EARNINGS PER SHARE, DEBT FINANCING COSTS
AND DEBT COMPOSITION - A SIMULATION MODEL

Dr. George M. Frankfurter
School of Management
Syracuse University
Syracuse, New York

Dr. Bertrand Horwitz
School of Management
Syracuse University
Syracuse, New York

Introduction

The advent of the Accounting Principles Board Opinion No. 15, Earnings Per Share has[1] generated a good deal of discussion concerning the theoretical underpinning, the complexities of computation and the final results of determining primary and fully diluted earnings per share. Both Opinion No. 15 and the earlier Opinion No. 9, which was modified by Opinion No. 15, reflect the concern of the accounting profession with a single, important statistic.

The new ruling required convertible debt be considered as common stock equivalents, and therefore enter to the denominator of the primary EPS statistic, if, and only if, ". . . at the time of issuance, based on market price, it has a cash yield of less than 66 2/3% of the then current bank prime interest rate."[2] Otherwise, it is included in the fully diluted EPS, which reflects maximum potential dilution.

Warrants and options are always considered common stock equivalents and therefore enter into the computation of primary EPS if their inclusion is dilutive. The net dilutive effect, however, is determined by the application of the "treasury stock rule" which is to be applied uniformly by all companies. "Under this method, earnings per share data are computed as if the options and warrants were exercised at the beginning of the period... and as if the funds obtained thereby were used to purchase common stock at the average market price during the period."[3] The Board limited the use of this to 20% of the common shares outstanding and then required that the balance of any remaining funds be applied to the reduction of any short or long term debt, and then be invested in government securities and commercial paper, in that order.

Since the Opinion is relatively new, and since recalculation of past data according to the rules of the Opinion is almost impossible, a simulation model evaluating the effects of the Opinion would be useful because it enables us to "peek." We wish to know what effect the Opinion may have on the differences between traditional, primary and fully diluted EPS under the impact of changing economic conditions, changing interest rates and changing stock prices on companies having different capital structures, growth rates and leverage targets. Clearly, interrelationships between endogenous and exogenous variables are complicated, making it extremely difficult to predict changes in the three EPS figures by analytic methods.

In this study EPS data and other financial information are generated by simulation methods for 35 periods, using a Monte Carlo generating process for certain input variables, and then run again 6 times from the same starting conditions.

Description of the Model

The simulation model is organized in sections which fall within three major categories:

1. Subsections which generate exogenous information such as stock prices, the different types of bond rates, the present state of the economy, or indicate management decisions according to some predetermined decision rules.

2. Subsections which calculate the results obtained from the factors calculated and/or derived from the first group of subroutines. These subroutines produce financial statements. In addition they calculate financial variables such as conversion of different types of bonds, exercise of outstanding warrants, interest by bond. They also keep track of any tax loss carried forward, and the expiration of bond issues.

3. Subsections which print out the financial statements and key financial data to indicate the result of operations for each period and the end-of-period status to the experimenter.

The subsections are written in a way which can be easily and efficiently modified. They can be substituted by different decision rules and/or different input factors or elements. A schematic layout of the subroutines and their interaction is illustrated in Appendix A to this paper. In the following discussion we will describe the preparation of input information required by the experimenter.

Since repetitive sampling is permitted (the module can run as many times as requested setting back information to the original starting conditions automatically) the number of experimental runs has to be specified. (This number must be a positive integer.) In addition, the number of time periods per run and the number of companies are input. While there are no limits on the number of time periods, at its current stage the module can handle up to 10 companies simultaneously. (Our study was run 6 times with 3 companies for 35 years each time.)

In addition, the following information for each company is necessary: (1) total debt structure classified by the amount of short term debt, straight bond debt, long term convertible debt and debt with warrants; (2) the number of common shares outstanding, and par value of a share; (3) the number of conversion options outstanding and the conversion price. These conditions set the degree of complexity of the capital structure.

Some of the above values will initially be zero (for example, paid-in surplus or retained earnings, and common stock equivalents for a "straight" company). In Appendix B the starting conditions of a typical run are displayed. Experimenter supplied data are underscored.

The amount of convertible debt and debt with warrant options attached which are input at the start for a firm is used to determine the maximum level of that type of debt to total debt and/or to common stock in the future. The leverage ratio at the beginning is the target debt/asset ratio toward which the company will try to adjust. Starting conditions of financial factors or indicators therefore are used either as upper limits or as targets. However, these factors can be easily made a function of time or economic conditions with a modest amount of additional programming effort. For our primary purpose the current state of the module seemed to be satisfactory.

It should be noted that long term debt, whether it is straight debt, convertible debt or debt with warrants, is assumed to be one maturity, 20 years. This is done for ease of keeping in memory expiration of the different debt issues. This factor too can easily be changed if it is so required.

In addition to the firm's capital structure, information about all possible relationships between prime rate and the cash yields on the three types of bonds is input in matrix form. For our purpose this matrix is predetermined by 3 rows corresponding to straight debt, convertible debt and debt with warrants and 8 columns corresponding to 8 possible economic conditions which are described later. The matrix used during this simulation is as follows:

Economy Type of Bond	1	2	3	4	5	6	7	8
Straight Debt	.80	.90	.95	1.00	1.20	1.30	1.35	1.50
Convertible Debt	.50	.55	.60	.65	.80	.90	1.10	1.20
Debt with Warrants	.45	.50	.55	.60	.67	.85	1.00	1.10

Thus, once the going prime rate and the state of the economy is obtained, all the possible bond rates are simultaneously determined.

The reader should note that four out of the 8 long-short debt relationships indicate an upward sloping yield curve, 3 downward sloping yield curves and one is a "flat" yield curve. Straight debt has always a higher cash yield than convertible debt, and convertible debt has always a slightly higher cash yield than debt with warrants. Since the above predetermined matrix is input it can be easily changed, augmented or even replaced by a function. At the start, the prevailing relationships should be specified by supplying the 0 period prime rate and the column index of the above matrix. In a typical simulation run at period zero a column will be picked (1-4) such that the convertible debt will be classified as a common stock equivalent.

Interrelationships Between Economy, Growth, Stock Price, Earnings Per Share

It is assumed that the firms will grow at a constant rate.[5] Although this rate may vary among firms, it remains constant for the three firms for all periods during the simulation. Thus, no matter what will happen in the economy (i.e., which one out of the possible 8 economic conditions will prevail), total assets will increase by a fixed percent, and concurrently liabilities and/or equity will increase by the same amount. Since operating profits (earnings before interest and taxes in this case) are a fixed percent of assets with constant variance, subject to a random shock which in the simulation is generated by a normal process with 0 mean and unit variance, earnings will grow if, and only if, assets grow. In the simulation, all firms are subject to the same extent to the random shock, but they are not required to have the same return expectation on assets and/or the same variance. Thus, they are perfectly correlated among themselves and with the economy.

Stock price is the following function of the rate of return on assets:

$$P_{t,i} = P_{t-1,i} \{1 + [(g_i + r_t \, sd_i) \cdot (1 - \tau)]\}$$

$$i = 1, 2, \ldots 10$$
$$t = 1, 2, \ldots n$$

where $P_{t,i}$ price of the stock at time t of company i

g_i rate of return on assets of company i

r_t standard normal random deviate at t

sd_i standard deviation of g_i

τ is the tax rate

Earnings before interest and taxes (E.B.I.T.) = $A_{t-1,i} (g_i + r_t sd_i)$

Where $A_{t-1,i}$ is assets at t-1 of company i and g_i, r_t sd_i are as above

From E.B.I.T. the total interest payable and tax payable is deducted. (In case of losses, the tax carry forward method is applied.) It is assumed that the firms will pay dividends according to a constant payout ratio whenever earnings are positive. The residual is transferred to the retained earnings account. Earnings per share are calculated by the 3 different methods for each time period. Appendix C exhibits the relationship between the state of the economy, growth, stock price, interest rates, and the three definitions of EPS for the three firms for a sample period.

The previously specified economic conditions (1-8) are the following:

1. good economy turned bad
2. good economy turned better
3. bad economy turned better
4. bad economy turned worse
5. good economy turned bad slightly
6. good economy turned very bad
7. bad economy turned good slightly
8. bad economy turned very good

These shifts are determined primarily by the direction and the magnitude of the random shocks of two successive periods. The model used so far shows acceptable behavior as a simulator of a real economy.

For simplicity it is assumed that price changes, interest rate changes, debt flotation and expiration, common stock flotation, exercise of warrant rights and options, and debt conversion take place at the end of each period for all firms.

Interrelationships Between Economic (Exogenous) Factors and Management Decision Rules

As the new economic indicators are produced (such as stock prices, interest rates) two interdependent processes take place:

1. Investors holding residual securities decide on the exercise of their rights and conversion of their debt.

2. Based on the outcome of 1, management decides on the means of financing the capital needs for the next period (capital needs due to growth less the increase of funds due to the exercise of warrant rights).

The conversion of bonds and/or exercise of warrants is determined simply by the market price, the conversion or exercise price relationship, and the amount converted and/or exercised is a fixed proportion of the outstanding convertible debt and/or warrants and is a function of that ratio. The second decision process, however, is quite complex.

Briefly, new capital flotation is determined by a hierarchy of the following guide lines:

1. Current debt/equity ratio?
2. Magnitude of the issue required?
3. Is there any unexercised convertible debt outstanding?
4. Is the company allowed to issue a residual security according to the target rule for total debt and for the mix among debt? If answer is yes, what type and how much?
5. What is the interest cost on each type of debt?

A flow chart describing all the alternatives for the capital flotation decision process is shown in Appendix D. A balance sheet, earnings statement and financial indices summary display the results (and the starting conditions for the next period) of each period. Appendix E is an example of the results for the first period and for period 13. Chart I displays the graphical results of the three EPS definitions for the 3 firms for a single run of 35 periods.

Statistical Analysis

We chose three hypothetical firms which differed only by debt composition. Firm A had no residual securities. Firm B had 50% convertible debt (upper limit) providing options of 10 percent of its actually outstanding shares. Firm C had, as upper limits, 1/3 straight debt, 1/3 convertible debt and 1/3 debt with warrants providing 40 percent options of its common shares outstanding. The leverage ratio of each firm at the beginning became the target debt/asset ratio toward which the firm adjusted.

The purpose of this study is to determine whether observed variations of EPS changes can be correlated with debt composition, time, the definition of earnings per share, or by a combination of these factors, when the simulation process is replicated a number of times. And, if the correlation exists, we wish to determine whether its magnitude is only such as would be expected from random samples from a normally distributed population.

To test the above question the simulation model described above was run 6 times. For each run the same starting conditions were used (see Appendix B), and the model was run for 35 time periods, thus obtaining a total of 210 time period observations on each of the three firms. For each of those time periods EPS were calculated by the traditional, primary, and fully diluted method. Since it was assumed that the companies grow at a given rate over the 35 period time span, an analysis of variance model of complete crossed design was developed for 3 factors:

1. Time period i = 1, ... 35

2. Definition of EPS j = 1, 3
   (Traditional
   Primary
   Fully Diluted)

3. Company debt structure k = 1, ... 3
   (see Appendix B)

On each of these factors the number of replicates, m, was 6, thus obtaining 1890 observations. Since the generating process by definition is random normal and variances are fixed, the basic assumptions of the model are:

$$Y_{ijkm} = n_{ijk} + e_{ijkm}$$

$$\{e_{ijkm}\} \sim N(0, \sigma^2)$$

where Y_{ijkm} is the mth observation on the ith level of the first factor, the jth level of the second factor and the kth level of the third factor. e_{ijkm} is a random error component distributed normally with 0 mean and fixed variance, σ^2.

$$n_{ijk} = \mu + A_i + B_j + C_k + AB_{ij} + AC_{ik} + BC_{jk} + ABC_{ijk}$$

These assumptions are met by the nature of the simulation process.[6]

In words, each observation Y_{ijkm} is the sum of:

a main effect μ

the effects of each
factor alone $\quad A_i, B_j, C_k$

the effects of inter-
action of all possible
pairs of factors $\quad AB_{ij}, AC_{ik}, B_{jk}$

the effect of the
interaction of all
three factors $\quad ABC_{ijk}$

and a random error $\quad e_{ijkm}$

thus assuming additivity.

The model allows the decomposition of the ijkm dimensional space of linear forms into 9 orthogonal spaces. The analysis of variance table allows us to test for the following hypotheses:

the A effect

the B effect

the C effect

the AB interaction

the AC interaction

the BC interaction

the ABC interaction

Table I shows the source of variation, sum of squares, degrees of freedom and means squares for the above 7 hypotheses.

TABLE I

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares
Time period	5,896.40	34	173.42
Definition of EPS	34.95	2	17.48
Company (debt comp.)	3.63	2	1.81
Time x Definition Interaction	71.05	68	1.04
Time x Company Interaction	2.70	68	0.04
Definition x Company Interaction	4.63	4	1.15
Time x Definition x Company Interaction	4.47	136	0.03
Error	17,962.86	1,575	11.40
Total	23,980.69	1,889	--
Grand Mean	2.29		

It is easily verified that only the time period effect is significant at the .05 level ($F_{34,1575} = 15.21$, the theoretical F value for these degrees of freedom is 2.00). All other effects (or interactions between them) are insignificant. The meaning of this result is that in the long run the only significant influence on EPS is the time factor. Neither the residual composition of securities nor arbitrary EPS definitions (or any interaction between the two) will yield statistically significant differences.

Table II depicts the factor level mean estimates. It is clear that substantial differences between level means are obtained only in certain levels of the time period factor. A contrast analysis can detect those levels which are significantly different from others. This analysis is not performed since our primary interest is in the other two factors which are shown to be insignificant.

TABLE II

Factor Level Mean Estimates

Factor Level	Time	Definition of EPS	Company Debt Composition
1	1.30	2.41	2.35
2	1.50	2.35	2.27
3	.89	2.10	2.26
4	.88		
5	1.69		
6	1.43		
7	.73		
8	1.63		
9	.59		
10	1.76		
11	1.42		
12	2.46		
13	1.12		
14	1.02		
15	.78		
16	2.71		
17	2.23		
18	1.76		
19	2.46		
20	3.34		
21	2.70		
22	1.37		
23	1.04		
24	1.46		
25	2.38		
26	4.26		
27	2.59		
28	.37		
29	3.62		
30	3.62		
31	8.98		
32	3.79		
33	6.05		
34	5.36		
35	1.68		

Conclusions

The concern of the accounting profession with the adequacy of the earnings per share statistic led to the issuance of Opinions No. 9 and 15, both of which abandoned the traditional definition of EPS that was based upon the objective fact of actual issuance of common shares. Opinion No. 15, clarifying No. 9 and narrowing its flexibility by introducing clarifying rules, led to the creation of two new measures of earnings per share -- primary and fully diluted earnings per share.

Implicit in the derivation of these two new data was the assumption that significantly different results over the traditional definition would appear. Given the limitations and assumptions of our simulation model, an analysis of variance on three factors, time, debt composition and definition of EPS, indicates that neither differences in debt composition nor differences in definitions of EPS will produce significantly different expectations of EPS for companies which are, certeris paribus, similar.

Although we do not know what the true definition of EPS should be, the results of the study point to a single conclusion. The new definitions of the Board are not different from the traditional definition, which was factual, relatively easy to compute and much easier to understand. We believe that the traditional EPS is still a useful anchor until research in financial accounting theory shows us that a particular change will lead to significantly better decisions.

References

1. Accounting Principles Board of the American Institute of Certified Public Accountants, Opinion No. 15, Earnings Per Share (AICPA, 1969) and J.T. Ball, Computing Earnings Per Share: Unofficial Accounting Interpretations of APB Opinion No. 15, AICPA, 1970.

2. Opinion No. 15, op. cit., p. 229.

3. Ibid., p. 230

4. Simply by multiplying the prime rate by the appropriate state of the economy column and the specific debt-row. The short term rate is simply equal to the prime rate.

5. Growth is related to total assets and is fixed at 8 percent in this study.

6. Scheffe, H. (1961), The Analysis of Variance, New York: John Wiley and Sons, 1961, p.121.

7. Ibid., p. 122.

Chart 1

EARNINGS PER SHARE DATA OVER TIME

TIME PERIOD
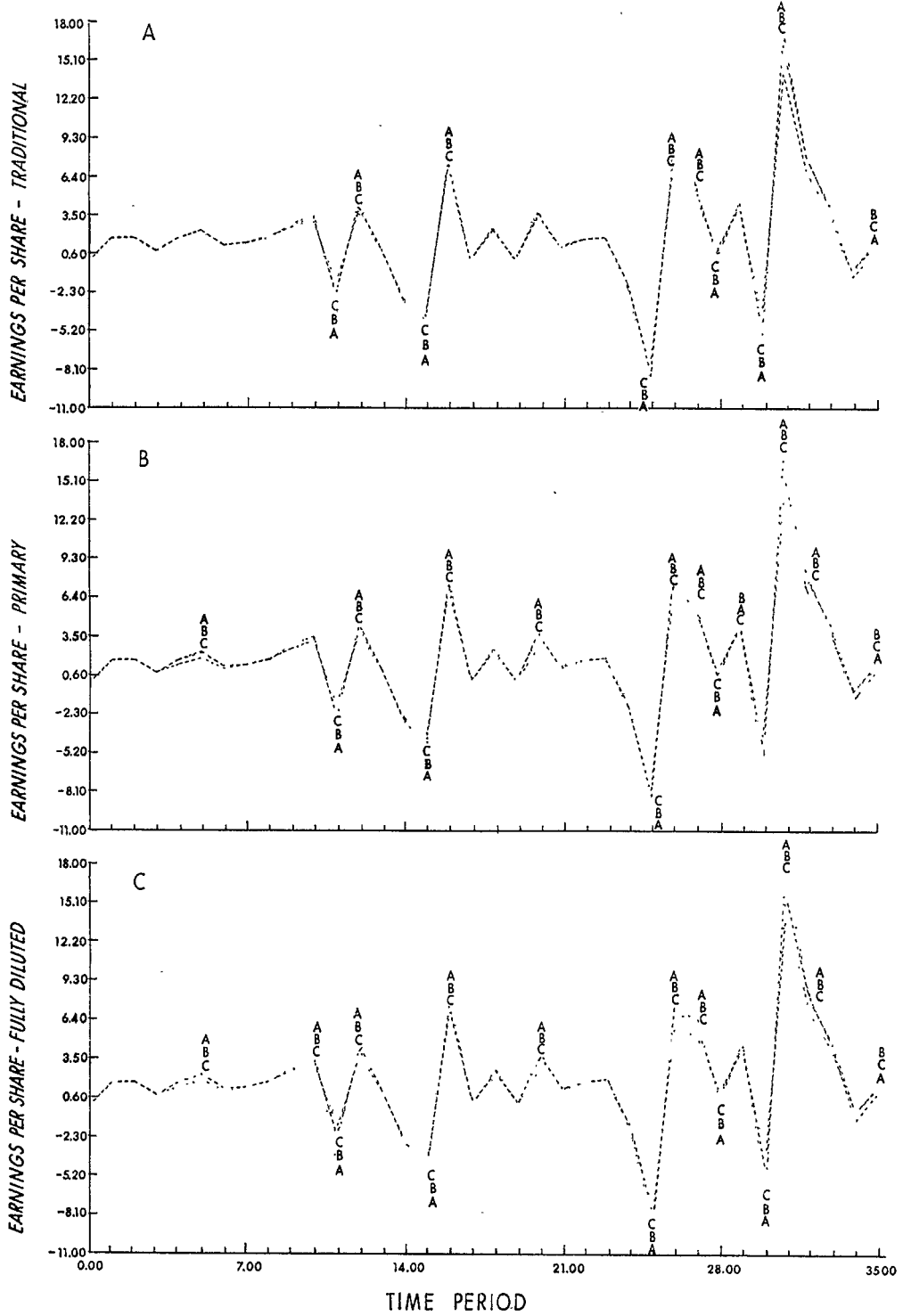
APPENDIX A   SCHEMATIC LAYOUT OF SUBROUTINES
MAIN

WRITE STARTING CONDITIONS ON MAGNETIC DISC FOR FUTURE REUSE

INPUT PERTINENT INFORMATION

CALCULATE RELEVANT FACTORS SET FLAGS AND SWITCHES

PRINT 1.
PRINT OUT STATEMENTS

CALL BALANCE SHEET AND FINANCIAL DATA PRINT ROUTINE

BALANCE SHEET
OTHER FINANCIAL DATA

DESIRED NO. OF PERIODS ?

EQUIVALENT SHARES
CALCULATE CONVERSION AND/OR EXERCISE COM. STOCK. EQUIV.

INCOME
CALCULATE EARNINGS TAX LIABILITIES RETENTION, INTEREST EXPENSES, E.P.S.

CALL THE "ECONOMY" ROUTINE

ECONOMY
CALCULATE INTEREST RATES, STOCK PRICES, EARNINGS ECONOMIC CONDITIONS

READ RANDOM FACTORS FROM MAGNETIC TAPE

ADJUSTMENTS
ADJUST FOR THE 20% RULE

CALL INCOME AND E.P.S. CALCULATION ROUTINE

WRITE ECONOMIC INDICATORS ON MAGNETIC TAPE

PRINT 2
PRINT OUT ECONOMIC INDICATORS

NO-DILUTION
CHECK FOR ANTI-DILUTIVE EFFECTS AND ADJUST

WRITE E.P.S. DATA ON MAGNETIC TAPE

PRINT 3
PRINT OUT INCOME STAT. AND E.P.S. DATA

ECONOMIC INDICATORS INTEREST RATES STOCK PRICES

INCOME STATEMENTS
EARNINGS PER SHARE DATA

(continued)

347

APPENDIX_B   *PERIOD 0*

*BALANCE_SHEETS_*

ITEM	A	B	C
SHORT-TERM_DEBT	0.0	0.0	0.0
STRAIGHT_LONG-TERM_DEBT	50000000.0	25000000.0	17000000.0
CONVERTIBLE_DEBT	0.0	25000000.0	17000000.0
*DEBT_WITH_WARRANTS_*	0.0	0.0	16000000.0
TOTAL DEBT	50000000.0	50000000.0	50000000.0
*COMMON_STOCK_*	50000000.0	50000000.0	50000000.0
PAID_IN_SURPLUS	0.0	0.0	0.0
RETAINED_EARNINGS	0.0	0.0	0.0
TOTAL ASSETS	100000000.0	100000000.0	100000000.0

OTHER_FINANCIAL_DATA

	A	B	C
CONVERTIBLE_OPTIONS_OUTS.	0.0	500000.0	340000.0
	N.E.	S.E.	S.E.
CONVERSION_PRICE	0.0	50.0	50.0
NO._OF_WARRANTS_OUTS.	0.0	0.0	1600000.0
*EXERCISE_PRICE_*	0.0	0.0	50.0
NO._OF_SHARES_OUTS.	5000000.0	5000000.0	5000000.0
STOCK_PAR_VALUE	10.0	10.0	10.0
STOCK BOOK VALUE	10.0	10.0	10.0
STOCK_MARKET_VALUE	40.0	40.0	40.0
CONVERTIBLE DEBT/TOTAL DEBT	0.0	0.5	0.34
DEBT WITH WARRANTS/TOTAL DEBT	0.0	0.0	0.32
NO. OF WARRANTS/NO. SHARES OUTS.	0.0	0.0	0.32
DEBT/ASSET - TARGET*	0.50	0.50	0.50
DEBT/ASSET - ACTUAL*	0.0	0.0	0.0

N.E. = NOT COMMON STOCK EQUIVALENT
S.E. = COMMON STOCK EQUIVALENT

*AUTOMATICALLY SET TO ZERO.

ECONOMIC_INDICATORS_AND_INTEREST_RATES

THE STATE OF THE ECONOMY = 1

GOOD ECONOMY, TURNED BAD

PRIME_RATE	LONG-TERM_BONDS	CONVERTIBLE_BONDS	BONDS_WITH_WARRANTS
5.5 PERCENT	4.8 PERCENT	3.2 PERCENT	2.9 PERCENT

STOCK_PRICES

COMPANY A	62.04
COMPANY B	62.04
COMPANY C	62.04

INCOME_STATEMENTS

ITEM	A	B	C
INTEREST:			
LONG-TERM DEBT	3774136.00	2493852.00	1827554.00
CONVERTIBLE DEBT	0.00	731251.00	497251.00
DEBT WITH WARRANTS	0.00	0.00	479999.00
TOTAL INTEREST OF ALL DEBT *	3774136.00	3225103.00	2804804.00
GROSS EARNINGS	15642529.00	15642529.00	15642530.00
GROSS EARNINGS LESS INTEREST	11868393.00	12417426.00	12837726.00
LESS TAXES PAYABLE	5696828.00	5960363.00	6162107.00
EARNINGS AFTER TAXES	6171565.00	6457063.00	6675619.00
TRANSFER TO RETAINED EARNINGS (AFTER DIVIDENDS)	2468625.00	2582825.00	2670247.00

EARNINGS_PER_SHARE_DATA

TRADITIONAL	1.18	1.19	1.13
PRIMARY	1.18	1.17	1.02
FULLY DILUTED	1.18	1.17	1.02

*INCLUDING INTEREST ON SHORT-TERM DEBT

APPENDIX D CAPITAL FLOATATION DECISION

START

CLEAR
ARRAYS
AND
MATRICES

START A
COMPANY

CALCULATE
DEBT CAPITAL AND
EQUITY CAPITAL
ON HAND

DETERMINE
DEBT CAPITAL AND
EQUITY CAPITAL
NEEDED

EQUITY
NEEDED
= 0?

NEW STOCK = 0
DEBT REQUIRED
IS REDUCED
BY EXCESS EQUITY

DEBT
NEEDED
= 0?

NEW
(STOCK & DEBT)
=
10^7
?

ALL NEW
CAPITAL IS
SHORT TERM
DEBT

NEW STOCK
= 10^7 ?

NEW STOCK = 10^7
THE EXCESS
IS REDUCED
FROM DEBT
CAPITAL

(continued)

351

DEBT
CAPITAL =
$7 X 10^6
?

>

NEW DEBT CAPITAL
IS
SHORT TERM DEBT

CONVERSION
OPTIONS
OUTS. = 0
?

>

≤

CONV.
DEBT TO
TOTAL DEBT
= 0
?

>

≤

WARRANT
OPTIONS
OUTS. = 0
?

PRIME
RATE =
CON. BOND RATE
?

>

≤

DEBT
NEEDED =
MAX. ALLOWED
CON. DEBT
+ $7 X 10^6
?

NEW
DEBT NEEDED
= 20% OF ASSETS
+ $7 X 10^6
?

≤

DEBT
W.
WARRANTS TO
TOTAL DEBT
= 0
?

NEW
DEBT
CAPITAL =
20% OF TOTAL ASSETS
?

PRIME RATE
=
L.T. DEBT RATE
?

≤

>

DEBT CAPITAL IS
LONG TERM DEBT
AT THE CURRENT
COUPON RATE

>

≤

>

≤

SHORT TERM DEBT
= 0
?

DEBT
NEEDED
LESS 20% OF
TOTAL ASSETS
< $7 X 10^6
?

>

>

SHORT TERM DEBT =
20% OF TOTAL ASSETS
THE RESIDUAL
WILL BE
DETERMINED

NEW DEBT CAPITAL
IS
SHORT TERM DEBT.

SHORT TERM DEBT =
20% OF TOTAL ASSETS
THE EXCESS DEBT IS
ISSUED AS LONG TERM
DEBT AT THE
CURRENT .RATE

PRIME
RATE =
DEBT W. WARRANT
RATE
?

(continued)

352

ISSUE CONVERTIBLE
AS NEW DEBT CAPITAL
SET ALL COUNTERS
AND FLAGS
ACCORDINGLY

DETERMINE DEBT
CAPITAL BEYOND THE
MAXIMUM ALLOWABLE
AS CONVERTIBLE
DEBT

DETERMINE MAXIMUM
ALLOWABLE DEBT
W. WARRANT ISSUE

≤   >

≤   >

SHORT TERM
DEBT
= 0
?

DEBT
NEEDED =
MAX. ALL. ISSUE
?

UNISSUE.
DEBT = 0
?

>

≤

DEBT
NEEDED =
20% OF ASSETS
+ $7 X 10^6
?

ISSUE DEBT WITH
WARRANTS AS NEW
DEBT CAPITAL
SET ALL COUNTERS
AND FLAGS
ACCORDINGLY

DETERMINE DEBT
CAPITAL BEYOND THE
MAXIMUM ALLOWABLE
AS DEBT W. WARRANTS

SHORT TERM DEBT
IS 20% OF ASSETS

≤   >

≤   >

UNISSUED DEBT
= 0
?

≤   >

CALL
SUBROUTINE 500
TO SUM ALL
MATURITY BONDS
BY TYPE

DETERMINE NEW
EQUITY VALUE
NUMBER OF SHARES
AND PAID IN
SURPLUS

CALL
SUBROUTINE TO
PRINT OUT
CAPITAL
FLOATATION
(NEW)

RETURN

353

BALANCE SHEETS

ITEM	*A*	*B*	*C*
SHORT-TERM DEBT	4580400.00	4489408.00	4451968.00
STRAIGHT LONG-TERM DEBT	50000000.00	25000000.00	17000000.00
CONVERTIBLE DEBT	0.00	25000000.00	17000000.00
DEBT WITH WARRANTS	0.00	0.00	16000000.00
TOTAL DEBT	54580400.00	54489408.00	54451968.00
COMMON STOCK	50000000.00	50000000.00	50000000.00
PAID IN SURPLUS	0.00	0.00	0.00
RETAINED EARNINGS	3419593.00	3510590.00	3548030.00
TOTAL ASSETS	107999993.00	107999998.00	107999998.00

OTHER FINANCIAL DATA

	A	*B*	*C*
CONVERTIBLE OPTIONS OUTS.	0.00	500000.00	340000.00
	N.E.	*S.E.*	*S.E.*
CONVERSION PRICE	0.00	50.00	50.00
NO. OF WARRANTS OUTSTAND.	0.00	0.00	1600000.00
EXERCISE PRICE	0.00	0.00	50.00
NO. OF SHARES OUTSTANDING	5000000.00	5000000.00	5000000.00
STOCK PAR VALUE	10.00	10.00	10.00
STOCK BOOK VALUE	10.73	10.75	10.75
STOCK MARKET VALUE	43.79	43.79	43.79
CONVERTIBLE DEBT/TOTAL DEBT	0.00	0.50	0.34
DEBT WITH WARRANTS/TOTAL DEBT	0.00	0.00	0.32
NO. OF WARRANTS/NO. SHARES OUTS.	0.00	0.00	0.32
DEBT/ASSET TARGET	0.50	0.50	0.50
DEBT/ASSET ACTUAL	0.51	0.50	0.50

N.E. = NOT COMMON STOCK EQUIVALENT
S.E. = COMMON STOCK EQUIVALENT

ECONOMIC INDICATORS AND INTEREST RATES

STATE OF THE ECONOMY = 2
GOOD ECONOMY, TURNED BETTER

PRIME RATE	LONG-TERM BONDS	CONVERTIBLE BONDS	BONDS WITH WARRANTS
5.0 PERCENT	4.9 PERCENT	3.2 PERCENT	2.9 PERCENT

STOCK PRICES

COMPANY A	43.79
COMPANY B	43.79
COMPANY C	43.79

INCOME STATEMENTS

ITEM	A	B	C
INTEREST:			
LONG-TERM DEBT	2499999.00	1249999.00	849999.00
CONVERTIBLE DEBT	0.00	812499.00	552499.00
DEBT WITH WARRANTS	0.00	0.00	479999.00
TOTAL INTEREST OF ALL DEBT*	2499999.00	2062498.00	1882497.00
GROSS EARNINGS	18940352.00	18940352.00	18940352.00
GROSS EARNINGS LESS INTEREST	16440353.00	16877840.00	17057840.00
LESS TAXES PAYABLE	7891368.00	8101362.00	8187762.00
EARNINGS AFTER TAXES	8548985.00	8776478.00	8870078.00
TRANSFER TO RETAINED EARNINGS (AFTER DIVIDENDS)	3419593.00	3510590.00	3548030.00

EARNINGS PER SHARE DATA

TRADITIONAL	1.71**	1.75	1.77
PRIMARY	1.70	1.67	1.71
FULLY DILUTED	1.70	1.67	1.71

*INCLUDING INTEREST ON SHORT-TERM DEBT

**THE ONE CENT DIFFERENCE IS THE RESULT OF A
TRUNCATION ERROR OF FLOATING POINT PRECISION

BALANCE SHEETS

ITEM	A	B	C
SHORT-TERM DEBT	26514528.00	32520848.00	63545744.00
STRAIGHT LONG-TERM DEBT	107452416.00	82436672.00	43394704.00
CONVERTIBLE DEBT	0.00	17042400.00	14819446.00
DEBT WITH WARRANTS	0.00	0.00	25394094.00
TOTAL DEBT	133966944.00	131999920.00	147153888.00
COMMON STOCK	57344976.00	60264032.00	71588944.00
PAID IN SURPLUS	45071568.00	42454672.00	44257424.00
RETAINED EARNINGS	35578016.00	37242720.00	43290432.00
TOTAL ASSETS	271961504.00	271961344.00	306290788.00

OTHER FINANCIAL DATA

	A	B	C
CONVERTIBLE OPTIONS OUTS.	0.00	187299.75	162868.94
	N.E.	S.E.	S.E.
CONVERSION PRICE	0.00	90.99	90.99
NO. OF WARRANTS OUTS.	0.00	0.00	2285056.00
EXERCISE PRICE	0.00	0.00	108.59
NO. OF SHARES OUTS.	5734502.00	6026409.00	7158899.00
STOCK PAR VALUE	10.00	10.00	10.00
STOCK BOOK VALUE	24.11	23.27	22.27
STOCK MARKET VALUE	92.61	92.61	92.61
CONVERTIBLE DEBT/TOTAL DEBT	0.00	0.50	0.34
DEBT WITH WARRANTS/TOTAL DEBT	0.00	0.00	0.32
NO. OF WARRANTS/NO. SHARES OUTS.	0.00	0.00	0.32
DEBT/ASSET - TARGET	0.50	0.50	0.50
DEBT/ASSET - ACTUAL	0.49	0.49	0.48

N.E. = NO COMMON STOCK EQUIVALENTS
S.E. = COMMON STOCK EQUIVALENTS

ECONOMIC INDICATORS AND INTEREST RATES

STATE OF THE ECONOMY = 5

GOOD ECONOMY, TURNED BAD SLIGHTLY

PRIME RATE	*LONG-TERM BONDS*	*CONVERTIBLE BONDS*	*BONDS WITH WARRANTS*
11.0 PERCENT	13.6 PERCENT	9.2 PERCENT	7.8 PERCENT

STOCK PRICES

COMPANY A   92.61
COMPANY B   92.61
COMPANY C   92.61

INCOME STATEMENTS

ITEM	*A*	*B*	*C*
INTEREST:			
LONG-TERM DEBT	7218792.00	5400515.00	2752179.00
CONVERTIBLE DEBT	0.00	1306582.00	1136153.00
DEBT WITH WARRANTS	0.00	0.00	1071821.00
*TOTAL INTEREST OF ALL DEBT**	9430986.00	8464186.00	10153906.00
GROSS EARNINGS	19361744.00	19361744.00	21805744.00
GROSS EARNINGS LESS INTEREST	9930758.00	10897558.00	11651838.00
LESS TAXES PAYABLE	4766763.00	5230827.00	5592881.00
EARNINGS AFTER TAXES	5163995.00	5666731.00	6058957.00
TRANSFER TO RETAINED EARNINGS (AFTER DIVIDENDS)	2065597.00	2266692.00	2423582.00

EARNINGS PER SHARE DATA

TRADITIONAL	0.91	0.94	0.84
PRIMARY	0.91	0.94	0.84
FULLY DILUTED	.0.91	0.94	0.84

*INCLUDING INTEREST ON SHORT-TERM DEBT