Excel Assignment #1 Solutions Fall.2016
MINI CASE: AMGEN CORPORATION

The Amgen Corporation spent several years working on developing a product that can be used to provide a healthy supplement to a variety of food products. The benefits of a new supplement have been cited in studies of the brain, eyes, and the immune system. Unfortunately, it is difficult to consume enough of any one supplement to get the benefits that most consumers demand. To counter this constraint, Amgen Corp. and several competitors have been able to develop a similar product with various benefits. However, none have been able to produce the "ultimate" solution.

Amgen Corp.'s initial product was designed to supply additives to dairy products and yogurt. For example, the venture's new product was added to cottage cheese and fruit-flavored yogurts to enhance the health benefits of those products. After the long product development period, Amgen Corp. began operations in 2014. Income statement and balance sheet results for 2015, the first full year of operations, have been prepared.

Amgen Corp., however, is concerned with forecasting its financial statements for next year because it is uncertain as to the amount of additional financing of assets that will be needed as the venture ramps up sales next year. Amgen Corp. expects to introduce a new product that offers the taste of chocolate candies. Not only will consumers get the satisfaction of the taste of chocolate candies they will benefit from the vitamin enhancement. What are considered to be conservative, sales are expected to increase 15 percent next year (2016) even though the new product will come on line in mid-year. An additional 20 percent increase in sales is expected the following year (2017), 10 percent in (2018), 5 percent in (2019), before leveling off to a projected future annual growth rate of 3 percent beginning with (2020).

Amgen Corp. Corporation

Income Statement for December 31, 2015
(Thousands of Dollars)

$$\frac{A_0}{S_0}(\Delta Sales) - \frac{L_0}{S_0}(\Delta Sales) - PM(S_1)(RR)$$

Sales	*$15,000*
Operating expenses	*-12,000*
EBIT	*3,000*
Interest	*320*
EBT	*2,680*
Taxes (40%)	*1,072*
Net income	*1,608*
Cash dividends (40%)	*643*
Added retained earnings	*$965*

Amgen Corp. Corporation

Balance Sheet as of December 31, 2015

(Thousands of Dollars)

Cash & marketable securities	*$ 1,000*	*Accounts payable*	*$ 1,600*
Accounts receivable	*2,000*	*Bank Loan*	*1,800*
Inventories	*2,200*	*Accrued liabilities*	*1,200*
Total current assets	*5,200*	*Total current liabilities*	*4,600*
		Long-term debt	*2,200*
Fixed assets, net	*6,800*	*Common stock*	*2,400*
Total assets	*$12,000*	*Retained earnings*	*2,800*
		Total liabilities & equity	*$12,000*

A. *Estimate the additional funds needed (AFN) for 2016, using the formula method based on "percent of sales" relationships.*

Note: answers for this mini case are expressed in thousands of dollars.
2016 Net Sales = $15,000 x 1.15 = $17,250
Change in Net Sales = $17,250 - $15,000 = $2,250
Retention Rate (RR) = 1 – Dividend Payout Ratio = 1 - .40 = .60

AFN = ($12,000/$15,000)($2,250) – (($1,600 + $1,200)/$2,250) – $17,250($960/$15,000)(.60)
= .8000($2,250) - .1867($2,250) - $17,250(.1072)(.60)
= $1,800 - $420 - $1,110 = $270

B. *Estimate the AFN for Amgen Corp. for 2017.*

2017 Net Sales = $17,250 x 1.20 = $20,700
Change in Net Sales = $20,700 - $17,250 = $3,450

AFN = .8000($3,450) - .1867($3,450) - $20,700(.1072)(.60)
= $2,760 - $644 - $1,331 = $785

Note: total AFN for 2016 and 2017 = $270 + $785 = $1,055
Or, Total Net Sales = $17,250 + $20,700 = $37,950
Total change in Net Sales = $20,700 - $15,000 = $5,700

Total AFN = .8000($5,700) - .1867($5,700) - $37,950(.1072)(.60)
= $4,560 - $1,064 - $2,441 = $1,055

C. *Prepare pro forma income and balance sheet statements for 2016 before obtaining any additional financing. Why does the AFN from the spreadsheet projections differ from the AFN estimated in Part A?*

AMGEN CORPORATION
Forecasted Financial Statements
2 years Parts C, D, E
[Thousands of Dollars]

Percent of Sales-Based Forecasts

Income Statements	Actual 2015	Percent of Sales	Forecast Basis	Base Forecast [Without New Financing] 15% Growth 2016	20% Growth 2017	Revised Forecast [With New Financing] 15% Growth 2016	20% Growth 2017
Net Sales	15000	100.00%	(1+growth rate) x Cur. Sales	17250	20700	17250	20700
Operating Expenses	-12000	80.00%	.8000 x Forecasted Sales	-13800	-16560	-13800	-16560
Interest	-320		Initially Fixed	-320	-320	-340	-399
EBT	2680			3130	3820	3110	3741
Taxes (40%)	-1072		40% of EBT	-1252	-1528	-1244	-1496
Net Income (NI)	1608			1878	2292	1866	2244
Cash Dividends (40% of NI)	-643		40% of NI	-751	-917	-746	-898
Added Retained Earnings	965			1127	1375	1120	1347

Balance Sheets	Actual 2015	Percent of Sales	Forecast Basis	Base Forecast 2016	2017	Revised Forecast 2016	2017
Cash & Mkt Sec	1000	6.67%	.0667 x Forecasted Sales	1151	1381	1151	1381
Accounts Rec	2000	13.33%	.1333 x Forecasted Sales	2299	2759	2299	2759
Inventories	2200	14.67%	.1467 x Forecasted Sales	2531	3037	2531	3037
Total Current Assets	5200	34.67%		5981	7177	5981	7177
Fixed Assets, Net	6800	45.33%	.4533 x Forecasted Sales	7819	9383	7819	9383
Total Assets	12000	80.00%		13800	16560	13800	16560
Accounts Pay	1600	10.67%	.1067 x Forecasted Sales	1841	2209	1841	2209
Bank Loan	1800			1800	1800	1800	1800
Acc Liab	1200	8.00%	.0800 x Forecasted Sales	1380	1656	1380	1656
Total Current Liab	4600			5021	5665	5021	5665
Additional Funds Needed (AFN)				253	993	7	36
Long-Term Debt (New)	0			0	0	253	993
Long-Term Debt (Old)	2200			2200	2200	2200	2200
Common Stock	2400			2400	2400	2400	2400
Retained Earnings	2800		[+ Inc. in Forecasted RE]	3927	5302	3920	5266
Total liab & Equity	12000			13800	16560	13800	16560

[Note: Interest rate on all interest-bearing debt (bank loan and long-term, old and new, debt) is 8%.
AFN is met by issuing new long-term debt.]

Statement of Cash Flows	Base Forecast 2016	2017	Revised Forecast 2016	2017
Net Income	1878	2292	1866	2244
Inc. in A/R	-299	-460	-299	-460
Inc. in Inv.	-331	-506	-331	-506
Inc. in A/P	241	368	241	368
Inc. in Acc. Liab.	180	276	180	276
CF from Operations	**1669**	**1970**	**1656**	**1922**
Inc. in Fixed Assets, Net	-1019	-1564	-1019	-1564
CF from Investments	**-1019**	**-1564**	**-1019**	**-1564**
Inc. in Bank Loan	0	0	0	0
Inc. in Long-Term Debt (New)	0	0	253	741
Inc. in Common Stock	0	0	0	0
Payment of Cash Dividends	-751	-917	-746	-898
CF from Financing	**-751**	**-917**	**-494**	**-157**
Net Cash Flow	-102	-511	143	202
Beginning Cash	1000	1151	1000	1151
Ending Cash Before Borrowing	898	640	1143	1352
Target Ending Cash (% of sales)	1151	1381	1151	1381
Additional Funds Needed (AFN)	253	741	7	29
Cumulative AFN	253	993	7	36

AMGEN CORPORATION
AFN [With Interest on Old and New Interest-Bearing Debt]
5 Years, Part H
[$ Thousands]

Income Statements	**Actual 2015**	**Percent of Sales**	**Sales Growth Rates**	**15%**	**20%**	**10%**	**5%**	**3%**
			Forecast Basis	**2016**	**2017**	**2018**	**2019**	**2020**
Net Sales	15000	100.00%	(1+growth rate) x Sales	17250	20700	22770	23909	24626
Operating Expenses	-12000	80.00%	.8000 x Forecast Sales	-13800	-16560	-18216	-19127	-19701
Interest	-320			-330	-360	-350	-313	-265
EBT	2680			3120	3780	4204	4468	4661
Taxes (40%)	-1072		40% of EBT	-1248	-1512	-1682	-1787	-1864
Net Income (NI)	1608			1872	2268	2523	2681	2796
Cash Dividends (40% of NI)	-643		40% of NI	-749	-907	-1009	-1072	-1119
Added Retained Earnings	965			1123	1361	1514	1609	1678
Balance Sheets	**Actual 2015**		**Forecast Basis**	**2016**	**2017**	**2018**	**2019**	**2020**
Cash & Mkt Sec	1000	6.67%	.0667 x Forecast Sales	1151	1381	1519	1595	1643
Accounts Rec	2000	13.33%	.1333 x Forecast Sales	2299	2759	3035	3187	3283
Inventories	2200	14.67%	.1467 x Forecast Sales	2531	3037	3340	3507	3613
Total Current Assets	5200			5981	7177	7894	8289	8538
Fixed Assets, Net	6800	45.33%	.4533 x Forecast Sales	7819	9383	10322	10838	11163
Total Assets	12000			13800	16560	18216	19127	19701
Accounts Pay	1600	10.67%	.1067 x Forecast Sales	1841	2209	2430	2551	2628
Bank Loan	1800			1800	1800	1800	1800	1800
Acc Liab	1200	8.00%	.0800 x Forecast Sales	1380	1656	1822	1913	1970
Total Current Liab	4600			5021	5665	6051	6264	6398
Additional Funds Needed	0			3	18	28	26	6
Long-Term Debt (Old)	2200			2200	2200	2200	2200	2200
Long-Term Debt (New)				127	497	370	-85	-694
Common Stock (New)				127	497	370	-85	-694
Common Stock (Old)	2400			2400	2400	2400	2400	2400
Retained Earnings	2800		[+ Inc. in Forecast RE]	3923	5284	6798	8406	10084
Total liab & Equity	12000			13800	16560	18216	19127	19701
			AFN from first iteration =	253	993	739	-169	-1387
			Combined AFN =	256	1011	767	-143	-1381

[Note: AFN is financed by 50% new long-term debt and 50% new common stock issues.
Interest rate on all interest-bearing debt (bank loan and long-term, old and new, debt) is 8%.]

Statement of Cash Flows	**2016**	**2017**	**2018**	**2019**	**2020**
Net Income	1872	2268	2523	2681	2796
Change in A/R	-299	-460	-276	-152	-96
Change in Inv.	-331	-506	-304	-167	-105
Change in A/P	241	368	221	121	77
Change in Acc. Liab.	180	276	166	91	57
CF from Operations	1663	1946	2330	2575	2729
Change in Fixed Assets, Net	-1019	-1564	-938	-516	-325
CF from Investments	-1019	-1564	-938	-516	-325
Change in Bank Loan	0	0	0	0	0
Change in Long-Term Debt	127	370	-127	-454	-609
Change in Common Stock	127	370	-127	-454	-609
Payment of Cash Dividends	-749	-907	-1009	-1072	-1119
CF from Financing	-496	-167	-1263	-1980	-2337
Net Cash Flow	147	215	128	78	68
Beginning Cash	1000	1151	1381	1519	1595
Ending Cash Before Borrowing	1147	1366	1509	1597	1662
Target Ending Cash	1151	1381	1519	1595	1643
Additional Funds Needed (AFN)	3	15	10	-2	-20
Cumulative AFN	3	18	28	26	6

AMGEN CORPORATION
Additional Funds Needed (AFN) Before Added Financing Costs
5 Years, Parts F and G
[$ Thousands]

			Sales Growth Rates	15%	20%	10%	5%	3%
Income Statements	**Actual 2015**	**Percent of Sales**	**Forecast Basis**	**2016**	**2017**	**2018**	**2019**	**2020**
Net Sales	15000	100.00%	(1+growth rate) x Sales	17250	20700	22770	23909	24626
Operating Expenses	-12000	80.00%	.8000 x Forecast Sales	-13800	-16560	-18216	-19127	-19701
Interest	-320		Initially Fixed	-320	-320	-320	-320	-320
EBT	2680			3130	3820	4234	4462	4605
Taxes (40%)	-1072		40% of EBT	-1252	-1528	-1694	-1785	-1842
Net Income (NI)	1608			1878	2292	2540	2677	2763
Cash Dividends (40% of NI)	-643		40% of NI	-751	-917	-1016	-1071	-1105
Added Retained Earnings	965			1127	1375	1524	1606	1658
Balance Sheets	**Actual 2015**		**Forecast Basis**	**2016**	**2017**	**2018**	**2019**	**2020**
Cash & Mkt Sec	1000	6.67%	.0667 x Forecast Sales	1151	1381	1519	1595	1643
Accounts Rec	2000	13.33%	.1333 x Forecast Sales	2299	2759	3035	3187	3283
Inventories	2200	14.67%	.1467 x Forecast Sales	2531	3037	3340	3507	3613
Total Current Assets	5200			5981	7177	7894	8289	8538
Fixed Assets, Net	6800	45.33%	.4533 x Forecast Sales	7819	9383	10322	10838	11163
Total Assets	12000			13800	16560	18216	19127	19701
Accounts Pay	1600	10.67%	.1067 x Forecast Sales	1841	2209	2430	2551	2628
Bank Loan	1800			1800	1800	1800	1800	1800
Acc Liab	1200	8.00%	.0800 x Forecast Sales	1380	1656	1822	1913	1970
Total Current Liab	4600			5021	5665	6051	6264	6398
Additional Funds Needed	0			253	993	739	-169	-1387
Long-Term Debt	2200			2200	2200	2200	2200	2200
Common Stock	2400			2400	2400	2400	2400	2400
Retained Earnings	2800		[+ Inc. in Forecast RE]	3927	5302	6826	8432	10090
Total liab & Equity	12000			13800	16560	18216	19127	19701

[Note: Forecasts are prior to any new interest-bearing debt or equity financing.]

Statement of Cash Flows	**2016**	**2017**	**2018**	**2019**	**2020**
Net Income	1878	2292	2540	2677	2763
Change in A/R	-299	-460	-276	-152	-96
Change in Inv.	-331	-506	-304	-167	-105
Change in A/P	241	368	221	121	77
Change in Acc. Liab.	180	276	166	91	57
CF from Operations	1669	1970	2347	2571	2696
Change in Fixed Assets, Net	-1019	-1564	-938	-516	-325
CF from Investments	-1019	-1564	-938	-516	-325
Change in Bank Loan	0	0	0	0	0
Change in Long-Term Debt	0	0	0	0	0
Change in Common Stock	0	0	0	0	0
Payment of Cash Dividends	-751	-917	-1016	-1071	-1105
CF from Financing	-751	-917	-1016	-1071	-1105
Net Cash Flow	-102	-511	393	984	1266
Beginning Cash	1000	1151	1381	1519	1595
Ending Cash Before Borrowing	898	640	1773	2503	2860
Target Ending Cash	1151	1381	1519	1595	1643
Additional Funds Needed (AFN)	253	741	-255	-908	-1218
Cumulative AFN	253	993	739	-169	-1387