

Financial Analysis and Forecasting: An Intermediate Step between End-of-Chapter Problems and Full Cases with a Mini-case Generating Tool

Kenneth J. Wiant, Tennessee Technological University

ABSTRACT

While cases are meant to help bridge the gap between textbook and problem solving in business, the transition from end of chapter problems and multiple choice questions to an unstructured case may be a shock to many students. This paper addresses an intermediate pedagogical step with a spreadsheet based faculty tool employed to develop a transitional mini-case focused on a financial analysis and forecasting assignment. A financial statement model is developed which allows the instructor to determine the characteristics desired in the firm and generate the full set of statements for student analysis and proforma statement development. The model is then used as an exam case generator.

INTRODUCTION

Introductory finance class coverage of the financial analysis and financial planning (forecasting) topics include a range of end of chapter problems targeting specific issues in the chapter. Exams are likely to be multiple choice and problem oriented. As students progress into the intermediate and advanced classes, end of chapter style problems give way to case studies based on real business situations. The cases represent a major change in the approach to these topics and limit the instructor's ability to refine and focus the discussion on particular issues unless the chosen case addresses the issue. Cases are static. That is, case studies do not change term to term, potentially limiting the usefulness as a fresh problem for the students. Once used in class, the secondary market for your course material and "answers" may reduce the effectiveness of the case as a class assignment or exam.

The difference between end of chapter type problems and full case studies is pronounced and a major challenge for many students. In this paper, an intermediate pedagogical step is described that utilizes a spreadsheet based tool to create a transitional mini-case addressing financial analysis, forecasting, and pro forma statement preparation. The spreadsheet based tool generates the integrated financial statements based on the strength, weakness, scale and other inputs from instructors. A set of historical financial statements, industry ratios, and partial proforma statements are provided for the students to evaluate.

The assignment involves the historical performance analysis of a firm, pro forma statement preparation, and cash flow analysis based on forecasts implied in the historical discussion. In the assignment, the firm analyzed is not real but is fabricated according to the financial strengths and weaknesses that the instructor chooses to emphasize. The instructor manages the degree of ambiguity of the signals provided in the financial statements and the area of emphasis for the

assignment. Originally developed as an exam problem generator, student feedback motivated its utilization as an instructional tool.

The model is also used to generate a comprehensive style problem for exams. It may be utilized as an exam case or multiple part problems. It has been found useful as a way to focus students' attention on the problem at hand and less time trying to understand the format of the financial statements since the style is similar to the earlier assignments.

COMPONENTS OF THE MODEL

A typical set of assignments based on the model include financial analysis (ratio analysis), forecasting decisions, pro forma statement development, and cash flow analysis of the pro forma statements. It also allows for the introduction of a project with an impact on capital needs and cash flow. The model is designed to allow determination of the scales of the firm, strengths and weaknesses in the financial analysis, cash flow levels, and ability to support debt. The instructor can structure a degree of ambiguity, or clarity in the analysis.

Input variables

Input variables needed to create firm are listed in Table 1 and input variables to create the industry data are listed in Table 2. Key input variables for firm income statement characteristics include initial sales, sales growth, and profitability over time. Other income statement variables include the tax rate and interest expense. Key balance sheet variables include accounts

Table 1
Firm Input Variables

Item	Format	Single or annual entry
Income Statement:		
Sales	Dollar value	Initial - one time
Sales growth	Annual rate	Either
Cost of goods sold	Percent of sales	Either
Operating expenses	Percent of sales	Either
Depreciation	Dollar value	Initial - one time
Interest expense	Dollar value	Initial - one time
Taxes	Rate	Initial - one time
Dividends	Percent of NI or dollar value	Either
Balance Sheet:		
Accounts receivable	Days	Either
Inventory	Days	Either
Land	Dollar value	Initial - one time
Buildings & equipment	Dollar value	Initial - one time
Accumulated depreciation	Dollar value	Initial - one time
Accounts payable	Days	Either
Bank notes	Dollar value	Initial level / repayment per year
Long-term debt	Dollar value	Initial level / repayment per year
Common stock	Dollar value	Initial - one time
Retained earnings	Dollar value	Initial - one time

receivable (days), inventory (days), payables (days), fixed asset, debt, and equity levels. Debt repayment for both short term and long term debt is also included. The input worksheet as it appears in the model is presented in Figure 1. Sales is a scale variable to set up the size of the firm. The sales growth is entered for each year of the historical and of the forecast period. A second forecast period is built in order to allow a project, or event that would change the forecast and pro forma statements. Cost of goods sold and operating expenses may be entered at a fixed

level for the full period or may be entered year by year. I find that I use the year by year entry

Table 2
Industry Input Variables

Item	Format
Income Statement:	
Year	Dollar value
Tax rate	Rate
Cost of goods sold	Percent of sales
Operating Expenses	Percent of sales
Depreciation	Percent of sales
Interest Expense	Percent of sales
Dividends	Percent of sales
Balance Sheet:	
Cash	Percent of total assets
Bank notes	Percent of total assets
Long-term Debt	Percent of total assets
Common Stock	Percent of total assets
Ratios:	
Sales/total assets	Ratio
Average collection period	Days
Days sales in inventory	Days
Days payables	Days

approach. Initial interest expense is currently entered as a dollar amount and the implied interest rate is calculated and provided by the worksheet.

Figure 1
Firm Input Worksheet

		Actual 2002	Actual 2003	Actual 2004	Actual 2005	Actual 2006	Proforma 2007	Proforma 2008	Proforma 2009	Proforma 2006	Proforma 2007	Proforma 2008	Proforma 2009
Income Statements (000s)													
Sales: sales growth rate		15,000	5.0%	8.0%	10.0%	12.0%	3.0%	3.0%	3.0%	12.0%	25.0%	25.0%	3.0%
Cost of goods sold *	71.0% % of Sales	73.00%	73.00%	72.00%	71.50%	71.00%	71.00%	71.00%	71.00%	71.00%	71.00%	71.00%	71.00%
Gross profit													
Operating Expenses *	15.0% % of Sales	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	0.00%	0.00%	0.00%
Advertising													
Depreciation	2.3% Value	\$ 345	\$ 345	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325
EBIT													
Interest	8.2%	\$ 300											
EBT													
Taxes	45.0%												
EAT													
Dividends	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Balance Sheets (000s)													
Cash													
Accounts receivable *	43.80 Days	38.25	40.10	43.80	48.00	49.80	51.00	51.00	51.00	49.80	51.00	51.00	51.00
Inventory *	26.0 Days	72.00	74.50	77.00	76.00	77.10	77.10	77.10	77.10	77.10	77.10	77.10	77.10
Total current assets													
Prepaid advertising													
Land	Value	895	895	895	895	895	895	895	895	895	895	895	895
Buildings and equipment	Value	4,992	4,992	4,992	4,992	4,992	4,992	4,992	4,992	4,992	4,992	4,992	4,992
Less: accumulated depreciation	Value	(2,658)											
Total fixed assets													
Total assets													
Accounts payable	12.0 Days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bank notes	Value:Repay/yr	481	0	0	150	300	31	0	0	300	31	0	0
Total current liabilities													
Long-term debt	Repay/yr	3,157	750	750	750	750	157	0	0	750	157	0	0
Common stock		1,675											
Retained earnings		1,321											
Total liabilities & equity													

On the balance sheet, accounts receivable, inventory, and payables are entered as days. This allows the instructor to develop the resulting financial statements based on the way they desire the ratio relationships to look as the student works to evaluate the statements. Initial dollar values for fixed assets, accumulated depreciation, debt, equity, and retained earnings fill out the initial balance sheet. Debt repayment may be entered each year.

Industry ratio information is also entered in order to provide student with comparison data for the exam or assignment. This input information may be developed from actual industry data or may be fictitious according to the goals of the assignment. Only a portion of the financial statement items and ratios are needed to complete the industry “data” for the model as shown in the industry input worksheet in figure 2. The remaining calculations may be completed by model.

Figure 2
Industry Input Worksheet

Industry Average Input Worksheet		Common Size Balance Sheets		Selected Ratios:	
	2006		Industry 2006		Industry 2006
Year	2006	Cash	12.0%	Liquidity	
Tax Rate	45.00%	Accounts receivable	21.1%	Current ratio	4.27
		Inventory	44.1%	Quick ratio	1.83
				Overall Performance	
		Total current assets	77.2%	ROE	14.0%
		Prepaid advertising		ROA	5.6%
		Land	6.1%	Efficiency	
		Buildings and equipment	30.4%	Sales/Total assets	1.75
		Less: accumulated depreciation	-13.7%	Sales/Fixed assets	7.68
		Total fixed assets	22.8%	Leverage	
		Total assets	100.0%	Total debt/Equity	1.20
				Long-term debt/Equity	1.05
		Accounts payable	12.1%	Working capital	
		Bank notes	6.0%	Accounts receivable	
		Total current liabilities	18.1%	T.O.	8.30
		Long-term debt	42.0%	Average collection period	44.00
		Common stock	12.0%	Inventory	
		Retained earnings	27.9%	T.O.	3.97
		Total liabilities & equity	100.0%	Days sales in inventory	92.00
				Accounts payable	
				T.O.	10.43
				Days' payables	35.00

The common size balance sheet entries for accounts receivable, inventory, and payables are driven by the working capital ratios and the relationships with the other balance sheet accounts. Industry data is only created for one year in this model. Expanding the model to incorporate industry ratios for each year of the historical analysis is planned. However, the current structure is used in class to highlight the limitations of industry data and the dangers of attempting to make comparisons outside the framework of the limited data available.

The interrelationships among financial data drive the calculations of the financial statements. This means that, while the instructor may begin with a set of desired strengths and weaknesses, there will be some iteration needed between input and resulting financial statements in order to achieve the desired “firm” with all the attributes planned for. The initial cash balance, and cash flow during the years is a result, not an input. Adjustment to the variables will be necessary to achieve the levels of cash flow desired. These changes may need to be in the scale (sales level) of the firm, growth, assets size, operational efficiency, or other area in order to get resulting cash flows within a desired range for the purposes of the assignment.

Model Output

The model generates several pages of financial information depending on the assignment to be given. The typical initial assignment involves four pages of information for the students.

Figure 3

FIN 3220: Dr. Veant		J Industries, Inc					Page A.1	
(Thousands of Dollars (000))								
Income Statements (000s)	2003	2004	2005	2006	2007	Proforma 2008	Proforma 2009	
Sales	\$1,234	\$1,298	\$1,360	\$1,429	\$1,500			
Cost of goods sold	(834)	(878)	(926)	(979)	(1,039)			
Gross profit	400	418	435	449	460			
Operating Expenses	(99)	(104)	(109)	(114)	(120)			
Advertising								
Depreciation	(25)	(25)	(25)	(25)	(25)			
EBIT	277	289	301	310	315			
Interest	(155)	(187)	(179)	(179)	(162)			
EBT	82	102	122	140	153			
Taxes	(37)	(46)	(55)	(63)	(65)			
EAT	\$45	\$56	\$67	\$77	\$88			
Dividends	0	0	0	0	0			
Balance Sheets (000s)	2003	2004	2005	2006	2007	2008	2009	
Cash	\$5,594	\$5,502	\$5,423	\$5,366	\$5,310			
Accounts receivable	172	181	186	188	189			
Inventory	164	179	195	204	220			
Total current assets	5,931	5,862	5,805	5,758	5,719			
Prepaid advertising								
Land	175	175	175	175	175			
Buildings and equipment	1,322	1,322	1,322	1,322	1,322			
Less: accumulated depreciation	(725)	(750)	(775)	(800)	(825)			
Total fixed assets	772	747	722	697	672			
Total assets	\$6,703	\$6,609	\$6,527	\$6,455	\$6,391			
Accounts payable	\$ 80	\$ 72	\$ 76	\$ 80	\$ 85			
Bank notes	481	433	385	337	289			
Total current liabilities	561	505	461	417	374			
Long-term debt	3,157	3,052	2,947	2,841	2,736			
Common stock	1,675	1,675	1,675	1,675	1,675			
Retained earnings	1,321	1,377	1,445	1,521	1,606			
Total liabilities & equity	\$6,703	\$6,609	\$6,527	\$6,455	\$6,391			

Page one includes five years of historical statements including the income statement and balance sheet as shown in Figure 3. If the assignment includes forecasting and pro forma statement preparation, shells for the pro forma may be created as part of page 1 or on a new page. The model will generate the pro forma results for the assignment. Page two of the output includes five years of historical cash flow statements and is presented in Figure 4.

Figure 4

FIN 3220: Dr. Wiant		It Industries, Inc				Page A.2
		Thousands of dollars (000)				
Cash Flow Statements (000s)	2004	2005	2006	2007		
Operating activities:						
EAT	\$56	\$67	\$77	\$84		
Amortization of adv. program	0	0	0	0		
Depreciation	25	25	25	25		
Change in A/R	(9)	(5)	(1)	(1)		
Change in Inv	(15)	(16)	(9)	(16)		
Change in A/P	4	4	4	5		
Cash flow provided (used)	\$82	\$75	\$96	\$97		
Investing activities:						
Advertising program	0	0	0	0		
Cash flow provided (used)	\$0	\$0	\$0	\$0		
Financing activities:						
Debt repayment	(153)	(153)	(153)	(153)		
Dividend payments	0	0	0	0		
Cash flow provided (used)	(\$153)	(\$153)	(\$153)	(\$153)		
Net change in cash	(\$92)	(\$79)	(\$57)	(\$56)		

Page three is shown in Figure 5. It provides the five years of common size income statements and balance sheets, along with the most recent year of industry data for the common size statements. Selected historical company ratios for the five years and the industry ratios are provided on page four and are shown in Figure 6.

Figure 5

FIN 3220: Dr. Wiant		It Industries, Inc					Page A.3
		Common size					
Income Statements (000s)	2003	2004	2005	2006	2007	Industry 2007	
Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Cost of goods sold	-67.6%	-67.8%	-68.1%	-68.6%	-69.3%	72.1%	
Gross profit	32.5%	32.3%	32.0%	31.5%	30.7%	27.9%	
Operating Expenses	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%	14.8%	
Advertising							
Depreciation	-2.0%	-1.9%	-1.8%	-1.8%	-1.7%	3.2%	
EBIT	22.4%	22.3%	22.1%	21.7%	21.0%	9.9%	
Interest	-15.8%	-14.4%	-13.1%	-11.9%	-10.8%	7.8%	
EBT	6.6%	7.9%	9.0%	9.8%	10.2%	2.1%	
Taxes	-3.0%	-3.6%	-4.0%	-4.4%	-4.6%	1.0%	
EAT	3.6%	4.3%	4.9%	5.4%	5.6%	1.2%	
Dividends	0.0%	0.0%	0.0%	0.0%	0.0%		
Balance Sheets (000s)	2003	2004	2005	2006	2007	Industry 2007	
Cash	83.5%	83.2%	83.1%	83.1%	83.1%	12.0%	
Accounts receivable	2.6%	2.7%	2.9%	2.9%	3.0%	9.6%	
Inventory	2.5%	2.7%	3.0%	3.2%	3.4%	20.2%	
Total current assets	88.5%	88.7%	88.9%	89.2%	89.5%	41.8%	
Prepaid advertising							
Land	2.6%	2.6%	2.7%	2.7%	2.7%	15.5%	
Buildings and equipment	19.7%	20.0%	20.3%	20.5%	20.7%	77.6%	
Less: accumulated depreciation	-10.8%	-11.3%	-11.9%	-12.4%	-12.9%	-34.9%	
Total fixed assets	11.5%	11.3%	11.1%	10.8%	10.5%	58.2%	
Total assets	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Accounts payable	1.0%	1.1%	1.2%	1.2%	1.3%	5.5%	
Bank notes	7.2%	6.6%	5.9%	5.2%	4.5%	6.0%	
Total current liabilities	8.2%	7.6%	7.1%	6.5%	5.9%	11.5%	
Long-term debt	47.1%	46.2%	45.1%	44.0%	42.8%	42.0%	
Common stock	25.0%	25.3%	25.7%	25.9%	26.2%	12.0%	
Retained earnings	19.7%	20.8%	22.1%	23.6%	25.1%	34.5%	
Total liabilities & equity	100%	100%	100%	100%	100%	100.0%	

Figure 6

Selected Ratios:	2003	2004	2005	2006	2007	Industry 2007
Current ratio	10.79	11.61	12.60	13.80	15.29	3.63
Quick ratio	10.49	11.25	12.17	13.31	14.70	1.88
ROE	1.5%	1.8%	2.2%	2.4%	2.6%	2.0%
ROA	0.7%	0.9%	1.0%	1.2%	1.3%	0.9%
Sales/Total assets	0.18	0.20	0.21	0.22	0.23	0.80
Sales/Fixed assets	1.60	1.73	1.88	2.05	2.23	1.37
Total debt/Equity	1.21	1.14	1.07	0.99	0.92	1.03
Long-term debt/Equity	1.05	1.00	0.94	0.89	0.83	0.90
<i>Accounts receivable</i>						
T.O.	7.16	7.16	7.30	7.60	7.93	8.30
Average collection period	51.00	51.00	50.00	48.00	46.00	44.00
<i>Inventory</i>						
T.O.	5.07	4.90	4.74	4.80	4.73	3.97
Days sales in inventory	72.00	74.50	77.00	76.00	77.10	92.00
<i>Accounts payable</i>						
T.O.	12.17	12.17	12.17	12.17	12.17	10.43
Days' payables	30.00	30.00	30.00	30.00	30.00	35.00
BEP	4.1%	4.4%	4.6%	4.8%	4.9%	7.9%

USE OF THE MODEL

The financial statement generating model is used in my intermediate finance class as the students' first mini-case. It is also used for developing sections of the mid-term exam in that course.

Case Analysis

The four pages of worksheets provide the financial data for students to use in addressing their assignments associated with the case. The case given to the students to set up parts 1 and 2 is presented in figure 7 and is very limited. In part 1, students are simply requested to analyze the financial statements of the firm. In part 2a, they are asked to develop forecasts for the next two years based on the historical evaluation, and in part 2b, they are asked to use their forecasts and prepare pro forma statements for the firm.

Figure 7

FIN 3220 (WIANT.v8f)	Case 1: <i>it</i> Industries – Parts 1 & 2
You have been provided with a set of financial statements for <i>it</i> Industries, Inc. in the other files.	
1. Financial Analysis: Analyze the firm's historical financial statements (2003-2007).	
In your analysis, please comment on each of the following areas:	
<ol style="list-style-type: none">a. Growthb. Liquidityc. Profitability, including Control of expensesd. Debt Managemente. Cash flowf. Asset Management, including Working capital management (A/R, Inv., A/P)g. Overall Performanceh. Other? (if there are other areas to evaluate, please do so.)	
Summarize your analysis.	
<ul style="list-style-type: none">• That is, how would you rate the firm overall? Why?• What are the key strengths and weaknesses?	
2. Forecasting:	
<ol style="list-style-type: none">a. Based on your analysis, develop a forecast for the firm's next 2 years (2008 and 2009). Justify your forecasts.b. Prepare proforma income statements, balance sheets, and cash flow statements.	

As parts 1 and 2 are completed, submitted, and discussed, parts 3 and 4 of the case is assigned to the students as shown in figure 8. I give the students a new forecast from the firm and a capital project that will change the sales outlook for the firm and perhaps other forecast components. In part 3, they are asked to restate the pro forma financial statements incorporating the new information.

Figure 8

FIN 3220 (WANT.v8f)	Case 1 – Parts 3 and 4
J Industries, Inc.	
<p>The company's Chief Financial Officer has forecast that sales will remain relatively flat (3% growth rate) and has prepared proforma statements for the firm through 2010 based on her initial forecasts. The basis of the slow growth is that the firm has reached full capacity in the utilization of its fixed assets.</p>	
<p>However, the executive committee has just heard an impressive investment proposal from the equipment manufacturer, Larry, Mary & Gary. The proposed equipment investment will support sales growth for the next 2 years. With the increase in capacity, sales are expected to improve with a sales growth rate to 25% each year for 2008 and 2009. Sales growth in 2010 is expected to return to the 3% growth originally forecast as the firm then again approaches production capacity.</p>	
<p>Larry, Mary & Gary require full payment for the capital project up front (\$1,000,000 right now). The new equipment (fixed assets) will be added and then depreciated using MACRS depreciation with a 5-year class life.</p>	
3.	<p>It is now 12/30/2007. If the project is accepted, the investment will be funded today and must be reflected on the firm's 2006 financial statements.</p> <ol style="list-style-type: none">Complete the firm's 2008, 2009, and 2010 based on the flat (3%) growth forecast. Partially completed statements are provided in the worksheet.Restate the 2006 financial statements (the income statement will not change) to reflect the cost of the project. A partially completed statement is provided. Fill in the blanks. (Note: the CFO has determined that the firm needs a minimum cash balance of \$300,000 for day-to-day operations for each of the years in the forecast period).Complete the firm's revised 2008, 2009, and 2010 proforma statements accounting for the advertising project. Again, use the partially completed statements provided.
4.	<p>The firm has requested that the bank finance the full \$1,000,000 for the project.</p> <ol style="list-style-type: none">Will the firm need to raise external funds (borrow) if it accepts the project? If so, how much will the company need?If you were the banker, would you make the loan? Why (history, ability to repay)?How long would the company need to repay the loan?
<p>Supplemental: After you have completed 3. and 4. above. If you disagree with any of the CFO's initial forecasts, provide a statement of the disagreements, then revised the proforma. Does the new forecast change your answers to 4.?</p>	

Part 4 requires the student to take the point of view of a banker and asks them to evaluate the financing needs of the project and the firm's ability to support the repayment of the debt.

Mid-Term Exam

The financial statement generating model is used to support the mid-term exam in the same course. It allows the instructor to change the issues of the fictitious firm, yet gives the student a format they have seen before.

Figure 9

FIN 3220 (Dr. Wiant) Mid-term 2 (v7f) Page 1

You have just accepted a position as a commercial lending officer (at least for the next hour or so) with the Seventh Bank of TN, N.A. (SBT). Yesterday, you took loan requests from three firms and gave your administrative assistant the files to compile the companies' historical and proforma financial statements for your analysis. It is Saturday and you have arrived at the office to find that your assistant only partially completed his work. You have found the almost complete financial statements for one firm but the rest of the files have been locked away. You have only some notes about each firm you took during the loan interviews and begin another normal day at SBT.

I.S. Bell Specialties, Inc.
 ...growth company, working to gain market share.
 ...discount firm.
 ...consistent strong credit and collection policy.

B. R. Fife & Wood Co.
 ...growing firm and leading; trying to maintain position.
 ...recent plant modifications; impact has been to reduce defects in the manufacturing process thus improving manufacturing efficiency.

KJW Ltd.
 ...sagging demand; trying to turn around.
 ...has recently (2 years ago) implemented new credit and collection policies.
 ...the investment supported by this loan is for improving the firm's aging manufacturing process.
 ...tight inventory controls; one of few in industry with just-in-time inventory system.

This may help them by reducing the distraction of a different style presentation of financial information and can allow them to find the information in the financial statements more effectively. Example midterm questions are presented in figures 9 – 11.

Figure 10

FIN 3220 (Dr. Wiant) Mid-term 2 (v7f) Page 2

1. a. (10 points) You have been provided with a set of financial statements for I.S. Bell Specialties, Inc., B.R. Fife & Wood Co., or KJW Ltd.

Among the following areas, identify the company's strengths and weaknesses.

<u>Asset management</u>	Strength	Weakness	Neither
• TATO (Sales/Total Assets)	_____	_____	_____
• FATO (Sales/Fixed Assets)	_____	_____	_____
• Accounts Receivable	_____	_____	_____
• Inventory	_____	_____	_____
<u>Profitability and Expense control</u>			
• Net profit margin	_____	_____	_____
• _____	_____	_____	_____
<u>Overall performance</u>			
• _____	_____	_____	_____
• _____	_____	_____	_____
<u>Debt Management</u>			
• _____	_____	_____	_____
• _____	_____	_____	_____

b. (5 points) Using financial statements, the results of your analysis, and the limited information for each firm provided on the previous page, identify the company that belongs to the financial statements.

Justify your selection.

The structure is also a mini case and students are asked to analyze the financial statements. In this set of questions, students are asked to identify the firm associated with the financial statements based on some descriptive characteristics (figure 9) of three firms.

Figure 11

FIN 3220 (Dr. Wiant) Mid-term 2 (v7f) Page 3

2. (15 points) Your assistant was unable to complete the pro forma statements.

a. Complete them by filling in the blanks on the statements. The firm's treasurer believes that a minimum cash balance of \$100,000 is needed to support the firm's daily operations. This is the first draft of the pro forma; use AFN.

(Note that the statements are reported in \$000s)

b. What is your AFN for 2007? \$ _____

c. Suppose you found that the initial AFN was \$10,000:

What does that mean?

Is the pro forma finished?

What is next? (That is, describe the impact of the \$10,000 and how to incorporate it in the completed pro forma.)

Pro forma statement development may also be addressed. Depending on the time available for the exam and the breadth of material covered, the pro forma statement structure can be modified to a partial fill in the blanks structure on the pro forma columns of the generated financial statements as shown in figure 12. The entries left blank attempt to assess the student understanding of the implied forecast for an item and its reflection in the pro forma statement.

Even with limited blanks, it can assess their ability to reconcile the statement and understanding of the balancing entry. They are also asked to discuss the implications of the feedback loop of changes in the levels of debt and the approach to incrementally incorporating interest in the pro forma. It is recognized that the interrelationship of interest and debt (AFN) may be solved using simultaneous equations without the iterative steps in the model as described by Arnold and Eisman (2008), however, the iterative approach has been an effective way for students to see the relationship.

Figure 12

Thousands of dollars (000)						Proforma	Proforma
Income Statements (000s)	2002	2003	2004	2005	2006	2007	2008
Sales	\$12,352	\$14,205	\$16,478	\$19,114	\$22,363	\$25,941	\$30,092
Cost of goods sold	(9,758)	(11,108)	(12,885)	(15,100)	(17,645)	(20,468)	(23,743)
Gross profit	2,594	3,097	3,592	4,014	4,719	5,474	6,349
Operating Expenses	(1,525)	(1,811)	(2,076)	(2,437)	(2,952)	(3,424)	(3,972)
Advertising							
Depreciation	(185)	(185)	(185)	(185)	(185)	(185)	(185)
EBIT	883	1,101	1,331	1,392	1,582	1,864	2,192
Interest	(520)	(506)	(491)	(437)	(382)	(327)	(272)
EBT	363	595	840	955	1,200	1,537	1,920
Taxes	(164)	(268)	(378)	(430)	(540)	(692)	(864)
EAT	\$200	\$327	\$462	\$525	\$660	\$845	\$1,056
Dividends	0	0	0	0	0	0	0
Balance Sheets (000s)	2002	2003	2004	2005	2006	2007	2008
Cash	\$2,908	\$2,766	\$2,724	\$1,863	\$1,044		
Accounts receivable	1,184	1,401	1,580	1,833	2,144		
Inventory	1,203	1,497	1,924	2,395	3,079	3,572	4,144
Total current assets	5,295	5,665	6,228	6,092	6,267		
Prepaid advertising							
Land	2,150	2,150	2,150	2,150	2,150	2,150	2,150
Buildings and equipment	7,305	7,305	7,305	7,305	7,305	7,305	7,305
Less: accumulated depreciation	(380)	(565)	(750)	(935)	(1,120)	(1,305)	
Total fixed assets	9,075	8,890	8,705	8,520	8,335	8,150	7,985
Total assets	\$14,370	\$14,555	\$14,933	\$14,612	\$14,602		
Accounts payable	\$ 802	\$ 909	\$ 1,076	\$ 1,179	\$ 1,460	\$ 1,694	\$ 1,964
Bank notes	2,800	2,800	2,800	2,100	1,400	700	0
Total current liabilities	3,602	3,709	3,876	3,279	2,860	2,394	
Long-term debt	6,234	5,984	5,734	5,484	5,234	4,984	
Common stock	1,989	1,989	1,989	1,989	1,989	1,989	
Retained earnings	2,545	2,872	3,334	3,860	4,519		6,421
Total liabilities & equity	\$14,370	\$14,555	\$14,933	\$14,612	\$14,602		
AFN							

SUMMARY

The financial statement generating model supports instruction and assessment of financial analysis and financial forecast topics by adding flexibility for the instructor. The model provides the ability to create transition cases to bridge the gap between end of chapter problems and traditional cases. The case may be modified to emphasis desired issues in the case such as strengths and weaknesses, and degree of ambiguity. An added benefit is the ability to allow the instructor to continually change the data associated with the case. First, it keeps the case fresh for the students without the complication of previous students' work. Now, reviewing the work of prior students on the assignment is considered a benefit to the learning process. Finally, it serves to maintain its validity in assessment over time.

REFERENCES

“Debt Financing Does NOT Create Circularity within Pro Forma Analysis,” T. Arnold and P Eisman, *Advances in Financial Education*, Vol. 6, Summer 2008, pp 96-102.

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