, which eventually must be acknowledged. But what are we talking about - 2, 5 or 10 years? In the meantime, Canada is competing very effectively with U.S. mills. I read it somewhere that Canadian mills are more "efficient" than ours. In the absence of hard, supporting data, I doubt it. Also, supposedly, public timber in both countries is appraised for sale in a generally similar fashion. While this may hold true, the government method of timber allocation and upbidding appear to differ markedly. Canada uses "working circles" and limits the number of mills that can be supported in an area. Therefore, there is a certain responsibility to provide adequate timber supply.

Regardless of the ultimate outcome in trade negotiations relative to lumber, any decision will be moot. If quotas or duties are imposed, prices will go up. Mills dependent upon public timber for their livelihood will undoubtedly bid it up until all the profit margin is squeezed out...just like 1979, 1980 and 1981. During this relatively short transitional period, demand will outstrip supply, and employment will increase somewhat as mills put on multiple shifts, but the ensuing prosperity will only be temporary.

OREGON

Employment in Oregon lumber and wood products peaked in 1978 at 81,000. At the end of 1982 it stood at 55,500, the lowest in our four periods and for a long time before that (FIGURE 14). Toward the end of 1985 it had regained to 66,600. Many of these 14,000 or so jobs are gone forever. The simple explanation lies in a November 1984 report from Western Wood Products Association: "The 669 (western) sawmills operating this year are capable of producing more lumber than the 818 operating at the beginning of 1979. In five years, the number of men required to produce 1 million board feet of lumber declined from 4.5 to 3.43." What happened was that during the late 1970s and early 1980s, many companies embarked upon large capital improvement programs in their mills which resulted in more automation, increased efficiency, greater production, higher recovery and better productivity.

FIGURE 14
EMPLOYMENT OREGON
LUMBER & WOOD PRODUCTS



Contributing to the need to make plants more efficient was organized labor's reluctance to reduce wages in keeping with the decline in timber and lumber markets. A power struggle continues between management and the unions in an effort to bring wages more in line with other costs.

Oregon contains approximately 20% or between 400 and 500 billion board feet of the nation's supply of standing commercial softwood sawtimber (12 South-eastern states have around 350 billion board feet by comparison). Our forest products sector will probably retain its position as the state's leading multi-billion dollar industry for some time yet to come. Not only do we have the highest quality of all timber species, we have efficient mills and competent operators. Oregon produces about 30% of the nation's total plywood and almost 20% of the lumber. Oregon's 24 million acres of commercial forestland (close to 40% of the state's total acreage) grows about 6.5 billion board feet annually. This amount is roughly sufficient to produce the 7.2 billion board feet of lumber and 6.75 billion square feet of plywood in 1985. Harvest volumes are pretty much evenly divided between federal and private. In the 12-year period of 1974-85 the Forest Service and BLM combined, harvested 44.6BBF while total private ownership cut 40.6BBF. State, Bureau of Indian Affairs and other public added another 4.2BBF making the total cut 89.4BBF or 7.4BBF annual average.

A major reason we may not presently be growing more timber than is harvested lies in a basic disparity between the large reserves of stagnant old-growth timber stands and vast acreages of young timber reproduction, which is still too small to contribute much total volume. As old-growth is depleted and young-growth approaches maturity, growth will exceed harvest by an ever-increasing ratio. Oregon has never had a timber shortage and need never have one unless land-use planning and pressure from preservationists cause a substantial reduction in the commercial forestland base. Technology exists to more than double present growth rates. Oregon currently has 2 million acres of wilderness designated by law as single-use (recreation only). That amount is probably sufficient considering total combined area is equivalent in size to the Willamette Valley.

Summary and Conclusions

Our timber industry underwent major transitional shock in early 1980. The same year, bank prime rate peaked at 21.5%, stumpage bid prices for west-side Douglas fir sawtimber reached an all-time high of \$490 per MBF and housing starts dropped to 1.3 million. During the next three years, bank prime was erratic, but gradually declined to 11.5% in 1982; Douglas fir stumpage dropped to a 10-year low of \$92 per MBF in the third quarter of that year, and housing starts retreated to record lows of 1 million each for 1981 and 1982. Market prices for lumber and plywood came down over \$100 per MBF/MSF during this period.

By early 1983 the industry experienced solid recovery with \$50 per MBF increases in market prices, fueled by 1.7 million housing starts and tolerable interest rates. Apart from typical seasonal movement of lumber and plywood prices, interest rates and housing starts were more stable during this three-year period to date than for a long time. Timber prices increased a little, but remained at levels which would permit efficient mills to maintain profit margins under existing market conditions.

All was not rosy, however, as the three-year recession took its terrible toll. Extensive operating losses from high timber costs/low market prices caused expanded short-term borrowing to support working capital, resulting in higher interest expense. Heavy long-term debt associated with plant modernization programs remains a great burden as profit margins were squeezed by overproduction from excessive installed capacity. A large volume of very expensive public timber under contract was deferred as mills attempted to reduce losses with lower cost logs purchased more recently. Canada exacerbated the situation by boosting her share of the U.S. lumber market to over one-third, made competitive by low cost Crown timber, favorable currency exchange and lower freight rates.

The combined effect of all these adverse factors resulted in an employment drop and mill closures of nearly 20% in the Northwest forest industry. Many jobs will be lost forever as plant improvement resulted in greater productivity through efficiency and automation. Many of the mills will never reopen due to business failures which forced liquidation of plant and equipment. Relief under the new timber legislation (at best a compromise in an otherwise untenable situation) will permit a few smaller companies to

survive...until the next economic crisis. Timber relief will not cure the problem any more than high timber costs caused it. No single factor did. A great variety of economic forces came into play, which are collectively responsible for cause and effect.

What should we expect from Oregon's forest industry? Timber relief legislation will not cause shortages, but may result in isolated temporary supply problems. Dislocation will continue to disrupt certain communities just as it has done for over a century now. The state will continue to enjoy an adequate harvest level. Overproduction in North America will continue to squeeze profit opportunity. U.S. demographics do not support rates of home construction much above the current level. By 1990, housing could decline back toward the 1.5 million level and possibly lower. Fewer mills will produce more lumber and plywood. They will be highly efficient operations, employing fewer people. Smaller companies who have any combination of heavy debt, high timber costs and older facilities will find it extremely difficult to survive. Larger public-type corporations will eliminate and consolidate operations toward more profitable opportunities, as is the case presently. Alternate markets for Oregon's wood products will be slow in developing. Offshore opportunities are probably the most promising. If interest and inflation rates hold where they are, wood products markets and housing activity should continue to follow the pattern established over the last three years.

In conclusion, this analysis shows that current economic and industry demand within which forest products companies are now operating (P4) is viable by historical standards. Further, it is very unlikely that the next year or two will bring significantly better conditions to enhance profit margins. Each firm's profitability differs due to the combined impact from a group of major factors: timber cost, plant efficiency, product markets, debt level and management competency. The effects of several of these factors (e.g., timber cost contingencies, debt levels) may have been exaggerated by many companies in actions taken during P3. Any credit analysis of existing or proposed requests for bank financing must consider the combined impact of these factors on a company's operation. However, it is inadvisable to assume any given company's problems will be solved by a stronger forest products market.

APPENDIX A

Sources

- Forest Service, U.S. Department of Agriculture
- U.S. Department of Commerce & Bureau of Census
- Random Lengths Publications, Inc.
- Western Wood Products Association, Portland, Oregon
- State employment agencies
- National Association of Homebuilders

APPENDIX B

Criteria for Obtaining Bank Financing

There is an old Boy Scout saying: "Be Prepared." This is probably your best single piece of advice before you decide to approach your friendly local banker.

We are talking about commercial banks. There are many types of lending institutions that may suit your borrowing needs better than a bank, but we will not discuss them in detail here. To mention a few of the others - venture capital firms, private placement (life insurance companies), commercial finance companies, factoring, leasing, government-aided programs (SBA, FMHA, etc.), capital stock issue and going public.

Do you qualify for bank financing? Commercial banks usually do not lend to early stage or start-up companies. You can save yourself a lot of time and frustration with this knowledge alone. Banks do not provide capital for great ideas. They are not interested in becoming your investment or risk partner. Banks never have any intention of sharing in your profits; likewise, they maintain an equally strong posture regarding sharing any losses you may incur. Banks "rent" money. All they expect is a fair return (interest) on their money commensurate with risk and a defined method of repayment for the amount lent. Commercial banks are typically low risk lending institutions. This feature is generally reflected in the relatively low interest charged compared to the alternate sources mentioned above.

Never wait until the last minute to ask your banker to help finance your project. Chances are they will turn you down very quickly. They need time to analyze and evaluate your proposal. To require an immediate response is unfair and unreasonable. It usually indicates enough lead time wasn't allowed or the request already got turned down by another bank. None of these aspects are especially complimentary to your project. The typical response will be, "If you have to have an immediate answer, the answer will be no!" Obviously, avoid this situation like poison.

Before you ask your banker to "help" finance your project, be prepared to come to the table with some equity (spelled cash). If you are considering a new capital expansion or installation, it might be a good idea to have access to equity equal to your loan request (half the project cost). That's called 1:1 leverage (debt equals equity). Some bankers are more lenient; they may permit you a 2:1 (debt twice as large as equity), 3:1 or even higher leverage, but don't count on it.

The same holds true of inventory or (trade) accounts receivable financing. Except there may be greater flexibility in loans supported by certain assets over others. Be prepared to support at least 50% of your total inventory yourself. You may find that bankers prefer certain inventory categories; like logs over lumber or finished over in-process. They may be

willing to advance more in certain areas and less in others. Trade receivables is an excellent example. You may be able to borrow up to 80% of high quality accounts. Expect inventory advance rates to be less than receivables and valued at the lower of cost or market. Permit your banker to secure his loan with your collateral. There is no stigma attached to this provision and it provides a great deal of comfort to the banker.

Since you are dynamically enthusiastic about your project, transmit this feeling to your banker. Come armed with your business plan, which inherently contains all the elements of a formal loan request...so your job is 90% finished already. Just in case you may have missed a vital point or two, refer to the attached Ford article. It provides a succinct outline. Some areas of that plan are reviewed below from a banking perspective.

Don't be wordy, no one wants to read a 3-page resume on each of 10 key management people. Just a paragraph or two apiece, highlighting the accomplishments, areas of expertise (skills) and experience (background). List education if you have to. Bankers seek comfort and solace in the ability and competency of key management. It represents backup and depth in case something happens to you. It is the "other" kind of security, not quantifiable in market value, but very real nonetheless.

On the first page, give a brief synopsis which states the company official name, where and when incorporated, address and phone number. Give your name, title and official capacity. Include a short narrative on the origin and history of your enterprise. Save the details for a later section. Stipulate the exact amount you want to borrow, the specific purpose and the concise benefit it will provide. State a primary and secondary method of loan repayment. Banks always like an escape hatch in case the first way fails. The normal method is first from a positive earning stream and second from liquidation of assets.

Financial Statements

Go back three to five years, or more specifically, cover the last period encompassing both recession and recovery periods, strong and weak markets, etc. Describe your firm's performance during those times. Compare projections or budget to actual and explain variance. What could you have done differently or what can you do now to improve operations? (This should be where borrowing will enhance opportunity.) Your banker is intensely interested in why you performed as you did. Provide CPA-audited statements, at least reviewed. In-house or unaudited are not very convincing.

Projections

Since no banker has ever seen a bad set, they will constantly attempt to establish a degree of credibility to yours. Even a "worse case" scenario is often made to look glamorous. Since you can pick up a sharp pencil and massage a few figures in order to "prove" how the loan will benefit your company, be careful! If the banker discovers that your numbers are not based on rock-solid data, you are dead. Might as well pick up your marbles

and try another bank, but not until after you have cleaned up your input. Remember, your banker has access to specialists such as industry technicians, accountants, credit analysts and others who can evaluate those projections. They may already be employed full-time by the bank or be from a qualified outside consulting firm. Never assume that they will not be able to verify your projections due to lack of experience or knowledge, or that they will not be interested in the detailed basis for all of your assumptions.

Conclusion

Just as there are numerous lending styles, the types of loans and services offered by a commercial bank have wide variety. So it is with the myriad of published articles geared toward both banker and borrower. It is not my intent to go into further detail in these categories at this time. Finally, attached are some referenced lending articles which I believe contain value. The purpose of this material is to assist the borrower in making a proper approach to the lender. When the borrower is prepared, the success ratio improves materially.

APPENDIX C

HOW TO WRITE A LOAN PROPOSAL

Joan G. Ford

The heart of most lending decisions is company value. Every banker wants to hear how his loan will improve the worth of your company. Address your presentation to this question and you'll improve your chances of coming away with the money. Here are some guidelines, along with specific tips.

A loan proposal consists of eight parts. It's virtually written already, though, if you have an up-to-date business plan on hand. A simple shift of emphasis toward your new audience will convert a business plan into a loan proposal.

SUMMARY. On the first page, give your name and title, company name and address, nature of business, amount sought, purpose, and source of repayment.

TOP-MANAGEMENT PROFILES. To sell yourself and your partners or top executives to the bank, develop a paragraph of two on each of you, touching on background, education, experience, skills, areas of expertise, accomplishments. Bankers seek their ultimate security in experienced management.

BUSINESS DESCRIPTION. Give details of your company's legal structure and age, number of employees and union status, and current business assets. Define your products and your markets, identifying customers and competitors. Describe your inventory in terms of size, rate of turnover, and marketability. Bankers favor established and conventional merchandise, as opposed to trendy or perishable items. Report the status of your accounts receivable and accounts payable. Bankers look for accounts to be less than 60 days old and for receivables to be spread among many customers, not concentrated in a few big ones. If you have any "contingent liabilities," or potential expenses, acknowledge them here.

PROJECTIONS. Basing your figures on your current share of market, explain your growth opportunities and describe how you plan to exploit these opportunities for the next year and the next five years. List your alternative and fallback plans. Work out a realistic timetable for achieving your goals. Bankers judge your plans and goals in terms of your industry's practices and trends.

FINANCIAL STATEMENTS. Get together balance sheets and income statements for the past three years, including current figures, and make projections for the next three years. Past and current statistics must be exact. Bankers are more comfortable with audited statements. If you can't afford a full audit, ask your accountant for a financial "review." While less convincing than an audit, this new intermediate procedure gives your banker more assurance than an unaudited statement. Prepare two sets of projected balance sheets, and income and cash flow statements, one predicted on receiving the loan and the other on going forward without it. Although critical to proving your claim that the loan will increase company worth, your projections must be realistic. Bankers match projections against

published industry standards, searching for padded earnings and meager cost estimates. Personal financial statements, including tax returns for the past three years, must also be submitted, since your own net worth is a factor. Bankers check your personal credit rating, as well as your company's.

PURPOSE. Pinpoint your proposed use of the loan. A request for "working capital" will elicit questions, not money. Instead, explain what the working capital is for, e.g., "To build up Christmas inventory by increasing production, starting in late summer."

AMOUNT. Ask for the precise amount needed to achieve your purpose, and support your figures with estimates from suppliers, for example, and previous years' cost figures. Don't ask for too much, expecting your request to be trimmed, or for too little, hoping that the smaller the request, the more likely an approval. Bankers know costs. They'll suspect you don't, if you seek an inappropriate amount.

REPAYMENT PLANS. The pivotal aspect of your proposal, repayment plans, should be formulated in the light of several banking axioms. First, asset must match loan: Any asset you want to finance must last at least as long as the loan period. Second, The asset should generate the repayment funds, by increasing sales, slashing costs, or heightening efficiency. Third, your projected balance sheet should clarify your company's capacity to meet interest as an expense, and to repay principal from net profits.

Finally, you must provide "two ways out" or two different sources of repayment. The bank wants assurance that if the first way... the asset and your company...is blocked, there's a second, ordinarily comprising your own and perhaps others' guarantees, validated by an accountant.

Weaving these axioms into a repayment schedule is a complex task, but you won't be required to do it all yourself. Lending officers anticipate calls for advice on this and all other elements of your loan proposal. They look for you to be an expert only on your business, however, you will be expected to come in with all the requisite financial data. "Let me check that out and get back to you" will put you in the amateur league, as far as bankers are concerned.

Bad as it is to lack financial information, it's worse to try to hide anything you fear may damage your chances. Be candid, bankers urge, pointing out that a good relationship is rooted in trust. Further, if you've made some misstep that's eating into your profits, the banker probably has the tools to effect a rescue.

Is there any other action you can take to swing the odds in your favor? Most bankers admit there is: Don't confine your patronage to the loan department. Buy additional services and refer other depositors. A bank, even a big money-center bank, is a business like any other, and will go to some lengths to satisfy customers...especially now, as competition for the small-business market heats up.

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APPENDIX D

Reference Lending Articles

"A Philosophical Foundation for Credit Analysis"
by David B. Still

Source: The Journal of Commercial Bank Lending, April 1984. Published by Robert Morris Associates. The author is senior vice president, The Philadelphia National Bank, Philadelphia, and a member of RMA's Philadelphia Chapter.

"How to Negotiate a Term Loan"
by Jasper H. Arnold III

Source: Harvard Business Review, March-April 1982. The author is senior vice president and manager of the credit department at First City National Bank of Houston. A specialist in corporate finance and commercial banking, he has had extensive term lending experience. He has published several articles on banking and corporate finance and has taught in the department of finance at the University of Houston.

"A Dozen Ways to Borrow Money"
by Joan G. Ford

Source: INC. magazine, December 1981. (A guide to overcoming obstacles in obtaining a loan.)

"Getting Through the Maze - A Guide to Successful Financing"
by Edward Suarez

Source: Laventhol & Horwath Perspective, Spring Summer 1981. Edward Suarez is partner-in-charge of Laventhol & Horwath's East Brunswick, New Jersey office.

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Studies in Management and Accounting
in the Forest Products Industry

Oregon State University

<u>No.</u>	<u>Monograph Title</u>
1	"The Rush to LIFO: Is It Always Good for Wood Products Firms?" (1976).
2	"Accounting and Financial Management in the Forest Products Industries: A Guide to the Published Literature," (1977 and 1981).
3	"A Decision Framework for Trading Lumber Futures," (October, 1975).
4	"Capital Gains Tax Treatment in the Forest Products Industries," (June, 1976).
5	"Measurement Difficulties in the Log Conversion Process," (June, 1976).
6	"Capital Budgeting Practices in the Forest Products Industry," (March, 1978).
7	"A Reporting and Control System for Wood Products Futures Trading Activities," (July, 1978).
8	"Selected Issues of Financial Accounting and Reporting for Timber," (November, 1978).
9	"Pool Log Transfer System," (August, 1979).
10	"Fundamentals of Financing Major Timber Acquisitions," (February, 1980).
11	"LIFO Inventories in the Forest Products Industry," (July, 1980).
12	"Accounting Controls for a Forest Products Firm," (January, 1981).
13	"Log Inventory Controls," (April, 1981).
14	"Accounting Treatment for Wood Products Futures Trading Activities," (October, 1981).
15	"A Reporting and Planning System for a Wood Products Operation," (November, 1981).
16	"Boise Cascade's Productivity Improvement Program," (January, 1982).
17	"Information Systems Planning in Weyerhaeuser Company," (August, 1982).
18	"Developing a Strategic Plan for a Forest Products Company: A Case Study," (March, 1983).
19	"Company/Employee Gainsharing Programs," (July, 1983).
20	"Productivity Improvement Programs of Knowledge Workers in the Forest Products Industry," (November, 1983).
21	"Microcomputer Modeling in the Forest Products Industry," (May, 1984).
22	"Control and Measurement of Chips," (September, 1984).
23	"Accounting for Buying Back Timber Cutting Contracts," (December, 1984).
24	"Developing Cross-Hedging Strategies Based on Lumber Price-Change Variation and Seasonality," (May, 1985).
25	"Unique Financial Reporting Considerations for Readers of Forest Products Companies Financial Statements," (November, 1985).
26	"Improving Productivity Through Internal Contracting," (March, 1986).
27	"Perspectives on the Timber Industry from a Lender's Standpoint," (October, 1986).

Studies in Management and Accounting for the Forest Products Industry

This series of monographs is published by the College of Business and the College of Forestry, Oregon State University, to disseminate information, research findings, and informed opinion about current problems and opportunities in the management of, and accounting for, enterprises in the forest and wood products industries. The views expressed herein are those of the author(s), and do not necessarily represent those of Oregon State University.

Additional information about these Studies may be obtained from the program director, at the College of Business, Oregon State University, Corvallis, Oregon 97331.

