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EVALUE: A Computer Program for Evaluating Investments in Forest Products Industries

Abstract

EVALUE, A FORTRAN program, was developed to provide a framework for cash flow analysis of investment opportunities. EVALUE was designed to assist researchers in evaluating investment feasibility of new technology or new manufacturing processes. This report serves as user documentation for the EVALUE program. EVALUE is briefly described and notes on preparation of a data deck are provided. Sample program input, sample output, and a complete listing of the program are provided.

Acknowledgment

The authors wish to acknowledge Gerald A. Koenigshof, U.S. Forest Service, Athens, Ga. EVALUE is similar in function to an unpublished program which was developed by Phil Steele under Mr. Koenigshof's direction several years ago.

United States
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EVALUE: A Computer Program for Evaluating Investments in Forest Products Industries

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Foreword

EVALUE is a FORTRAN computer program for investment cash flow analysis. It can be used as an aid in evaluating and analyzing potential investment opportunities, such as new manufacturing facilities, new equipment, or facility improvement. EVALUE can be used by researchers in economic studies of new technology or new manufacturing processes.

EVALUE was developed on the University of Wisconsin UNIVAC 1110 under the EXEC 8 operating system, using the Madison Academic Computer Center's version of the FORTRAN V language. To reduce problems of portability between computer systems, features common to the FORTRAN IV version of FORTRAN were used.

Introduction

This paper explains how to use EVALUE. It is strictly a users guide and is not intended as an introduction to financial analysis. A user should be familiar with cash flow analysis techniques. Reference literature on the subject of financial investment analysis is cited at the end of this paper *(1, 3, 5, 6)*[3]. It would also be helpful for the user to have some familiarity with computer programs, although this paper describes EVALUE in conventional terms which should be fairly understandable to novice computer users.

EVALUE provides a framework for investment cash flow analysis. The term, cash flow, refers to the periodic amounts or "flow" of cash (i.e., dollars) required as costs, revenues, or depreciation, in an economic activity. For example, the yearly cost of a raw material such as timber, for a manufacturing firm, is a cash flow. Estimates of future cash flows are used as data for EVALUE. The user determines an appropriate planning period and estimates all cash flows in the analysis. EVALUE provides the function of discounting cash flows and calculating investment analysis criteria, such as present net worth and internal rate of return. Before EVALUE can be used, a considerable effort must be made by the user to become familiar with the particular investment opportunity being analyzed and to identify and estimate all associated cash flows. The analytical value of output from EVALUE is limited by the accuracy and reliability of data which are used as input. Obviously, all cash flows must be identified and estimated carefully and accurately in order for the analysis to be complete and not misleading.

Six categories of cash flows are used by EVALUE, including gross revenues, raw material costs, other variable costs, fixed costs, investments, and depreciation. Within principal cash flow categories, the user is free to specify particular cash flow items. For example, a user may specify up to 20 raw material cash flow items in the category of raw

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[1] Member of State and Private Forestry staff located at the Forest Products Laboratory.

[2] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

[3] *Italicized* numbers in parentheses refer to literature cited at end of this report.

materials. The user estimates the amount, in dollars, of each item in each year of the analysis. In addltion to annual cash flow estimates, EVALUE requires that the user specify initial investment, discount rate, salvage value, Investment Tax Credit, tax rate, and the number of years which are to be considered in the analysis.

EVALUE produces a two-part printed output. The first part is a detailed summary of the annual cash flows which were entered as data, along with computer calculated annuel Profit Before Taxes, After Tax Profit, After Tax Earnings, and After Tax Net Cash Flow (fig. 1). The second part of the output illustrates the discounting of net cash flows, and provides several investment analysis criteria (fig. 2). Present Net Worth, Payback Period, Internal Rate of Return: and Present Net Worth to initial Investment Ratio are calculated for the investment opportunity being considered.

EVALUE Data

The data requirements are presented here in order of occurrence in an EVALUE data deck. Each type of data card is discussed and instructions on format for each card are provided. A sample data deck is also provided (fig. 3). The sample data illustrated in the sample deck will generate the sample EVALUE output shown in figures 1 and 2. EVALUE allows the user considerable flexibility in determining the sire and content of the data deck, and considerable latitude in determining the structure of the analysis. Table 1 is a summary of data entry requirements which are described in detail in the following sections.

Output Title (4 cards)

The first four data cards are used to specify the title for the program output. The user simply chooses an appropriate title and enters the titie on four data cards. The title may be typographically centered for neatness. There should always be a total of dour title cards at the beginning of the data deck. If less than four cards are needed, some of the cards may be left blank, but the blank cards should be included in the data deck. information printed on the titie cards will be centered at the top of the first page of program output (fig. 1).

Planning Period (1 card)

The user specifies the length, in years, of the planning period for the analysis. EVALUE will allow planning periods of 2 to 50 years. A 10 year planning period has been specified in the smaple data deck (fig. 3) The number of years is entered on a single card which follows the output title cards. The number is entered in columns 7 and 8 and may be any whole number from 2 to 50 (if the number of years is less than 10, leave column 7 blank and enter the number in column 8).

Products and Gross Revenues (3-220 cards)

Revenues are generated in manufacturing from the sale of products. The user determines which products are to be considered in the analysis. EVALUE permits the user to specify from 1 to 20 different products. The user estimates the average price and annual sales volume of each product for each year in the analysis planning period. EVALUE multiplies prices times volume to determine gross revenue cash flow for each yew.

Product data cards immeditately follow the card specifying the planning period. The name of the first product is entered in columns 1 to 16 of the first product data card. Any aphanumeric characters my be used. In the sample data deck, the first product is FAS LUMBER (MBF) (fig. 3).

On the next product data card(s), the average unit prices for the first product are specified. One price estimate is made for each year. The number of estimates entered should be exactly the same as the number of years in teh planning period. One estimate is entered in every eight columns, beginning withthe first eight columns and continuing until all estimates have been entered. A data deck includes only as many cards as are needed to enter all estimates. For example, 10-year analyses require one card (10 estimates per 80-comumn card); 25-year analyses required three cards (10 estimates on reach of the first two cards and 5 on the last card). In the sample data deck (fig. 3) the estimated prices for FAS lumber (per MBF) in the first and second years are 505.00 and $540,00, respectively.

On the next card(s), the annual sales volumes, of the first product are specified. One estimate is made for each year in the planning period. One estimate is entered in every eight columns starting in the first eight columns of the first card and continuing until all estimates have been entered. Estimates are made as whole numbers and must be right-justified in each eight-comumn data field. Ten estimates can be entered per card. The data deck includes only as many cards as are needed to enter all estimates. The sample data deck (fig. 3) has specified that 300 MBF of FAS lumber is to be sold in the first year and 475 MBF is to be sold in the second through tenth years.

The names, prices, and sales volumes of other products are entered on additonal cards according to previous instructions. Five products have been specified in the samaple data deck (fig. 3). The products names are FAS LUMBER (MBF), SELECT (MBF), #1 COMMON (MBF), #2 COMMON (MBF), and TIES (#). Regardless of how many products are specified (EVALUE allows from 1 to 20), the last product item in the data deck must be flagged with a “1” in column 18 of the card which names the last product item. Since TIES (#) is the last product item in the sample data deck, there is a “1” entered in column 18 after TIES (#).

Cost Cash Flows

After the gross revenue data in the form of product price and sales volume have been entered, the annual cost cash flows associated with the investment opportunity are entered. There are four categories of cost cash flows recognized by EVALUE. Their sequence of entery in an EVALUE data deck is as follows:

1. Raw Material Costs (2-120 cards)
2. Other Variable Costs (2-120 cards)
3. Fixed Costs (2-120 cards)
4. Capital Investment Cash Flows (2-120 cards)

[4] The use should be aware that with certain unconventional investment patterns, Internal Rate of Return can become a misleading criteria. EVALUE does not determine multiple internal rates of return. Limitations on Internal Rate of Return are introduced in some of the literature references *(1, 4, 6).*

EXAMPLE SAWMILL ANALYSIS
CASH FLOW ANALYSIS NEW HARDWOOD SAWMILL
5 MMBF THROUGHPUT, HYPOTHETICAL DATA

INITIAL INVESTMENT REQUIREMENT $ 550000

YEARS	1	2	3	4	5	6	7	8	9	10
FAS LUMBER (MBF)										
UNIT SALES	300	475	475	475	475	475	475	475	475	475
UNIT PRICE	$ 505.00	$ 540.00	$ 570.00	$ 600.00	$ 630.00	$ 660.00	$ 690.00	$ 720.00	$ 750.00	$ 780.00
SELECT (MBF)										
UNIT SALES	150	225	225	225	225	225	225	225	225	225
UNIT PRICE	$ 485.00	$ 515.00	$ 545.00	$ 575.00	$ 610.00	$ 690.00	$ 670.00	$ 700.00	$ 730.00	$ 760.00
#1 COMMON (MBF)										
UNIT SALES	900	1475	1475	1475	1475	1475	1475	1475	1475	1475
UNIT PRICE	$ 415.00	$ 445.00	$ 475.00	$ 510.00	$ 545.00	$ 580.00	$ 625.00	$ 650.00	$ 680.00	$ 710.00
#2 COMMON (MBF)										
UNIT SALES	175	325	325	325	325	325	325	325	325	325
UNIT PRICE	$ 215.00	$ 230.00	$ 245.00	$ 260.00	$ 280.00	$ 300.00	$ 320.00	$ 345.00	$ 370.00	$ 395.00
TIES (#)										
UNIT SALES	40000	59000	59000	59000	59000	59000	59000	59000	59000	59000
UNIT PRICE	$ 5.00	$ 5.40	$ 5.90	$ 6.40	$ 6.90	$ 7.50	$ 8.20	$ 8.90	$ 9.60	$ 10.40
GROSS REVENUE	$ 835375	$ 1422099	$ 1521724	$ 1628724	$ 1738474	$ 1853000	$ 1988174	$ 2095474	$ 2210149	$ 2330724
RAW MATERIALS COSTS										
SAWLOGS	$ 600000	$ 660000	$ 726000	$ 799000	$ 878000	$ 966000	$ 1063000	$ 1169000	$ 1286000	$ 1415000
TIE LOGS	32000	35000	38000	42000	45000	49000	54000	58000	64000	69000
TOTAL	$ 632000	$ 695000	$ 764000	$ 841000	$ 923000	$ 1015000	$ 1117000	$ 1227000	$ 1350000	$ 1084000
OTHER VARIABLE COSTS										
MILL LABOR	$ 98000	$ 105000	$ 114000	$ 123000	$ 133000	$ 144000	$ 155000	$ 170000	$ 181000	$ 196000
YARD LABOR	28000	30000	32000	35000	38000	41000	45000	48000	52000	56000
KILN LABOR	12000	13000	14000	15100	16300	17600	19000	20600	22200	24000
SHIPPING	12500	13500	14600	15700	17000	18400	19800	21400	23100	26000
MOB. EQUIP. OPER	6500	7400	8400	9600	11000	12500	14300	16300	18500	21100
OIL	9900	11500	13300	15500	17900	20800	24100	27900	32500	37700
ELECTRICITY	5900	6700	7700	8700	10000	11400	13000	14800	16800	19200
TOTAL	$ 172800	$ 187100	$ 204000	$ 222600	$ 243200	$ 265700	$ 290200	$ 319000	$ 346100	$ 380000
FIXED COSTS										
ADMIN OVERHEAD	$ 75300	$ 79800	$ 84600	$ 89400	$ 95100	$ 100800	$ 106500	$ 113200	$ 120000	$ 127200
MAINT AND REPAIR	25700	27200	28900	30600	32400	34400	36500	38600	40900	43400
TAXES AND INSUR.	1000	8700	9600	10500	11600	12700	14000	15400	16900	18600
OPER. SUPPLIES	5000	2100	2200	2300	2400	2500	2600	2700	2800	2900
CONTINGENCIES	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000
MISC. UTILITIES	5000	5000	5500	5500	6000	6000	6600	6600	7100	7100
TOTAL	$ 128900	$ 133800	$ 142800	$ 151300	$ 161500	$ 171400	$ 182500	$ 193500	$ 205700	$ 210200
CAPITAL INVESTMENT										
WORKING CAPITAL	$ 15000	$ 16000	$ 17000	$ 18000	$ 20000	$ 21000	$ 22000	$ 24000	$ 26000	$ 0
NEW EQUIPMENT	0	0	0	72000	0	0	0	0	0	0
TOTAL	$ 15000	$ 16000	$ 17000	$ 90000	$ 20000	$ 21000	$ 22000	$ 24000	$ 26000	$ 0
SALVAGE VALUE										$ 144000
DEPRECIATION	$ 55800	$ 50500	$ 45100	$ 39700	$ 57200	$ 39800	$ 34200	$ 27400	$ 20800	$ 13700
PROFIT BEFORE TAXES	$ −98325	$ 406199	$ 410924	$ 413824	$ 410774	$ 400900	$ 398474	$ 355974	$ 308349	$ 248524
(THE TAX RATE IS .48)										
AFTER TAX PROFIT	$ −154125	$ 219964	$ 190229	$ 194545	$ 183859	$ 187773	$ 189423	$ 170859	$ 149526	$ 122109
AFTER TAX EARNINGS	$ −98325	$ 270464	$ 235329	$ 234245	$ 221059	$ 227573	$ 223623	$ 198259	$ 170326	$ 279809
A.T. NET CASH FLOW	$ −113325	$ 254464	$ 218329	$ 144245	$ 221059	$ 206573	$ 201623	$ 174259	$ 144326	$ 279809

Figure 1.–First part of EVALUE output.

The user specifies the items which are to be included in each category and estimates the amount, in dollars, of each cash flow item for each year in the planning period. EVALUE permits the user to have up to 20 different items in each category. Each annual estimate should be the total year-end cost estimate for each cash flow item. Cost cash flow data are entered into a data deck in the order specified above.

Raw material cost data are entered on cards which follow the product, price, and sales volume entries. The name of the first raw material item is entered in the first 16 columns of the first card. Annual cost estimates for the first raw material item are entered on the next card(s) with one annual estimate entered for each year in the analysis. Estimates are entered as whole numbers justified right in every eight columns, using only as many cards as are required to enter all estimates. Additional raw material items and cost estimates are entered

on additional cards according to the same instructions. A "1" must be entered in column 18 of the card which names the last raw material item in the data deck. In the sample data deck (fig. 3) two raw material items are specified, SAWLOGS and TIE LOGS. The total cost shown in the sample data deck for sawlogs is $600,000 at the end of the first year, $600,000 at the end of the second year, etc. Likewise, the total cost for tie logs is $32,000 at the end of the first year, $35,000 at the end of the second year, etc. Note that TIE LOGS is the last raw material item specified and, therefore, a "1" is entered in column 18 after TIE LOGS. If there are no raw material items in an analysis, blank cards (2 to 6) are placed in the data deck at this point, instead of raw material data cards. The first card must have a "1" entered in column 18.

The data for Other Variable Costs, Fixed Costs, and Capital Investment Cash Flows are entered after the Raw Material Costs data according to the same instructions. From 1 to 20 items are permitted in each category. A "1" must be entered in column 18 of the card which names the last item in each category. If there are no items in a category, blank cards (2 to 6) with a "1" entered in column 18 of the first card are used. In the sample data deck (fig. 3) there are seven items in the category of Other Variable Costs (MILL LABOR, YARD LABOR, KILN LABOR, SHIPPING, MOB. EQUIP. OPER., OIL, and ELECTRICITY), six items in the category of Fixed Costs (ADMIN OVERHEAD, MAINT AND REPAIR, TAXES AND INSUR., OPER. SUPPLIES, CONTINGENCIES, and MISC. UTILITIES), and two items in the category of Capital Investment Cash Flows (WORKING CAPITAL and NEW EQUIPMENT).

Depreciation (1-5 cards)

The user estimates the depreciation schedule in dollars. Those users who are unfamiliar with determining depreciation schedules may wish to consult a current tax guide or some one who is familiar with various methods for determining depreciation schedules. There are many different methods and a number of rules govering which types of schedules are permissible under specific circumstances.

Total annual depreciation for the investment opportunity is entered on data card(s) following the capital investment entries. On annual depreciation allowance estimate is entered for each year in the planning period. Estimates are entered as whole numbers, right-justified, in every eight columns, using only as many data cards as are required for all estimates. In the sample data deck (fig. 3), depreciation is $55,800 for the first year, $50,500 for the second year, etc.

Initial Investment Tax Credit, and Tax Rate (1 card)

The user estimates initial investment and first-year Investment Tax Credit in dollars and determines an appropiate tax rate to be used in the analysis. Initial investment is the total amount of investment capital required at the beginning of the investment planning period (at time zero). The Investment Tax Credit is a credit aginast federal income tax which is allowed for most types of investment in manufacturing. Federal Investment Tax Credit is commonly equal to 10 percent of a given investment. The effective tax rate is that fraction of taxable income (gross revenues minus total costs and depreciation) that EVALUE will consider to be taken as federal and state taxes combined. Users who are unfamiliar with tax rates or tax credits may wish to consuit a tax guide or someone familiar with current regulations.

Investment Tax Credit, tax rate, and initial investment are entered on one data card, following the depreciation data entries. Investment Tax Credit is estimated as a whole number and entered, right-justified in columns 1 to 10. Tax rate is estimated as a decimal fraction and entered in columns 11 to 20 with a decimal point. Initial investment is estimated as a whole number and is entered, right-justified in columns 21 to 30. In the sample data deck (fig. 3) Investment Tax Credit was specified as $35,000, in tax rate as 0.48 (i.e., 48 pct) and the initial investment as $550, 000.

Salvage Value and Discount Rate (1 card)

The user estimates end-of-planning-period salvage value and chooses an

Table 1.– A summary of data requirements fo EVALUE

Data card	Number of cards	Contents	Format
Output title	4	Centered title for ouput headings	4(20A4)
Time periods	1	Number of years in analysis (=N)	6X,I2
Gross revenue	up to 20 products or 220 cards	Product name, * Product prices, Product sales volumes	4A4/ N(F8)/ N(I8)
Raw materials	Up to 20 items or 120 cards	Raw material name, * Total annual cost cash flows	4A4/ N(I8)
Other variable costs	up to 20 items or 120 cards	Cost item name, * Total annual cost cash flows	4A4/ N(I8)
Fixed costs	up to 20 items or 120 cards	Cost item name, * Total annual cost cash flows	4A4/ N(I8)
Capital Investments (annual)	up to 20 items or 120 cards	Cost item name, * Total annual cost cash flows	4A4/ N(I8)
Depreciation	1 to 5	Annual depreciation schecule	N(I8)
Tax credit Tax rate, Initial Investment	1	First-year tax credit, Effective tax rate, initial investment	I10, F10, I10
Salvage value, Discount rate	1	Net slavage value, Discount rate	I10, F10

*The last name in each category must be "flagged" by punching a "1" in column 18 after the name.

appropriate discount rate for the analysis. EVALUE uses the specified discount rate for discounting all cost and benefit cash flows in determining present value. The salvage value in EVALUE is the net cash value of remaining equipment, facilities, buildings, and other capital equip ment, which are accounted for at the end of the planning period. In determining net salvage value, the user should deduct disposal costs and any associated taxes such as taxes due to depreciation recapture. The net salvage value should not be confused with adjusted basis, "book value," or "trade-in value," since those are estimates of the gross (rather than net) salvage value.

Salvage value is entered as a whole number right-justified in columns 1 to 10, on the last card in the data deck. The discount rate is entered as a decimal fraction with a decimal point, in columns 11 to 20. In the sample data deck (fig. 3) a salvage value of $44,000 and a discount rate of 0.15 (i.e., 15 pct) are specified.

EVALUE Output

The structure and content of the EVALUE output is determined largely by the data input. The first part of the output (fig. 1) is a straightforward summary of cash flows, in a form which is commonly presented in textbooks on cash flow analysis. EVALUE will adjust the length of the output relative to the number of cash flow items which are input as data. EVALUE will also automatically add additional pages of output summary for analyses which go beyond 10 years and require more than 10 columns of output.

The second part of the output (fig. 2) contains several commonly used investment analysis criteria which are used for ranking investments or decision-making relative to investment opportunities. The mathematical derivation of the criteria and explanations of their usefulness may be found in texts and publications dealing with cash flow and investment analysis. The EVALUE program and listing (appendix) contain sufficient internal documentation for locating the program statements and formulas used in calculating the investment criteria.

DISCOUNTED CASH FLOWS AN0 INVESTMENT CRITERIA

YEARS	AFTER TAX NET CASH FLOW	X	PRESENT VALUE FACTOR AT R= 15.00%	=	PRESENT VALUE OF NET CASH FLOW	|	CUMULATIVE |NET CASH FLOW
0	$ -550000		1.00000		$ −550000		$ −550000
1	$ −113325		.86957		$ -98543		$ -648543
2	$ 254464		.75614		$ 192411		$ -456132
3	$ 218339		.65152		$ 143554		$ -312578
4	$ 144245		.57175		$ 82472		$ -230106
5	$ 221059		.49718		$ 109905		$ -120201
6	$ 206573		.43233		$ 89307		$ -30894
7	$ 201623		.37594		$ 75797		$ 44903
8	$ 174259		.32690		$ 56965		$ 101868
9	$ 144326		.28426		$ 111026		$ 142894
10	$ 279809		.24718		$ 69164		$ 212058

THE PRESENT NET WORTH (PNW) IS $ 212058 AT 15.00 % DISCOUNT

THE TOTAL INITIAL INVESTMENT REQUIREMENT IS $ 550000

THE PAYBACK PERIOD (PBP) BASE0 ON AFTER TAX NET CASH FLOW IS 4.21 YEARS

THE INTERNAL RATE OF RETURN (IROR) BASED ON AFTER TAX NE7 CASH FLOW IS 22.20 %

THE PRESENT NET WORTH/INITIAL INVESTMENT RATIO IS 38.56 %

Figure 2.–Second part of EVALUE output.

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EXAMPLE SAWMILL ANALYSIS
CASH FLOW ANALYSIS - NEW HARDWOOD SAWMILL
5 MMBF THROUGHPUT, HYPOTHETICAL DATA
        10
FAS LUMBER (MBF)
    505.00    540.00    570.00    600.00    630.00    660.00    690.00    720.00    750.00    780.00
      3000       475       475       475       475       475       475       475       475       475
SELECT (MBF)
    485.00    515.00    545.00    575.00    610.00    640.00    670.00    700.00    730.00    760.00
       150       225       225       225       225       225       225       225       225       225
#1 COMMON (MBF)
    415.00    445.00    475.00    510.00    545.00    580.00    625.00    650.00    680.00    710.00
       900      1475      1475      1475      1475      1475      1475      1475      1475      1475
#2 COMMON (MBF)
    215.00    230.00    245.00    260.00    280.0     300.00    320.00    345.00    370.00    395.00
       175       325       325       325       325       325       325       325       325       325
TIES (#)              1
      5.00      5.40      5.90      6.40      6.90      7.50      8.20      8.90      9.60     10.40
     40000     59000     59000     59000     59000     59000     59000     59000     59000     59000
SAWLOGS
    600000    660000    726000    799000    878000    966000   1063000   1169000   1286000   1415000
TIE LOGS              1
     32000     35000     38000     42000     45000     49000     54000     58000     64000     69000
MILL LABOR
     98000    105000    114000    123000    133000    144000    155000    170000    181000    196000
YARD LABOR
     28000     30000     32000     35000     38000     41000     45000     48000     52000     56000
KILN LABOR
     12000     13000     14000     15100     16300     17600     19000     20300     22200     24000
SHIPPING
     12500     13500     14600     15700     17000     18400     19800     21400     23100     29000
MOB. EQUIP. OPER
      6500      7400      8400      9600     11000     12500     14300     16300     18500     21100
OIL
      9900     11500     13300     15500     17900     20800     24100     27900     32500     37700
ELECTRICITY           1
      5900      6700      7700      8700     10000     11400     13000     14800     16800     19200
ADMIN OVERHEAD
     75300     79800     84600     89400     95100    100800    106800    113200    120000    127200
MAINT AND REPAIR
     25700     27200     28900     30600     32400     34400     36500     38600     40900     43400
TAXES ANDINSUR.
      7900      8700      9600     10500     11600     12700     14000     15400     16900     18600
OPER. SUPPLIES
      5000      2100      2200      2300      2400      2500      2600      2700      2800      2900
CONTINGENCIES
     10000     11000     12000     13000     14000     15000     16000     17000     18000     19000
MISC. UTILITIES       1
      5000      5000      5500      5500      6000      6000      6600      6600      7100      7100
WORKING CAPITAL
     15000     16000     17000     18000     20000     21000     22000     24000     26000
NEWEQUIPMENT          1
         0         0         0     72000         0         0         0         0         0         0
     55800     50500     45100     39700     57200     39800     34200     27400     20800     13700
     35000     0.480    550000
    144000     0.15
```

Figure 3.–EVALUE data deck, sample data.

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Appendix

Listing of EVALUE
Program Statements

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      DIMENSION CINV(4,20),CUNF(50),FIXC(4,20),NNIT(50),OTHC(4,20),     EVAL  10
     1P(50,20),PVF(50),RMAT(4,20),TITL(80),SALE(4,20)                   EVAL  20
      INTEGER A(50,20),ATRN(50),ATPR(50),B(50,20),CDCF(50),             EVAL  30
     1C(50,20),D(50,20),E(50,20),F(50),FLAG,GROS(50),                   EVAL  40
     2NFLO(50),PRBF(50),PVNF(50),S,SUMF(50),T,TAXL,TUNT,                EVAL  50
     3TB(50),TC(50),TD(50),TE(50)                                       EVAL  60
C  READ IN TITLE OF OUTPUT AND THE NUMBER OF YEARS IN THE ANALYSIS      EVAL  70
      READ(5,1) (TITL(I),I=1,80)                                        EVAL  80
    1 FORMAT(20A4)                                                      EVAL  90
      READ(5,4) TUNT                                                    EVAL 100
C  READ IN NAMES AND CASH FLOWS OF 'SALES','RAW MATERIALS','OTHER       EVAL 110
C  VARIABLE COSTS','FIXED COSTS',AND'CAPITAL INVESTMENT' CATEGORIES     EVAL 120
      NSAL=0                                                            EVAL 130
      DO 5 J=1,20                                                       EVAL 140
      NSAL=NSAL+1                                                       EVAL 150
      READ(5,2) (SALE(I,J),I=1,4),FLAG                                  EVAL 160
    2 FORMAT(4A4,I2)                                                    EVAL 170
      READ(5,3) (P(I,J),I=1,TUNT)                                       EVAL 180
    3 FORMAT(10F8)                                                      EVAL 190
      READ(5,4) (A(I,J),I=1,TUNT)                                       EVAL 200
    4 FORMAT(10I8)                                                      EVAL 210
      IF(FLAG.EQ.1) GO TO 6                                             EVAL 220
    5 CONTINUE                                                          EVAL 230
    6 CONTINUE                                                          EVAL 240
      CALL SUB1(RMAT,B,TB,L1,TUNT)                                      EVAL 250
      CALL SUB1(OTHC,C,TC,L2,TUNT)                                      EVAL 260
      CALL SUB1(FIXC,D,TD,L3,TUNT)                                      EVAL 270
      CALL SUB1(CINV,E,TE,L4,TUNT)                                      EVAL 280
C  READ IN TOTAL DEPRECIATION FOR EACH TIME PERIOD                      EVAL 290
      READ(5,4) (F(I),I=1,TUNT)                                         EVAL 300
C  READ IN THE INVESTMENT TAX CREDIT, TAX RATE, AND INITIAL INVESTMENT  EVAL 310
      READ(5,12) ITCR,TXRT,IVST                                         EVAL 320
      DO 11 I=1,TUNT                                                    EVAL 330
      GROS(I)=0.0                                                       EVAL 340
      DO 7 J=1,NSAL                                                     EVAL 350
      GROS(I)=GROS(I)+P(I,J)*A(I,J)                                     EVAL 360
    7 CONTINUE                                                          EVAL 370
C  CALCULATE PROFIT BEFORE TAXES (PRBF) FOR EACH TIME PERIOD            EVAL 380
      PRBF(I)=GROS(I)-TB(I)-TC(I)-TD(I)                                 EVAL 390
C  CALCULATE AFTER TAX PROFIT (ATPR) FOR EACH TIME PERIOD               EVAL 400
      IF((PRBF(I)-F(I)).LE.0) ATPR(I)=PRBF(I)-F(I)                      EVAL 410
      IF((PRBF(I)-F(I)).LE.0) GO TO 10                                  EVAL 420
C  CALCULATE TAX LIABILITY IF APPLICABLE                                EVAL 430
      TAXL=TXRT*(PRBF(I)-F(I))                                          EVAL 440
      ATPR(I)=PRBF(I)-F(I)-TAXL                                         EVAL 450
C  CALCULATE REDUCTION IN TAX LIABILITY FROM INVESTMENT TAX CREDIT      EVAL 460
      IF(ITCR.LE.0) GO TO 10                                            EVAL 470
      IF(TAXL.LT.ITCR) GO TO 8                                          EVAL 480
      TAXL=TAXL-ITCR                                                    EVAL 490
      ITCR=0                                                            EVAL 500
      GO TO 9                                                           EVAL 510
    8 CONTINUE                                                          EVAL 520
      ITCR=ITCR-TAXL                                                    EVAL 530
      TAXL=0.0                                                          EVAL 540
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     9 CONTINUE                                                          EVAL 550
       ATPR(I)=PRBF(I)-F(I)-TAXL                                         EVAL 560
    10 CONTINUE                                                          EVAL 570
C   CALCULATE AFTER TAX EARNINGS (ATRN) FOR EACH TIME PERIOD             EVAL 580
       ATRN(I)=ATPR(I)+F(I)                                              EVAL 590
C   CALCULATE AFTER TAX NET CASH FLOW (NFLO) FOR EACH TIME PERIOD        EVAL 600
       NFLO(I)=ATRN(I)-TE(I)                                             EVAL 610
    11 CONTINUE                                                          EVAL 620
C   READ IN THE SALVAGE VALUE AND THE DISCOUNT RATE                      EVAL 630
       READ(5,12) ISAL,DISR                                              EVAL 640
    12 FORMAT(I10,F10,I10)                                               EVAL 650
       ATRN(TUNT)=ATPR(TUNT)+F(TUNT)+ISAL                                EVAL 660
       NFLO(TUNT)=ATRN(TUNT)-TE(TUNT)                                    EVAL 670
       ROI=0.0                                                           EVAL 680
       IT1=1                                                             EVAL 690
       ITT1=2                                                            EVAL 700
       IT2=1                                                             EVAL 710
       ITT2=2                                                            EVAL 720
       IT3=1                                                             EVAL 730
       ITT3=2                                                            EVAL 740
    13 CONTINUE                                                          EVAL 750
C   CALCULATE INTERNAL RATE OF RETURN                                    EVAL 760
       IF(ROI .LT. 0.0) GO TO 23                                         EVAL 770
       IF(ROI .GT. 1.0) GO TO 23                                         EVAL 780
       CUNF(1)=(NFLO(1)/(1.0+ROI))-IVST                                  EVAL 790
       DO 14 I=2,TUNT                                                    EVAL 800
       CUNF(I)=CUNF(I-1)+(NFLO(I)/((1.0+ROI)**(I)))                      EVAL 810
    14 CONTINUE                                                          EVAL 820
       IF(IT1 .EQ. ITT1) GO TO 17                                        EVAL 830
       IF(CUNF(TUNT)) 15,23,16                                           EVAL 840
    15 ROI=ROI-0.1                                                       EVAL 850
       IT1=3                                                             EVAL 860
       GO TO 13                                                          EVAL 870
    16 ROI=ROI+0.1                                                       EVAL 880
       ITT1=3                                                            EVAL 890
       GO TO 13                                                          EVAL 900
    17 IF(IT2 .EQ. ITT2) GO TO 20                                        EVAL 910
       IF(CUNF(TUNT)) 18,23,19                                           EVAL 920
    18 ROI=ROI-0.01                                                      EVAL 930
       IT2=3                                                             EVAL 940
       GO TO 13                                                          EVAL 950
    19 ROI=ROI+0.01                                                      EVAL 960
       ITT2=3                                                            EVAL 970
       GO TO 13                                                          EVAL 980
    20 IF(IT3 .EQ. ITT3) GO TO 23                                        EVAL 990
       IF(CUNF(TUNT)) 21,23,22                                           EVAL1000
    21 ROI=ROI-0.001                                                     EVAL1010
       IT3=3                                                             EVAL1020
       GO TO 13                                                          EVAL1030
    22 ROI=ROI+0.001                                                     EVAL1040
       ITT3=3                                                            EVAL1050
       GO TO 13                                                          EVAL1060
    23 RORI=100.0*ROI                                                    EVAL1070
       IF(RORI .LE. 0.0) RORI=0.0                                        EVAL1080
       IF(RORI .GE. 100.0) RORI=100.0                                    EVAL1090
    24 CONTINUE                                                          EVAL1100
C   CALCULATE THE PRESENT VALUE OF THE NET CASH FLOW FOR EACH YEAR       EVAL1110
C   AND THE CUMULATIVE NET CASH FLOW AT THE GIVEN DISCOUNT RATE          EVAL1120
       DO 25 I=1,TUNT                                                    EVAL1130
       PVNF(I)=NFLO(I)/((1+DISR)**(I))                                   EVAL1140
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      PVF(I)=1.0/((1+DISR)**(I))                                        EVAL1150
   25 CONTINUE                                                          EVAL1160
      CDCF(1)=PVNF(1)-IVST                                              EVAL1170
      SUMF(1)=NFLO(1)-IVST                                              EVAL1180
      DO 26 I=2,TUNT                                                    EVAL1190
      CDCF(I)=CDCF(I-1)+PVNF(I)                                         EVAL1200
      SUMF(I)=SUMF(I-1)+NFLO(I)                                         EVAL1210
   26 CONTINUE                                                          EVAL1220
C  CALCULATE PRESENT VALUE/INVESTMENT RATIO PERCENT                     EVAL1230
      PVIC=(100.0*CDCF(TUNT))/IVST                                      EVAL1240
C  CALCULATE PAYBACK PERIOD (PBAK) IN THE GIVEN TIME UNITS              EVAL1250
      DO 28 I=1,TUNT                                                    EVAL1260
      IF(I.GT.1) GO TO 27                                               EVAL1270
      DIFF=SUMF(1)+IVST+0.0001                                          EVAL1280
      PBAK=IVST/DIFF                                                    EVAL1290
      IF(SUMF(1).GT.0) GO TO 29                                         EVAL1300
      GO TO 28                                                          EVAL1310
   27 CONTINUE                                                          EVAL1320
      DIFF=SUMF(I)-SUMF(I-1)+0.0001                                     EVAL1330
      PBAK=(I-1)+((-SUMF(I-1))/DIFF)                                    EVAL1340
      IF(SUMF(I).GT.0) GO TO 29                                         EVAL1350
   28 CONTINUE                                                          EVAL1360
   29 CONTINUE                                                          EVAL1370
      DISR=DISR*100.0                                                   EVAL1380
      DO 30 I=1,TUNT                                                    EVAL1390
   30 NNIT(I)=I                                                         EVAL1400
      WRITE(6,31) (TITL(I),I=1,80),IVST                                 EVAL1410
   31 FORMAT('1',4(20X,20A4/)' INITIAL INVESTMENT REQUIREMENT  $',I10//)EVAL1420
C                                                                       EVAL1430
C  WRITE CASH FLOWS                                                     EVAL1440
C                                                                       EVAL1450
      S=1                                                               EVAL1460
      T=10                                                              EVAL1470
      K=(TUNT/10)+2                                                     EVAL1480
      IF((TUNT-10) .LT. 0) T=TUNT                                       EVAL1490
      DO 69 M=1,K                                                       EVAL1500
      IF(M .EQ. 1) WRITE(6,32) (NNIT(I),I=S,T)                          EVAL1510
   32 FORMAT(15X,'YEARS',5X,9(I2,8X),I2//)                              EVAL1520
      IF(M .GT. 1) WRITE(6,33) (NNIT(I),I=S,T)                          EVAL1530
   33 FORMAT('0'////15X,'YEARS',5X,9(I2,8X),I2//)                       EVAL1540
      KK=T-S+1                                                          EVAL1550
      DO 36 J=1,NSAL                                                    EVAL1560
      WRITE(6,34) (SALE(I,J),I=1,4),(A(I,J),I=S,T)                      EVAL1570
   34 FORMAT('0',4A4/4X,'UNIT SALES',6X,10I10)                          EVAL1580
      WRITE(6,35) (P(I,J),I=S,T)                                        EVAL1590
   35 FORMAT(' ',3X,'UNIT PRICE',6X,10(3X,F7.2))                        EVAL1600
      CALL DOLS(KK)                                                     EVAL1610
   36 CONTINUE                                                          EVAL1620
      WRITE(6,37) (GROS(I),I=S,T)                                       EVAL1630
   37 FORMAT('0',5X,'GROSS REVENUE',3X,10(I8,2X))                       EVAL1640
      CALL DOLS(KK)                                                     EVAL1650
      WRITE(6,38) (RMAT(I,1),I=1,4),(B(I,1),I=S,T)                      EVAL1660
   38 FORMAT('0RAW MATERIALS COSTS'/4X,4A4,2X,10(I8,2X))                EVAL1670
      CALL DOLS(KK)                                                     EVAL1680
      IF(L1 .EQ. 1) GO TO 41                                            EVAL1690
      L=1                                                               EVAL1700
   39 L=L+1                                                             EVAL1710
      WRITE(6,40)(RMAT(I,L),I=1,4),(B(I,L),I=S,T)                       EVAL1720
   40 FORMAT(' ',3X,4A4,10I10)                                          EVAL1730
      IF(L1 .EQ. L) GO TO 41                                            EVAL1740
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      GO TO 39                                                          EVAL1750
   41 CONTINUE                                                          EVAL1760
      WRITE(6,42)(TB(I),I=S,T)                                          EVAL1770
   42 FORMAT(6X,'TOTAL',11X,10(I8,2X))                                  EVAL1780
      CALL DOLS(KK)                                                     EVAL1790
      WRITE(6,43)(OTHC(I,1),I=1,4),(C(I,1),I=S,T)                       EVAL1800
   43 FORMAT('0OTHER VARIABLE COSTS'/4X,4A4,2X,10(I8,2X))               EVAL1810
      CALL DOLS(KK)                                                     EVAL1820
      IF(L2 .EQ. 1) GO TO 45                                            EVAL1830
      L=1                                                               EVAL1840
   44 L=L+1                                                             EVAL1850
      WRITE(6,40)(OTHC(I,L),I=1,4),(C(I,L),I=S,T)                       EVAL1860
      IF(L2 .EQ. L) GO TO 45                                            EVAL1870
      GO TO 44                                                          EVAL1880
   45 CONTINUE                                                          EVAL1890
      WRITE(6,42)(TC(I),I=S,T)                                          EVAL1900
      CALL DOLS(KK)                                                     EVAL1910
      WRITE(6,46)(FIXC(I,1),I=1,4),(D(I,1),I=S,T)                       EVAL1920
   46 FORMAT('0FIXED COSTS'/4X,4A4,2X,10(I8,2X))                        EVAL1930
      CALL DOLS(KK)                                                     EVAL1940
      IF(L3 .EQ. 1) GO TO 48                                            EVAL1950
      L=1                                                               EVAL1960
   47 L=L+1                                                             EVAL1970
      WRITE(6,40)(FIXC(I,L),I=1,4),(D(I,L),I=S,T)                       EVAL1980
      IF(L3 .EQ. L) GO TO 48                                            EVAL1990
      GO TO 47                                                          EVAL2000
   48 CONTINUE                                                          EVAL2010
      WRITE(6,42)(TD(I),I=S,T)                                          EVAL2020
      CALL DOLS(KK)                                                     EVAL2030
      WRITE(6,49)(CINV(I,1),I=1,4),(E(I,1),I=S,T)                       EVAL2040
   49 FORMAT('0CAPITAL INVESTMENT'/4X,4A4,2X,10(I8,2X))                 EVAL2050
      CALL DOLS(KK)                                                     EVAL2060
      IF(L4 .EQ. 1) GO TO 51                                            EVAL2070
      L=1                                                               EVAL2080
   50 L=L+1                                                             EVAL2090
      WRITE(6,40)(CINV(I,L),I=1,4),(E(I,L),I=S,T)                       EVAL2100
      IF(L4 .EQ. L) GO TO 51                                            EVAL2110
      GO TO 50                                                          EVAL2120
   51 CONTINUE                                                          EVAL2130
      WRITE(6,42)(TE(I),I=S,T)                                          EVAL2140
      CALL DOLS(KK)                                                     EVAL2150
      IF(TUNT .GT. T) GO TO 62                                          EVAL2160
      ND=T-S+1                                                          EVAL2170
      IF(ND .EQ. 1) WRITE(6,52) ISAL                                    EVAL2180
      IF(ND .EQ.2) WRITE(6,53) ISAL                                     EVAL2190
      IF(ND .EQ. 3) WRITE(6,54) ISAL                                    EVAL2200
      IF(ND .EQ. 4) WRITE(6,55) ISAL                                    EVAL2210
      IF(ND .EQ. 5) WRITE(6,56) ISAL                                    EVAL2220
      IF(ND .EQ. 6) WRITE(6,57) ISAL                                    EVAL2230
      IF(ND .EQ. 7) WRITE(6,58) ISAL                                    EVAL2240
      IF(ND .EQ. 8) WRITE(6,59) ISAL                                    EVAL2250
      IF(ND .EQ. 9) WRITE(6,60) ISAL                                    EVAL2260
      IF(ND .EQ. 10) WRITE(6,61) ISAL                                   EVAL2270
   52 FORMAT('0SALVAGE VALUE',7X,'$',I8)                                EVAL2280
   53 FORMAT('0SALVAGE VALUE',17X,'$',I8)                               EVAL2290
   54 FORMAT('0SALVAGE VALUE',27X,'$',I8)                               EVAL2300
   55 FORMAT('0SALVAGE VALUE',37X,'$',I8)                               EVAL2310
   56 FORMAT('0SALVAGE VALUE',47X,'$',I8)                               EVAL2320
   57 FORMAT('0SALVAGE VALUE',57X,'$',I8)                               EVAL2330
   58 FORMAT('0SALVAGE VALUE',67X,'$',I8)                               EVAL2340
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 59 FORMAT('0SALVAGE VALUE',77X,'$',I8)                                          EVAL2350
 60 FORMAT('0SALVAGE VALUE',87X,'$',I8)                                          EVAL2360
 61 FORMAT('0SALVAGE VALUE',97X,'$',I8)                                          EVAL2370
 62 CONTINUE                                                                     EVAL2380
    WRITE(6,63) (F(I), I=S,T)                                                    EVAL2390
 63 FORMAT('0DEPRECIATION',9X,10(I8,2X))                                         EVAL2400
    CALL DOLS(KK)                                                               EVAL2410
    WRITE(6,64) (PRBF(I),I=S,T)                                                 EVAL2420
 64 FORMAT('0PROFIT BEFORE TAXES',2X,10(I8,2X))                                  EVAL2430
    CALL DOLS(KK)                                                               EVAL2440
    WRITE(6,65) TXRT                                                            EVAL2450
 65 FORMAT(' (THE TAX RATE IS',F4.2,')')                                         EVAL2460
    WRITE(6,66) (ATPR(I),I=S,T)                                                 EVAL2470
 66 FORMAT(' AFTER TAX PROFIT',5X,10(I8,2X))                                     EVAL2480
    CALL DOLS(KK)                                                               EVAL2490
    WRITE(6,67) (ATRN(I),I=S,T)                                                 EVAL2500
 67 FORMAT(' AFTER TAX EARNINGS',3X,10(I8,2X))                                   EVAL2510
    CALL DOLS(KK)                                                               EVAL2520
    WRITE(6,68) (NFLO(I),I=S,T)                                                 EVAL2530
 68 FORMAT(' A.T. NET CASH FLOW',3X,10(I8,2X))                                   EVAL2540
    CALL DOLS(KK)                                                               EVAL2550
    IF(TUNT .EQ. T) GO TO 70                                                    EVAL2560
    S=S+10                                                                      EVAL2570
    T=T+10                                                                      EVAL2580
    IF(T .GE. TUNT) T=TUNT                                                      EVAL2590
 69 CONTINUE                                                                    EVAL2600
 70 CONTINUE                                                                    EVAL2610
    WRITE(6,71) DISR                                                            EVAL2620
 71 FORMAT('1',22X,'DISCOUNTED CASH FLOWS AND INVESTMENT CRITERIA'/// EVAL2630
   118X,'AFTER TAX NET',6X,'X',6X,'PRESENT VALUE',5X,'=',6X,'PRESENT VEVAL2640
   2ALUE OF'/3X,'YEARS',12X,'CASH FLOW',17X,'FACTOR AT',16X,'NET CASH EVAL2650
   3FLOW',9X,'CUMULATIVE NET CASH FLOW'/46X,'R=',F6.2,'%'//)                    EVAL2660
    IVST=-IVST                                                                  EVAL2670
    IZRO=0                                                                      EVAL2680
    ONER=1.0                                                                    EVAL2690
    WRITE(6,72) IZRO,IVST,ONER,IVST,IVST,                                       EVAL2700
   1(NNIT(I),NFLO(I),PVF(I),PVNF(I),CDCF(I),I=1,T)                              EVAL2710
 72 FORMAT(4X,I2,9X,'$',1X,I10,19X,F8.5,14X,'$',1X,I10,21X,'$ ',I10)            EVAL2720
    IVST=-IVST                                                                  EVAL2730
    WRITE(6,73) CDCF(TUNT),DISR                                                 EVAL2740
 73 FORMAT(////3X,'THE PRESENT NET WORTH (PNW) IS',2X,'$',I10,'   AT',EVAL2750
   1F6.2,' % DISCOUNT'//)                                                       EVAL2760
    WRITE(6,74) IVST                                                            EVAL2770
 74 FORMAT(3X,'THE TOTAL INITIAL INVESTMENT REQUIREMENT IS',                    EVAL2780
   13X,'$',I10//)                                                               EVAL2790
    IF(SUMF(TUNT) .GE. 0) GO TO 76                                              EVAL2800
    WRITE(6,75) TUNT                                                            EVAL2810
 75 FORMAT(3X,'THE INVESTMENT IS NOT REPAID IN',I2,1X,'YEARS'//)                EVAL2820
 76 CONTINUE                                                                    EVAL2830
    IF(SUMF(TUNT) .LT. 0) GO TO 78                                              EVAL2840
    WRITE(6,77) PBAK                                                            EVAL2850
 77 FORMAT(3X,'THE PAYBACK PERIOD (PBP) BASED ON AFTER TAX NET CASH FLEVAL2860
   1OW IS',F5.2,1X,'YEARS'//)                                                   EVAL2870
 78 CONTINUE                                                                    EVAL2880
    IF(RORI .GT. 0.0 .AND. RORI .LT. 100.00) WRITE(6,79) RORI                   EVAL2890
 79 FORMAT(3X,'THE INTERNAL RATE OF RETURN (IROR) BASED ON AFTER TAX NEVAL2900
   1ET CASH FLOW IS',F6.2,' %'//)                                               EVAL2910
    IF(RORI .LE. 0.0) WRITE(6,80)                                               EVAL2920
 80 FORMAT(3X,'INTERNAL RATE OF RETURN IS LESS THAN OR EQUAL TO 0.0%'/EVAL2930
   A/)                                                                          EVAL2940
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   IF(RORI .GE. 100.0) WRITE(6,81)                                      EVAL2950
81 FORMAT(3X,'INTERNAL RATE OF RETURN IS GREATER THAN OR EQUAL TO 100EVAL2960
  8%'//)                                                                EVAL2970
   WRITE(6,82) PVIC                                                     EVAL2980
82 FORMAT(3X,'THE PRESENT NET WORTH/INITIAL INVESTMENT RATIO IS ',      EVAL2990
  1F7.2,1X,'%'//)                                                       EVAL3000
   WRITE(6,83)                                                          EVAL3010
83 FORMAT('1','****')                                                   EVAL3020
   SUBROUTINE SUB1(HDNG,ICFL,ITCF,L,NUNT)                               EVAL3030
   DIMENSION HDNG(4,20),ICFL(50,20),ITCF(50)                            EVAL3040
   INTEGER FLAG                                                         EVAL3050
   FLAG=0                                                               EVAL3060
   DO 86 J=1,20                                                         EVAL3070
   L=J                                                                  EVAL3080
   READ(5,84)(HDNG(I,J),I=1,4),FLAG                                     EVAL3090
84 FORMAT(4A4,I2)                                                       EVAL3100
   READ(5,85)(ICFL(I,J),I=1,NUNT)                                       EVAL3110
85 FORMAT(10I8)                                                         EVAL3120
   IF(FLAG .EQ. 1) GO TO 87                                             EVAL3130
86 CONTINUE                                                             EVAL3140
87 CONTINUE                                                             EVAL3150
   LL=L+1                                                               EVAL3160
   DO 88 J=1,LL                                                         EVAL3170
   IF(J .EQ. LL) GO TO 89                                               EVAL3180
   DO 88 I=1,NUNT                                                       EVAL3190
   ITCF(I)=ITCF(I)+ICFL(I,J)                                            EVAL3200
88 CONTINUE                                                             EVAL3210
89 CONTINUE                                                             EVAL3220
   RETURN                                                               EVAL3230
   SUBROUTINE DOLS(KK)                                                  EVAL3240
   IF(KK .EQ. 1) WRITE(6,90)                                            EVAL3250
   IF(KK .EQ. 2) WRITE(6,91)                                            EVAL3260
   IF(KK .EQ. 3) WRITE(6,92)                                            EVAL3270
   IF(KK .EQ. 4) WRITE(6,93)                                            EVAL3280
   IF(KK .EQ. 5) WRITE(6,94)                                            EVAL3290
   IF(KK .EQ. 6) WRITE(6,95)                                            EVAL3300
   IF(KK .EQ. 7) WRITE(6,96)                                            EVAL3310
   IF(KK .EQ. 8) WRITE(6,97)                                            EVAL3320
   IF(KK .EQ. 9) WRITE(6,98)                                            EVAL3330
   IF(KK .EQ. 10) WRITE(6,99)                                           EVAL3340
90 FORMAT('+',20X,'$')                                                  EVAL3350
91 FORMAT('+',20X,2('$',9X))                                            EVAL3360
92 FORMAT('+',20X,3('$',9X))                                            EVAL3370
93 FORMAT('+',20X,4('$',9X))                                            EVAL3380
94 FORMAT('+',20X,5('$',9X))                                            EVAL3390
95 FORMAT('+',20X,6('$',9X))                                            EVAL3400
96 FORMAT('+',20X,7('$',9X))                                            EVAL3410
97 FORMAT('+',20X,8('$',9X))                                            EVAL3420
98 FORMAT('+',20X,9('$',9X))                                            EVAL3430
99 FORMAT('+',20X,10('$',9X))                                           EVAL3440
   RETURN                                                               EVAL3450
   END                                                                  EVAL3460
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U.S. Forest Products Laboratory.

EVALUE: A Computer Program from Evaluating Investments in Forest Products Industries, by Peter J. Ince and Philip H. Steele, Madison, Wis., For. Prod. Lab., 1980. 12 p. (USDA For. Ser. Gen. Tech. Rep. FPL-30).

EVALUE is a FORTRAN computer program for investment cash flow analysis. It can be used as an aid in evaluating and analyzing potential investment opportunities (manufacturing facilities, equipment, facility improvement). Also by researchers in cost benefit studies of new technology or processes.

This paper explains how to use EVALUE and is strictly a guide and not intended as an introduction to financial analysis.