Financial Analysis

Clarkson Lumber Company

Pro Forma Analysis

- Basic approach is to pick points in time (year end, quarter end, month end), determine where cash is expected to be tied up at these points in time, and determine what the sources of cash are expected to be at these points in time. *Cash flows* are the period to period changes in these *Cash stocks*
- We forecast the income and balance sheets based on a forecast of sales, and the relations between sales and the income and balance sheet components.

Pro Forma Analysis

- Income statement: look at operating efficiency and profitability
- balance sheet: look at required investment in assets (uses of cash) and liabilities (sources of cash)

Balance Sheet

- Assets
  - *Required* cash and marketable securities
  - Accounts Receivable (A/R)
  - Inventory (INV)
  - Fixed assets (PPE)

- Liabilities
  - Automatic Sources
    - Accounts Payable (A/P)
    - Accrued Expenses (A/E)
  - Debt
    - Short Term
    - Long Term
  - Equity
    - Retained Earnings
    - Common Stock

Balance Sheet

- Problem: What should be the relation between income and balance sheet items and sales?
- “Solution”: Perform financial analysis of firm to determine:
  - what the firm has done (history)
  - where the firm is going (trends)
  - What the firm should do in light of strategy
  - What other firms are doing (comparables)

Where is Cash Going

Uses	93	94	95	93-95
cash	43	52	56	
A/R	306	411	606	
INV	337	432	587	
CA	686	895	1249	
PPE	233	262	388	

Where is Cash Coming From

Sources	93	94	95	93-95
A/P	213	340	376	
Notes-trade	0	0	127	
A/E	42	45	75	
“automatic”	255	385	578	

debt	160	400	610
equity	504	372	449
TL&NW	919	1157	1637

Mr. Holtz Transaction

Net Worth beginning 94	504	
NI 94		68
sub total		572
buyout of Mr. H		-200
NW end of 94		372
note to Mr. H		200

“leveraged buyout” of Mr. Holtz.

total liabilities plus net worth unaffected

Dupont Model

ROE = NI/NW

= NI/Sales * Sales/TA * TA/NW

margin	turnover	leverage
(operations)	(investment)	(financing)

Dupont

	93	94	95	AVG
ROE				15.8%
margin				1.9%
turnover				2.98
leverage				2.86

Profitability

Operating Profit Margin (OPM)

OPM =

earnings before interest and taxes/sales

Gross Profit Margin (GPM)

GPM = Gross Profit/Sales

= (Sales - COGS)/Sales

1 - COGS Ratio

OPM = GPM - Operating Expense/Sales

= GPM - Op Exp ratio

Profitability

	93	94	95	AVG
NPM	2.1%	2.0%	1.7%	1.9%
COGS Ratio	75.4	75.8	75.8	75.6
GPM	24.6	24.2	24.2	24.4
Op Exp Ratio	21.3	20.6	20.8	20.9
OPM	3.3	3.6	3.4	3.5

Profitability

NPM = (EBIT - INT - TAX)/Sales

=OPM(1 - INT/EBIT)(1- TAX/EBT)

net profit margin = operating profit margin *

1 - interest burden *

1 - effective tax rate

Profitability

	93	94	95	AVG
OPM				3.5%
INT				
Burden				.31
TAX				
Rate				.20
NPM				1.9%

Turnover

Asset Turnover

total asset turnover = Sales/TA

Cash Ratio = Cash/Sales

Accounts Receivable

Days on Hand = (A/R)/(Daily Sales)

= (A/R)/(Sales/365)

Turnover

	93	94	95	AVG
Asset TO				2.98
C/Sales				1.4%
AR DOH				43.4
INV DOH				59.4
NFATO				12.5

Uses of Cash

- Suppose that Clarkson could return to DOH for inventory and Accounts Receivable at 93 levels

	Actual DOH	Actual Level	Target DOH	Target level	funds release
A/R	48.9	606			
INV	62.6	587			
total		1193			

Leverage

Total Liabilities to Total Assets

TL to TA = TL/TA = 1 - NW/TA

Debt to Capital

Debt to CAP = Debt/(Debt + NW)

Interest Coverage

Times Interest Earned	=	EBIT/interest

Accounts Payable Days

AP DOH = AP/(daily purchases)

= AP/(purchases/365)

Accrued Expense Ratio

AE to sales = AE/Sales

Leverage

	93	94	95	AVG
TL to TA				.62
Debt/CAP				.46
Debt/CAP 2				.45
Int Cov				3.3
AP DOH I				39.7
AP DOH 2				44
AE/Sales				1.5%

Liqudity

Current Ratio

$CR = CA/CL$

Quick (or Acid Test) Ratio

$QR = (CA - INV)/CL$

Liquidity

	93	94	95	AVG
CR				1.74
QR				.90

Alternative Performance Measure

Return on Invested Capital

ROIC = NOP/Capital

NOP = EBIT - Tax on Ebit

Capital = Debt + Net Worth

Debt includes all *interest bearing* debt, both short and long term

ROIC measures *operating* performance

- finance charges (interest expense) are not taken out, only operating income is used
- tax savings from interest deductability also removed from income calculations
- debt and equity are lumped together to get an overall capital efficiency, independent of the *mix* of debt and capital

Clarkson ROIC

	93	94	95
EBIT	97	126	155
tax	18	26	34
NOP	79	100	121
Capital	664	772	1186
ROIC	11.8%	13.0%	10.2%

Notes:

Taxes determined by average tax rate for each year

Capital includes notes payable trade

Alternative "Dupont"

ROIC = NOP/Capital

= NOP/Sales * Sales/Capital

= NOPM * Capital Turnover

= operating + Capital

efficiency Management

Clarkson

	93	94	95
NOPM	2.69%	2.89%	2.67%
Cap TO	4.4	4.5	3.8
ROIC	11.8%	13.0%	10.2%
ROE	11.9%	18.3%	17.1%

Leverage, ROE and ROIC

$ROE = ROIC + [ROIC - R_D(1 - t)](D/NW)$

Where

t is the average tax rate (t = taxes/EBT)

D is interest bearing debt

R_D is the average interest rate on debt

(R_D = interest/Debt)

NW is Net Worth

As long as ROIC exceeds R_D, increases in leverage (increasing D and decreasing NW) increase ROE.

Is this a good thing for the owners?

What happens to risk?

Next Time

- Given sales forecast, project income
  - what margins should be used?
- Given sales forecast, and income forecast, forecast balance sheet entries
  - what operating procedures should be changed?
  - what does this imply about turnovers, DOH's and ratios?
- Use a liability entry called "external funds" to balance the balance sheet
  - external funds = forecast TA - forecast (Liab + NW)
  - positive number, additional borrowing needed
  - negative number, cash available

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debt	160	400	610	350
equity	504	372	449	-55
TL&NW	919	1157	1637	718

Dupont

	93	94	95	AVG
ROE	11.9%	18.3%	17.2%	15.8%
margin	2.1%	2.0%	1.7%	1.9%
turnover	3.18	3.01	2.76	2.98
leverage	1.82	3.11	3.65	2.86

Profitability

	93	94	95	AVG
OPM	3.3	3.6	3.4	3.5
INT Burden	.24	.33	.36	.31
TAX Rate	.19	.20	.22	.20
NPM	2.1%	2.0%	1.7%	1.9%

interest burden increased

Turnover

	93	94	95	AVG
Asset TO	3.18	3.01	2.76	2.98
C/Sales	1.5%	1.5%	1.2%	1.4%
AR DOH	38.2	43.1	48.9	43.4
INV DOH	55.9	59.9	62.6	59.4
NFATO	12.5	13.3	11.6	12.5
Sales Growth		19%	30%	

Uses of Cash

	Actual DOH	Actual Level	Target DOH	Target level	funds release
A/R	48.9	606	38.2	473	133
INV	62.6	587	55.9	524	63
total		1193		997	196

Leverage

	93	94	95	AVG
TL to TA	.45	.68	.73	.62
Debt/CAP 1	.24	.52	.62	.46
Debt/CAP 2			.58	.45
Int Cov	4.2	3.3	2.8	3.3
AP DOH I	35.2	45.5	38.3	39.7
AP DOH 2			51.3	44
AE/Sales	1.4%	1.3%	1.7%	1.5%

Liquidity

	93	94	95	AVG
CR	2.49	1.58	1.15	1.74
QR	1.27	.82	.61	.90