

JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS

V. INDUSTRY SEMINARS AND SPEECHES - SHORT TERM

A. Appraisal Organizations

5. 1973

- e. "Real Estate Financial Risk Management"
& "Real Estate Appraisal Legal Future
Shock", Honolulu, June 13-14, 1973

REAL ESTATE FINANCIAL RISK MANAGEMENT
Princess Kaiulani Hotel
Wednesday Afternoon Session
June 13, 1973

Instructed by Professor James A. Graaskamp
University of Wisconsin School of Business

- I. Real estate investment decisions may often finally depend on a question of the expected rate of return and the risk incurred in pursuing that investment return. There is a natural tendency in appraisal to consider the net income figure and the over-all investment as fixed numbers--as conditions of certainty.
 - A. An investment in a bond can be defined as to when it begins in time, when it is sold, when coupons are collectable and total costs and total receipts under alternative outcomes. Thus, yield is easily computed and risk depends on whether you can rely on the promisor.
 - B. Real estate financial analysis seldom enjoys such a rigid set of financial specifications and therefore seldom enjoys reasonable conditions of certainty.
 - C. To talk about risk and compare it between investments implies some explicit measures rather than simply subjective doubt--expressed by a shrug of the shoulders.
 - D. Modern management defines risk as the potential variance between expectations and realizations, i.e., between pro forma prospects and historical balance sheet and P & L statements.
 1. Variance sometimes is a binary--yes-no question. You will or you won't receive zoning approval.
 2. Variance sometimes is the possible range around an average or a median--a distribution of alternative costs or revenue possibilities.
 - E. For ease of analysis there are two kinds of risks:
 1. Dynamic risks can produce profit or loss and are best controlled by the finesse of management execution of a plan.
 2. Static risks are those which can only cause a loss due to surprise upset of a plan.
 - F. Risk evaluation or comparison grows out of the function of risk management for an enterprise. Risk management has two objectives:
 1. Conservation of existing enterprise assets despite surprise events
 2. Realization of budgeted expectations despite surprise events
 - G. The process of risk management involves systematic and continuous:
 1. Identification of significant exposures to loss
 2. Estimation of potential loss frequency and severity
 3. Identification of alternative methods to avoid loss
 4. Selection of a risk management method
 5. Monitoring execution of risk management plan

11. The risk management process is both a philosophy of inquiry or analysis and a systematic management process which is attempting to answer "WHAT IF ...?" questions, to anticipate surprise and to provide for a response or adjustment in advance of the contingency.
 - A. Identification of significant exposures to loss can begin by using standard business documents as reminders, such as
 1. Review of balance sheet accounts
 2. Review of profit and loss statement accounts
 3. Review of business organization or function chart
 4. Review of elements of financial feasibility analysis
 - B. Significant has to do with potential loss frequency, loss severity, and degree of uncertainty.
 1. Very frequent and minor become expense accounts
 2. Less frequent but predictable and major become reserves or budget allowances.
 3. Infrequent, uncertain but very severe become issues of risk management.
 4. A 50/50 probability is the most uncertain outcome.
 - C. The alternative methods of avoiding loss which everyone subconsciously uses include:
 1. Eliminate risk exposure
 2. Reduce frequency or severity of loss (mortgage loan closing process)
 3. Combine risks to increase predictability (reserves for expenses)
 4. Shift risk by contract (subcontracts or escape clauses)
 5. Shift risk by combination by contract (insurance)
 6. Limit maximum loss (corporate shell or limited partnership)
 7. Hedging (sale and lease-back, options, contingent sales)
 - D. Selection of a risk management method depends on whether you are talking about a dynamic or static risk and the trade practices of a particular industry or business type.
 1. A lease is a risk management contract.
 2. A pool plan syndication is risk management through combination.
 3. Some selections can be mathematical or statistical and others must be entrepreneurial.
 - E. Real estate operations and management can become very complex risk management systems and the problem for the decision maker is to monitor the current progress of all the little details necessary for the execution of a risk management plan.
 1. Some of these details are financial and that is primarily what we are talking about today. I am suggesting the theory of management and Bob is suggesting how data processing devices are beginning to make it possible to apply these theories in practice.
 2. We hope that the theory will have immediate practical application as you see relationships to your personal real estate problems but we also hope you will begin to see the trend of management theory as it begins to utilize the computer for better risk management.

3. It should be noted that the principles are appropriate to any enterprise and not just real estate. Real estate education has been too quick to be inbred, to regard its problems as unique, rather than to relate to the evolution of management science in general.
4. Management theory in the abstract simply represents a careful structuring of the common sense which you have successfully applied to your own business.

III. Real estate financial analysis involves the conversion of a product of space over time to flows of money over time from a real estate enterprise which involves both large amounts of capital and large amounts of managerial services.

- A. In forecasting the finance elements there is an infinite number of details so one must over simplify by means of modeling and then determine the key assumptions which need to be made.
- B. The purchase of any property and investment real estate in particular is the result of the decision maker "buying" a set of assumptions. A set of assumptions implies conditions of uncertainty--the possibility of variance--hence, risk.
- C. To model anything, say a financial model for the computer, certain questions should be emphasized:
 1. What is the problem or question which needs to be solved?
 2. What data is available which might be relevant?
 3. What theory or logical framework best organizes the data to focus on the question?
 4. What is the cost/benefit ratio of the model outputs?
 5. What is the best way to communicate the recommendation with credibility?
 6. What are the limitations of the model assumptions?
- D. Basic elements of a real estate financial model which in turn identify the exposure for risk analysis might be as follows:
 1. Definition of desired profit centers
 2. Definition of a timeline over which events will still take place
 3. Assumptions on the capital budget and sequence of source and application of funds
 - a. Direct construction or purchase cost
 - b. Indirect and capitalized carrying cost
 4. Assumptions on operating budget and sequence of source and application
 - a. Pattern of sales revenues
 - b. Pattern of sales and operating expenses
 5. Financing plan holding power
 - a. Credit amounts and terms
 - b. Equity amounts and terms
 - c. Holding power
 6. Profits classified as to type and tax
 - a. Cash from operations
 - b. Cash from capital gains
 - c. Cash surplus from financing
 - d. Cash from tax savings on other income

- e. Cash from reduction or shift of fixed outlays
 - f. Indirect non-cash benefits
 - 7. Selected measures of profitability
 - a. Definition of investment
 - b. Definition of profit
 - 8. Selected measures of risk
 - a. Payback periods
 - b. Capacity for variance
 - c. Variance control
- IV. Control of time line risks in financial projections can be handled in a variety of ways or models which may or may not serve the client's purposes.
- A. The classic appraisal assumes a project has moved on the time line to completion and normal operation as of the date of the appraisal. This may be appropriate to the permanent loan position.
 - B. Management policy and strategy decisions may be concerned with which phases of the real estate continuum they should participate in. (Refer to Diagram A).
 - C. Financial analysis may be concerned with rate of return analysis which involves timing of outlays, timing of receipts and elapsed time of investment and reinvestment exposure. (See Diagrams marked as Exhibits 52, 54, 55 and 56).
 - D. Thus, risks inherent in time can be avoided, shifted, or controlled internally through feedback systems on the status of a project.
- V. There are so many variables in real estate investment which will have some variance beyond the ability of management to control that the permutations and combinations of alternative results become impossible to predict. Thus, statistics may be useful to forecast both the probable variance and to analyze a sample of alternative returns possible from a given investment.
- A. Last year we spent a day analyzing after tax cash-flow as is outlined in the flow chart in Figure 1, prepared by Professor Stephen Pyhrr. Such a model is heuristic or deterministic. One set of inputs based on experience leading to a single answer.
 - B. However, Figure 4 suggests an alternative kind of model which permits assumptions to be made which can have a certain range of variation around an average or median.
 - C. The computer makes the computation relatively efficiently and provides the accounting systems which can help measure variance experienced over time.
 - D. It is then possible to compare alternative projects as to their probability of yield and their relative liquidity in terms of payback and resale value. (Refer to model of Decision Process).
 - E. Refer to input and output of Pyhrr Apartment House Investment model. (Professor Stephen Pyhrr of the University of Texas School of Business).

DIAGRAM A

PROPERTY DEVELOPMENT ON TIME LINE FOR COMPARISON OF YIELD TO VARIABLES WITHIN CONTROL OF DEVELOPER

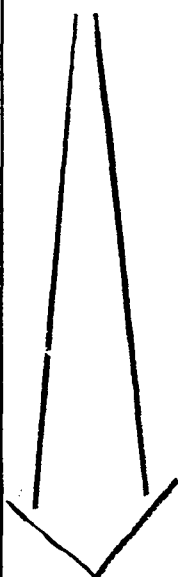
Progressive Development Functions	Profitability as % of Sales	Cumulative Investment	Turn-over Time	Profits as IRR% of \$'s Invested	Profit Derived from Internal or External Factors
Raw Land Control (LC)	500%	small	5 yrs.	25%	external
LC + Change of Use Master Plan (MP)	600%		4 yrs.	45 %	internal
LC + MP + Political Approvals (PA)	1000%		3 yrs.	60%	
LC + MP + PA + Financial Packaging (FP)	1100%		2 1/2 yrs.	70 %	
LC + MP + PA + FP + Land Improvements (LI)	1125%		2 yrs.	75%	
LC + MP + PA + FP + LI + Building Improvements (BI)	1145%		1 yr.	78%	
LC + MP + PA + FP + LI + BI + Property Management	1150%		1 mon.	79%	

EXHIBIT 52

CASH BUDGET #1 ADJUSTED FOR LEVERAGE OF \$3,000,000 CREDIT LINE AT ADD-ON RATE OF 8 PERCENT

	(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)
	<u>Gross Outlay</u>	<u>Credit Line Applied</u>	<u>Net Equity Cash Outlay</u>		<u>Gross Receipts</u>	<u>Reduction on Loan</u>	<u>Default Ratio</u>	<u>Net Cash Receipt to Equity Before Tax</u>	<u>Net Equity Cash</u>
6/31/73	\$2,277,000	\$2,000,000	\$277,000	12/31/74	\$1,055,000	\$900,000	85%	\$155,000	(\$224,000)
6/31/74	602,000	500,000	102,000	12/31/75	938,000	900,000	96	38,000	(187,000)
6/31/75	301,000	300,000	1,000	12/31/76	1,891,000	900,000	48	991,000	712,000
6/31/76	292,000	200,000	92,000	12/31/78	880,000	600,000	68	280,000	2,266,000
	<u>\$3,472,000</u>	<u>\$3,000,000</u>	<u>\$472,000</u>		<u>\$6,938,000</u>	<u>\$4,200,000</u>	<u>61%</u>	<u>\$2,738,000</u>	

ENTER OUTLAYS

? 6,31,73,277000

? 6,31,74,102000

? 6,31,75,1000

? 6,31,76,92000

ENTER RECEIPTS

? 12,31,74,155000

? 12,31,75,38000

? 12,31,76,991000

? 12,31,77,1274000

? 12,31,78,2266000

PERIOD OF 5 YEARS, 6 MONTHS, 1 DAYS

FROM 6 30 73 TO 12 30 78

TOTAL OUTLAYS 472000

TOTAL RECEIPTS 2738000

INTERNAL RATE IS 71.6089

ENTER COST OF CAP RATE? .10

NET PRESENT VALUE AT 10.00% IS *1429955.016

ADJUSTED RATE IS 43.12%

Diagram B

EXHIBIT 54

CASH BUDGET #1 WITH A \$3,000,000 CREDIT LINE TESTED
BY A DELAY OF 1 YEAR FOR INITIAL CONSTRUCTION AND A 2 YEAR STRETCH-OUT OF SALES

	<u>Gross Outlay</u>	<u>Credit Line Applied</u>	<u>Net Equity Cash Outlay</u>		<u>Gross Receipts</u>	<u>Reduction on Loan</u>	<u>Default Ratio</u>	<u>Net Cash Receipt to Equity Before Tax</u>	<u>Net Equity Cash</u>
6/31/73	\$1,200,000	\$1,000,000	\$200,000 (320,000)*						
6/31/74	1,077,000	1,000,000	77,000 (185,000)*						
6/31/75	602,000	500,000	102,000 (162,000)*	12/31/75	\$1,055,000	\$900,000	85%	\$155,000	(\$224,000)
6/31/76	301,000	250,000	51,000 (81,000)*	12/31/76	938,000	900,000	96%	38,000	(\$237,000)
6/31/77	292,000	250,000	42,000 (71,000)*	12/31/77	1,891,000	900,000	48%	991,000	712,000
	<u>3,472,000</u>	<u>\$3,000,000</u>	<u>472,000</u>	12/31/78	1,100,000	900,000	82%	200,000	912,000
				12/31/79	1,074,000	600,000	56%	474,000	1,386,000
				12/31/80	880,000	-----	--	880,000	2,266,000
					<u>\$6,938,000</u>	<u>4,200,000</u>	<u>61%</u>	<u>\$2,738,000</u>	

* With 10 percent over-run in cost

EXHIBIT 55

CASH BUDGET #1 WITH A FULL YEAR DELAY IN CONSTRUCTION
AND AN ADDITIONAL ONE YEAR DELAY TO COMPLETE SALES

ENTER OUTLAYS

? 6,31,73,300000
? 6,31,74,77000
? 6,31,75,102000
? 6,31,76,51000
? 6,31,77,42000

ENTER RECEIPTS

? 12,31,75,155000
? 12,31,76,38000
? 12,31,77,991000
? 12,31,78,200000
? 12,31,79,474000
? 12,31,80,880000

PERIOD OF 7 YEARS, 6 MONTHS, 1 DAYS

FROM 6 30 73 TO 12 30 80

TOTAL OUTLAYS 472000

TOTAL RECEIPTS 2738000

INTERNAL RATE IS 50.3113

ENTER COST OF CAP RATE? .10

NET PRESENT VALUE AT 10.00% IS *1177502.641

ADJUSTED RATE IS 31.41%

EXHIBIT 56

CASH BUDGET #1 WITH A 10 PERCENT OVER-RUN FOR GROSS OUTLAYS
COVERED BY EQUITY FUNDS PLUS DELAYS IDENTIFIED IN EXHIBIT 54

ENTER OUTLAYS

? 6,2-31,73,320000
? 6,31,74,185000
? 6,31,75,162000
? 6,31,76,81000
? 6,31,77,71000

ENTER RECEIPTS

? 12,31,75,155000
? 12,31,76,38000
? 12,31,77,991000
? 12,31,78,200000
? 12,31,79,474000
? 12,31,80,880000

PERIOD OF 7 YEARS, 6 MONTHS , 1 DAYS

FROM 6 30 73 TO 12 30 80

TOTAL OUTLAYS 819000

TOTAL RECEIPTS 2738000

INTERNAL RATE IS 31.7604

ENTER COST OF CAP RATE? .10

NET PRESENT VALUE AT 10.00% IS *867387.219

ADJUSTED RATE IS 22.09%

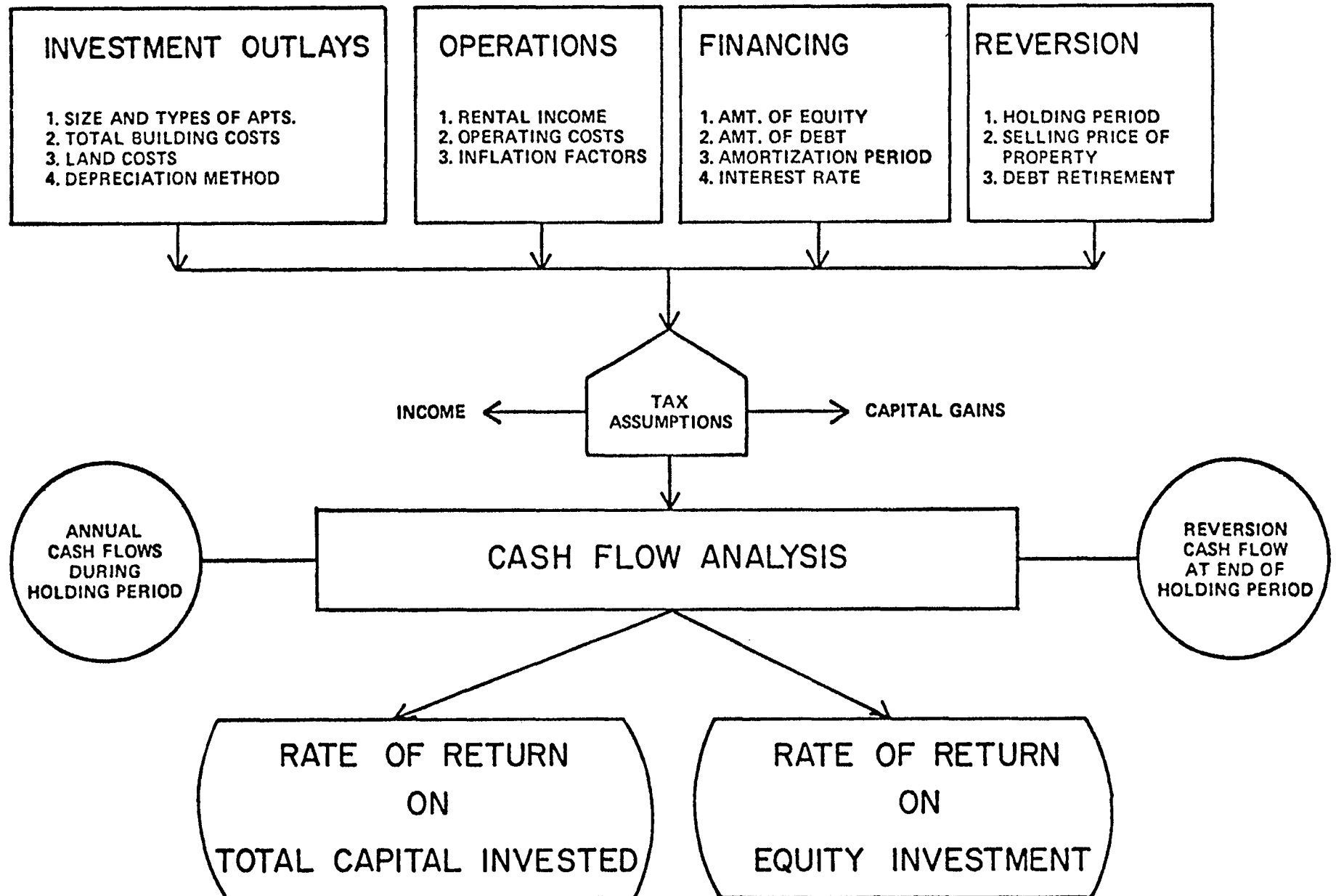


Figure 1. Project Analysis: Deterministic Rate of Return Model

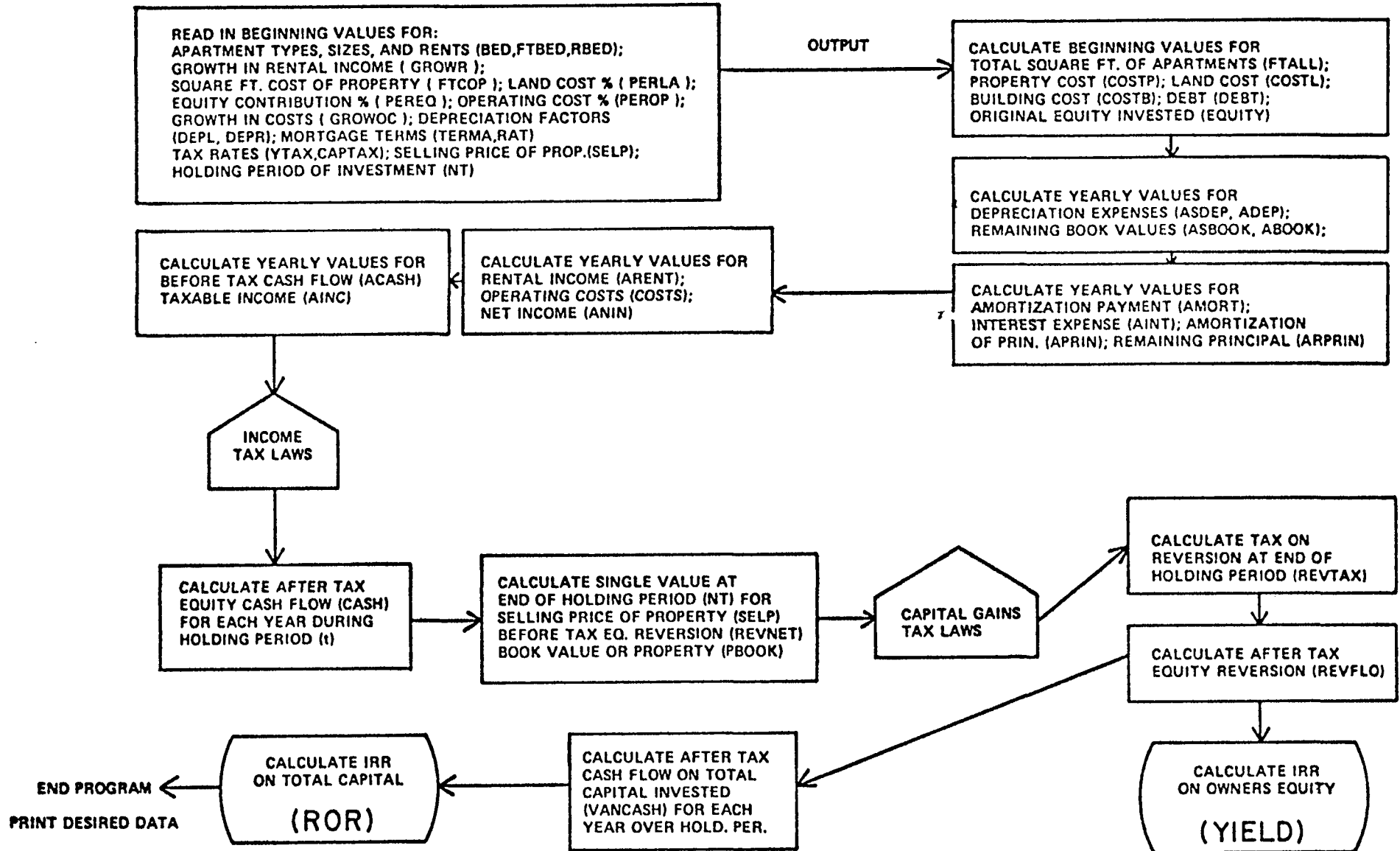


Figure 2. Flow Chart: Deterministic Rate of Return Model

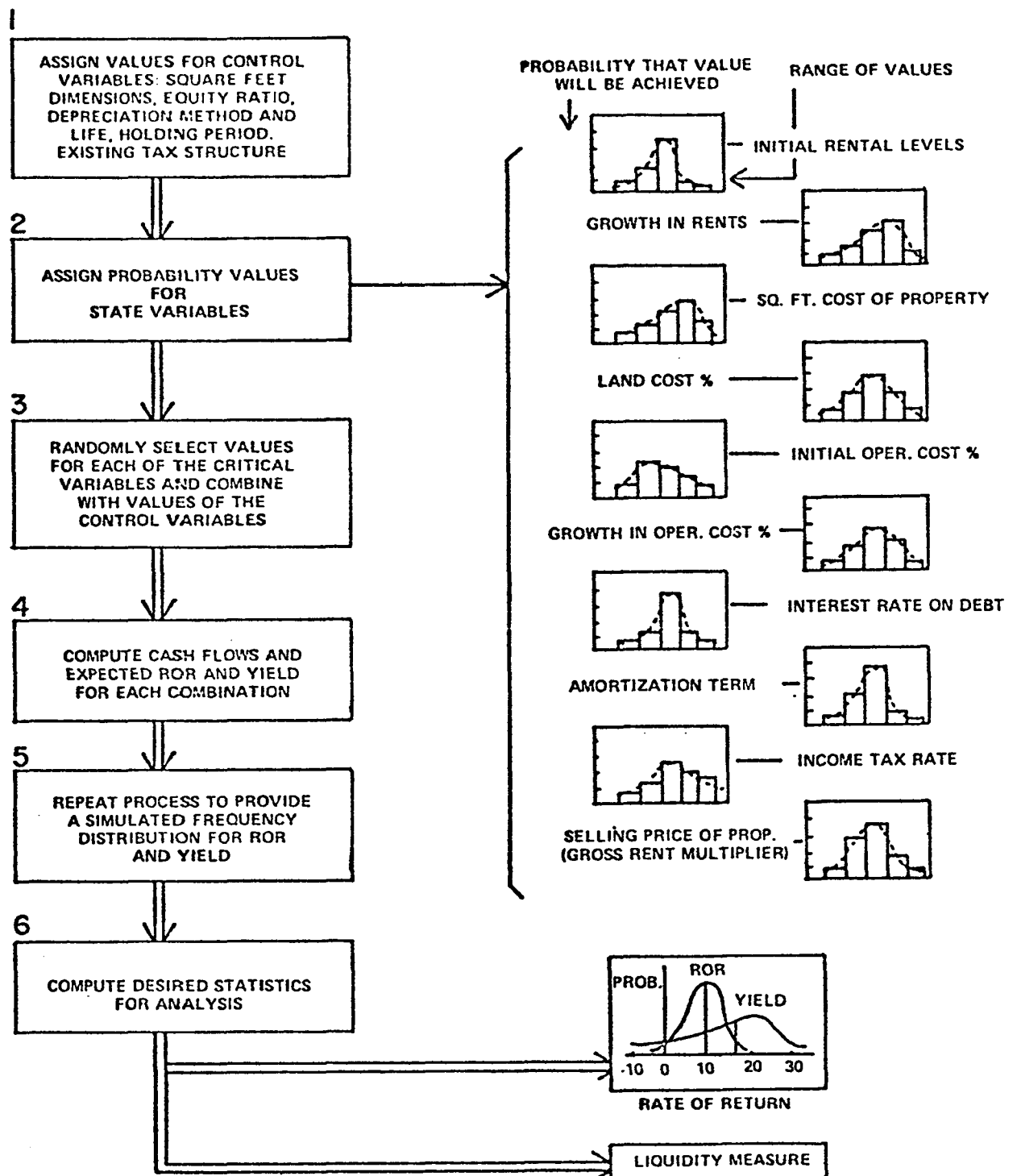


Figure 7. Project Analysis: Probabilistic Rate of Return Model

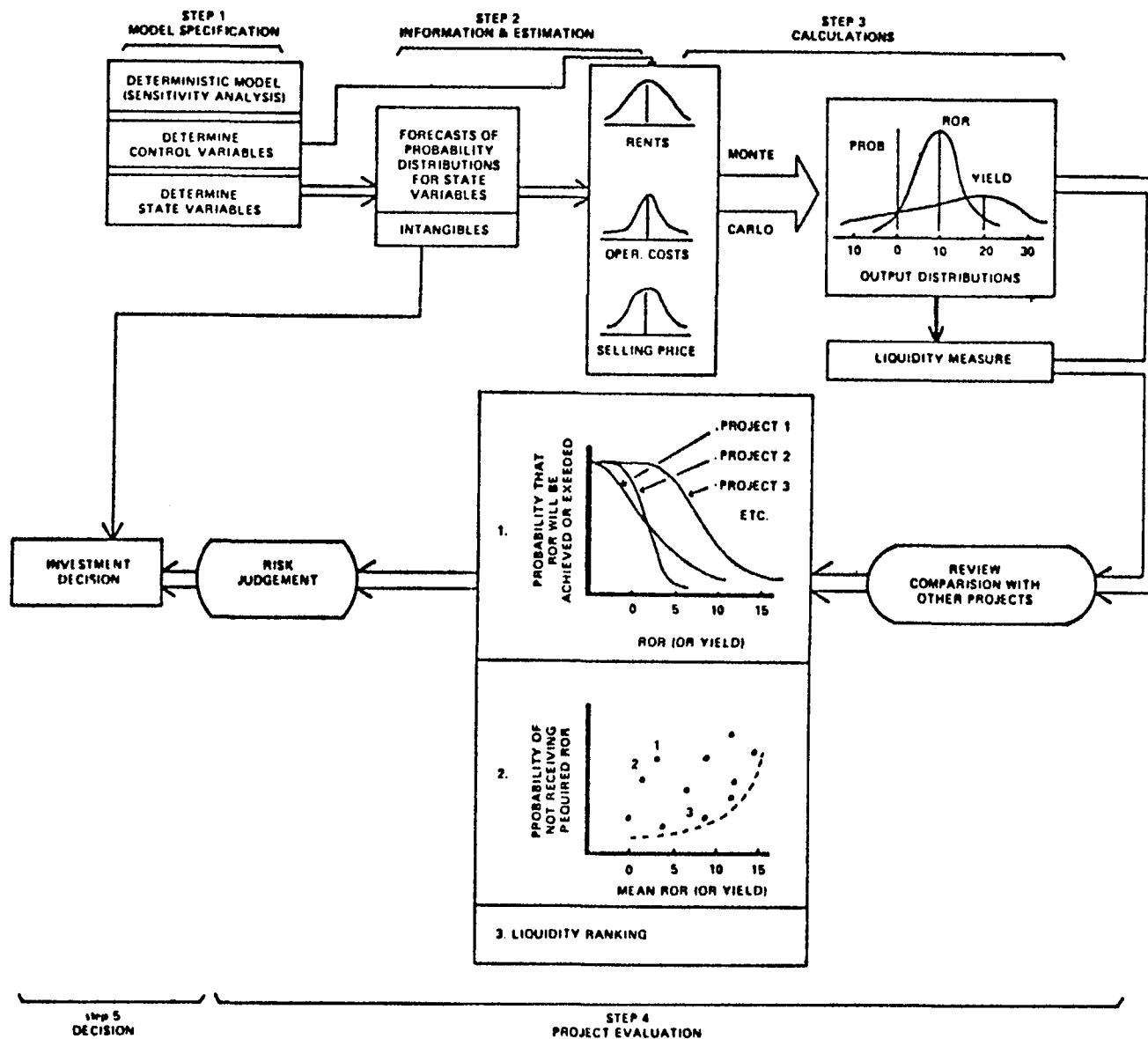


Figure 6. A Model of the Investment Decision Process

SECTION I

INPUT DATA

INPUT DATA SPECIFIED:

CONTROL VARIABLES - THESE VARIABLES ARE SPECIFIED AS SINGLE POINT ESTIMATES IN THE MODEL.

UNCERTAIN VARIABLES - THESE VARIABLES ARE SPECIFIED AS PROBABILITY DISTRIBUTIONS BY INPUTTING THE MINIMUM VALUE, THE MAXIMUM VALUE, THE NUMBER OF INTERVALS DESIRED, AND THE FREQUENCY DISTRIBUTION

		UNCERTAIN VARIABLES		PERCENT
	CONTROL			REQUESTED
	VARIABLES	RANGE		

1. TOTAL NUMBER OF UNITS.....	23.0000			
2. AVERAGE SQUARE FOOTAGE PER UNIT.....	1000.0000			
3. AVERAGE MONTHLY RENTAL PER UNIT.....		250.0000 TO 253.0000 --	5.00	
		253.0000 TO 256.0000 --	5.00	
		256.0000 TO 259.0000 --	15.00	
		259.0000 TO 262.0000 --	50.00	
		262.0000 TO 265.0000 --	25.00	
4. GROWTH RATE IN RENTAL INCOME OVER HOLDING PERIOD.....		.0001 TO .0101 --	10.00	
		.0101 TO .0201 --	15.00	
		.0201 TO .0300 --	50.00	
		.0300 TO .0400 --	15.00	
		.0400 TO .0500 --	10.00	
5. SQUARE FOOT COST OF PROPERTY.....		18.0000 TO 18.6000 --	10.00	
		18.6000 TO 19.2000 --	20.00	
		19.2000 TO 19.8000 --	40.00	
		19.8000 TO 20.4000 --	20.00	
		20.4000 TO 21.0000 --	10.00	
6. LAND COST AS A PER CENT OF TOTAL PROTERTY COST.....		.1000 TO .1100 --	5.00	
		.1100 TO .1200 --	20.00	
		.1200 TO .1300 --	40.00	
		.1300 TO .1400 --	25.00	
		.1400 TO .1500 --	10.00	
7. EQUITY CONTRIBUTION AS A PERCENT OF TOTAL PROPERTY COST.....		.1000 TO .1200 --	5.00	
		.1200 TO .1400 --	25.00	
		.1400 TO .1600 --	45.00	
		.1600 TO .1800 --	20.00	
		.1800 TO .2000 --	5.00	
8. OPERATING COST AS A PERCENT OF TOTAL RENTAL INCOME.....		.3800 TO .4000 --	1.00	
		.4000 TO .4200 --	24.00	
		.4200 TO .4400 --	50.00	
		.4400 TO .4600 --	24.00	
		.4600 TO .4800 --	1.00	
9. GROWTH RATE IN OPERATING COSTS.....		.0010 TO .0068 --	10.00	
		.0068 TO .0126 --	15.00	
		.0126 TO .0184 --	30.00	
		.0184 TO .0242 --	30.00	
		.0242 TO .0300 --	15.00	
10. DEPRECIABLE LIFE OF BUILDING.....	40.0000			
11. DEPRECIATION RATE (METHOD).....	1.0000			
12. AMORTIZATION TERM OF LOAN.....		18.0000 TO 19.0000 --	20.00	
		19.0000 TO 20.0000 --	20.00	
		20.0000 TO 21.0000 --	20.00	
		21.0000 TO 22.0000 --	20.00	
		22.0000 TO 23.0000 --	20.00	
13. INTEREST RATE OF LOAN.....		.0550 TO .0570 --	10.00	
		.0570 TO .0590 --	20.00	
		.0590 TO .0610 --	40.00	
		.0610 TO .0630 --	20.00	
		.0630 TO .0650 --	10.00	
14. INCOME TAX RATE.....	.5000			
15. CAPITAL GAINS TAX RATE.....	.2500			
16. GROSS RENT MULTIPLIER.....		5.0000 TO 5.6000 --	10.00	
		5.6000 TO 6.2000 --	10.00	
		6.2000 TO 6.8000 --	15.00	
		6.8000 TO 7.4000 --	50.00	
		7.4000 TO 8.0000 --	15.00	
17. HOLDING PERIOD OF THE INVESTMENT.....	10			
18. MINIMUM RATE OF RETURN REQUIRED ON OWNER S EQUITY.....	.1500			
19. MINIMUM RATE OF RETURN REQUIRED ON TOTAL CAPITAL.....	.0700			

INPUT DATA

1. TOTAL NUMBER OF UNITS..... 23.0000
 2. AVERAGE SQUARE FOOTAGE PER UNIT..... 1000.0000
 3. AVERAGE MONTHLY RENTAL PER UNIT..... 251.0177
 4. GROWTH RATE IN RENTAL INCOME OVER HOLDING PERIOD..... .0200
 5. SQUARE FOOT COST OF PROPERTY..... 20.7176
 6. LAND COST AS A PER CENT OF TOTAL PROTERTY COST..... .1089
 7. EQUITY CONTRIBUTION AS A PERCENT OF TOTAL PROPERTY COST. .1811
 8. OPERATING COST AS A PERCENT OF TOTAL RENTAL INCOME..... .4676
 9. GROWTH RATE IN OPERATING COSTS..... 0.0000
 10. DEPRECIABLE LIFE OF BUILDING..... 40.0000
 11. DEPRECIATION RATE (METHOD)..... 1.0000
 12. AMORTIZATION TERM OF LOAN..... 20.1938
 13. INTEREST RATE OF LOAN..... .0649
 14. INCOME TAX RATE..... .5000
 15. CAPITAL GAINS TAX RATE..... .2500
 16. GROSS RENT MULTIPLIER..... 6.5496
 17. HOLDING PERIOD OF THE INVESTMENT..... 10

OUTPUT DATA

1. TOTAL SQUARE FEET OF ALL APARTMENTS = 23000.00
 2. TOTAL PROPERTY COST = 476505.56
 3. LAND COST = 51891.65
 4. BUILDING COST = 424613.91
 5. DEBT BORROWED TO FINANCE PROPERTY = 390222.37
 6. ORIGINAL EQUITY INVESTED IN PROPERTY = 86283.19

7. DEPRECIATION EXPENSES OVER THE HOLDING PERIOD OF THE INVESTMENT AND REMAINING BOOK VALUE OF BUILDING AT END OF YEAR

YEAR	DEPRECIATION	REMAINING BOOK BALANCE
1	10615.35	413998.56
2	10615.35	403383.22
3	10615.35	392767.87
4	10615.35	382152.52
5	10615.35	371537.17
6	10615.35	360921.83
7	10615.35	350306.48
8	10615.35	339691.13
9	10615.35	329075.78
10	10615.35	318460.43

8. SCHEDULE OF ANNUAL AMORTIZATION PAYMENTS AND THE BREAKDOWN BETWEEN INTEREST AND PRINCIPAL

YEAR	AMORTIZATION PAYMENT	INTEREST EXPENSE	AMORTIZATION OF PRINCIPLE	REMAINING PRINCIPLE
1	35204.71	25307.65	9897.06	380325.31
2	35204.71	24665.78	10538.93	369786.38
3	35204.71	23982.29	11222.43	358563.95
4	35204.71	23254.46	11950.25	346613.70
5	35204.71	22479.44	12725.28	333888.42
6	35204.71	21654.15	13550.57	320337.86
7	35204.71	20775.33	14429.38	305908.47
8	35204.71	19839.52	15365.19	290543.28

9. SCHEDULE OF ANNUAL RENTS, CASH FLOWS, EXPENSES AND INCOME

YEAR	A TOTAL ANNUAL RENTAL INCOME	B ANNUAL OPERATING COSTS	C NET INCOME BEFORE TAX AND AMORTIZATION PAY	D INTEREST EXPENSE	E DEPRECIATION EXPENSE	F TAXABLE INCOME (C-D-E)	G EQUITY CASH FLOW BEFORE TAX	H AFTER TAX EQUITY CASH FLOW (G-TAX RATE * F)	I AFTER TAX CASH FLOW TO TOTAL CAPITAL
1	69280.89	32398.61	36882.28	25307.65	10615.35	959.28	1677.57	1197.93	23748.81
2	70666.08	33046.38	37619.70	24665.78	10615.35	2338.57	2414.99	1245.70	24117.52
3	72078.97	33707.11	38371.86	23982.29	10615.35	3774.23	3167.15	1280.04	24493.61
4	73520.11	34381.04	39139.06	23254.46	10615.35	5269.25	3934.35	1299.72	24877.21
5	74990.06	35068.45	39921.60	22479.44	10615.35	6826.82	4716.89	1303.48	25268.48
6	76484.40	35769.60	40719.79	21654.15	10615.35	8450.30	5515.08	1289.93	25667.57
7	78018.72	36484.78	41533.94	20775.33	10615.35	10143.26	6329.22	1257.59	26074.64
8	79578.61	37214.25	42364.36	19839.52	10615.35	11909.49	7159.65	1204.90	26489.85
9	81169.69	37958.31	43211.39	18843.02	10615.35	13753.02	8006.68	1130.17	26913.37
10	82742.59	38717.24	44075.35	17781.89	10615.35	15678.11	8870.64	1031.58	27345.35

10. CALCULATION OF AFTER TAX EQUITY REVERSION

SQUARE FOOT COST OF THE PROPERTY

20.7176	18.9444	19.5528	19.1047	18.3816	20.2273	19.1547	20.7957	18.6358	20.1452
19.6872	18.8974	18.3550	18.2886	18.6981	20.2570	19.0795	18.7152	20.1231	19.4651
20.4470	18.1686	19.1273	20.1897	19.9047	19.3032	18.0325	18.2576	19.3792	19.8375
18.6466	20.4622	18.1742	18.7935	18.4398	20.8034	20.0002	19.7448	19.9272	20.4924
18.3431	20.7007	18.4620	19.9458	19.0019	19.5641	20.5436	20.7437	19.7383	20.8594
19.2745	19.5919	19.9803	19.7884	18.6543	20.2994	18.9912	19.0694	19.0541	19.1652
19.0121	18.6663	19.7044	19.3158	20.0154	19.5058	18.6043	20.2637	19.2697	19.7643
20.2063	19.2587	20.2083	19.9201	19.7693	19.5491	19.4849	19.3940	20.3906	20.4645
19.9150	20.1970	19.7270	19.4056	19.7499	19.7049	19.5074	19.6491	19.5588	19.1045
19.2198	19.4129	19.2518	19.6507	19.6472	19.5772	19.2097	19.2438	19.4866	19.4262

MEAN..... 19.50542

STANDARD DEVIATION..... .68048

RANGE..... 2.82692

DISTRIBUTION OF VALUES USED

RANGE		SIMULATED PERCENT	PERCENT REQUESTED
18.0000 TO	18.6000	10.00	10.00
18.6000 TO	19.2000	21.00	20.00
19.2000 TO	19.8000	38.00	40.00
19.8000 TO	20.4000	20.00	20.00
20.4000 TO	21.0000	11.00	10.00

SECTION IV SIMULATION RESULTS

MEANS, STANDARD DEVIATIONS AND RANGES OF OUTPUT VARIABLES FOR 10 YEARS

	YEAR 1	2	3	4	5	6	7	8	9	10
ARENT										
MEAN	71185.36	73554.73	75376.92	77253.67	79186.80	81178.17	83229.71	85343.43	87521.40	89765.77
ST DEV	890.90	1170.77	1839.41	2652.93	3544.52	4496.03	5502.03	6561.28	7674.31	8842.50
RANGE	4073.14	5975.75	9512.29	13222.96	17116.11	21200.48	25485.21	29979.89	34694.56	39639.77
LOW	69063.53	70253.82	70362.51	70471.37	70580.40	70689.60	70798.96	70908.50	71018.20	71128.07
HIGH	73136.67	76229.57	79874.80	83694.33	87696.51	91890.07	96284.17	100888.38	105712.76	110767.85
COSTS										
MEAN	30818.64	31576.31	32356.56	33160.11	33987.75	34840.27	35718.48	36623.25	37555.46	38516.02
ST DEV	1317.73	1342.44	1456.97	1653.74	1918.08	2236.15	2597.87	2996.67	3428.58	3891.30
RANGE	7065.33	7569.10	8240.80	8947.00	9689.21	11018.97	12441.58	14122.12	16100.90	18178.48
LOW	26331.71	26951.87	27586.63	28236.34	28901.35	29032.08	29125.22	29218.65	29312.39	29406.43
HIGH	33397.04	34520.97	35827.43	37183.34	38590.57	40051.05	41566.80	43340.77	45413.29	47584.91
ANIN										
MEAN	40966.72	41978.41	43020.36	44093.56	45199.05	46337.90	47511.23	48720.18	49965.94	51249.76
ST DEV	1241.75	1398.26	1690.98	2079.56	2535.36	3042.35	3592.14	4180.51	4805.47	5466.34
RANGE	6896.70	7417.17	8575.59	9945.23	11735.92	13901.26	16172.18	18553.52	21050.33	23667.90
LOW	36882.28	37619.70	38371.86	39139.06	39582.47	39752.92	39924.11	40096.03	40268.69	40442.09
HIGH	43178.98	45036.87	46947.45	49084.29	51318.40	53654.18	56096.29	58649.55	61319.02	64109.99
ACASH										
MEAN	8120.03	9131.72	10173.67	11246.87	12352.36	13491.21	14664.54	15873.49	17119.25	18403.06
ST DEV	2488.94	2521.29	2646.61	2864.85	3169.05	3549.22	3995.64	4500.33	5057.44	5662.95
RANGE	12898.35	14006.92	15180.61	16422.59	17736.16	19124.77	20592.04	22872.94	25293.66	27821.71
LOW	1677.57	2414.99	3167.15	3934.35	4716.89	5515.08	6329.22	6428.45	6490.83	6553.32
HIGH	14575.91	16421.90	18347.76	20356.94	22453.05	24639.85	26921.27	29301.39	31784.49	34375.02
AINC										
MEAN	8328.66	9939.90	11617.38	13364.25	15183.84	17079.66	19055.39	21114.92	23262.33	25501.93
ST DEV	2047.23	2062.55	2195.33	2441.53	2785.88	3211.09	3703.10	4252.03	4851.54	5497.80
RANGE	12722.05	13664.89	14658.20	15703.99	16804.29	17961.20	19176.88	20453.54	21793.44	23359.10
LOW	459.28	2338.57	3774.23	5269.25	6826.82	8450.30	10143.26	11909.49	13753.02	15517.90
HIGH	13681.33	16003.46	18432.43	20973.24	23631.11	26411.50	29320.14	32363.03	35546.46	38877.00
CASH										
MEAN	3955.70	4161.77	4364.98	4564.75	4760.44	4951.38	5136.84	5316.03	5488.09	5652.10
ST DEV	1673.70	1721.18	1803.93	1922.12	2074.60	2259.41	2474.36	2717.40	2986.82	3281.33
RANGE	7243.34	7663.17	8545.60	9477.43	10461.13	11499.31	12717.28	14034.65	15413.63	16857.08
LOW	635.62	757.00	585.94	392.89	176.37	-65.21	-456.08	-914.78	-1402.37	-1920.56
HIGH	7878.96	8420.17	9131.54	9870.32	10637.50	11434.10	12261.20	13119.87	14011.26	14936.52
VCASH										
MEAN	25382.23	25888.08	26409.05	26945.65	27498.39	28067.82	28654.48	29258.96	29881.84	30523.75
ST DEV	614.89	700.92	852.90	1050.70	1280.72	1535.50	1811.18	2105.84	2418.58	2749.14
RANGE	3079.87	3608.29	4254.12	5143.09	6218.96	7351.63	8539.14	9784.62	11088.16	12452.41
LOW	23748.81	24117.52	24493.61	24673.06	24714.23	24749.46	24783.01	24814.15	24845.35	24876.59
HIGH	26828.69	27725.82	28747.73	29816.15	30933.20	32101.09	33322.14	34598.77	35933.51	37329.00
COV										
MEAN	1.25	1.28	1.31	1.34	1.37	1.41	1.44	1.48	1.52	1.56
ST DEV	.05	.06	.07	.08	.09	.11	.13	.14	.16	.18
RANGE	.47	.52	.56	.61	.67	.72	.78	.84	.91	1.00
LOW	1.05	1.07	1.09	1.11	1.13	1.16	1.18	1.20	1.22	1.23
HIGH	1.52	1.58	1.65	1.72	1.80	1.88	1.96	2.04	2.13	2.22

SUMMARY STATISTICS OVER 10 YEARS

ARENT
 MEAN 80419.60
 ST DEV 4317.47
 RANGE 41704.32
 LOW 69063.53
 HIGH 110767.85

COSTS
 MEAN 34515.28
 ST DEV 2283.95
 RANGE 21253.19
 LOW 26331.71
 HIGH 47584.91

ANIN
 MEAN 45904.31
 ST DEV 3003.27
 RANGE 27227.71
 LOW 36882.28
 HIGH 64109.99

ACASH
 MEAN 13057.62
 ST DEV 3645.63
 RANGE 32697.46
 LOW 1677.57
 HIGH 34375.02

AINC
 MEAN 16444.83
 ST DEV 3304.81
 RANGE 37917.72
 LOW 959.28
 HIGH 38877.00

CASH
 MEAN 4835.21
 ST DEV 2291.48
 RANGE 16857.08
 LOW -1920.56
 HIGH 14936.52

VCASH
 MEAN 27851.02
 ST DEV 1512.04
 RANGE 13580.18
 LOW 23748.81
 HIGH 37329.00

COV
 MEAN 1.40
 ST DEV .11
 RANGE 1.18
 LOW 1.05
 HIGH 2.22

Note These Definitions: (Simulation Results)

ARENT = Total Annual Rental Income

COSTS = Annual Operating Cost

ANIN = Net Income Before Tax and Amortization

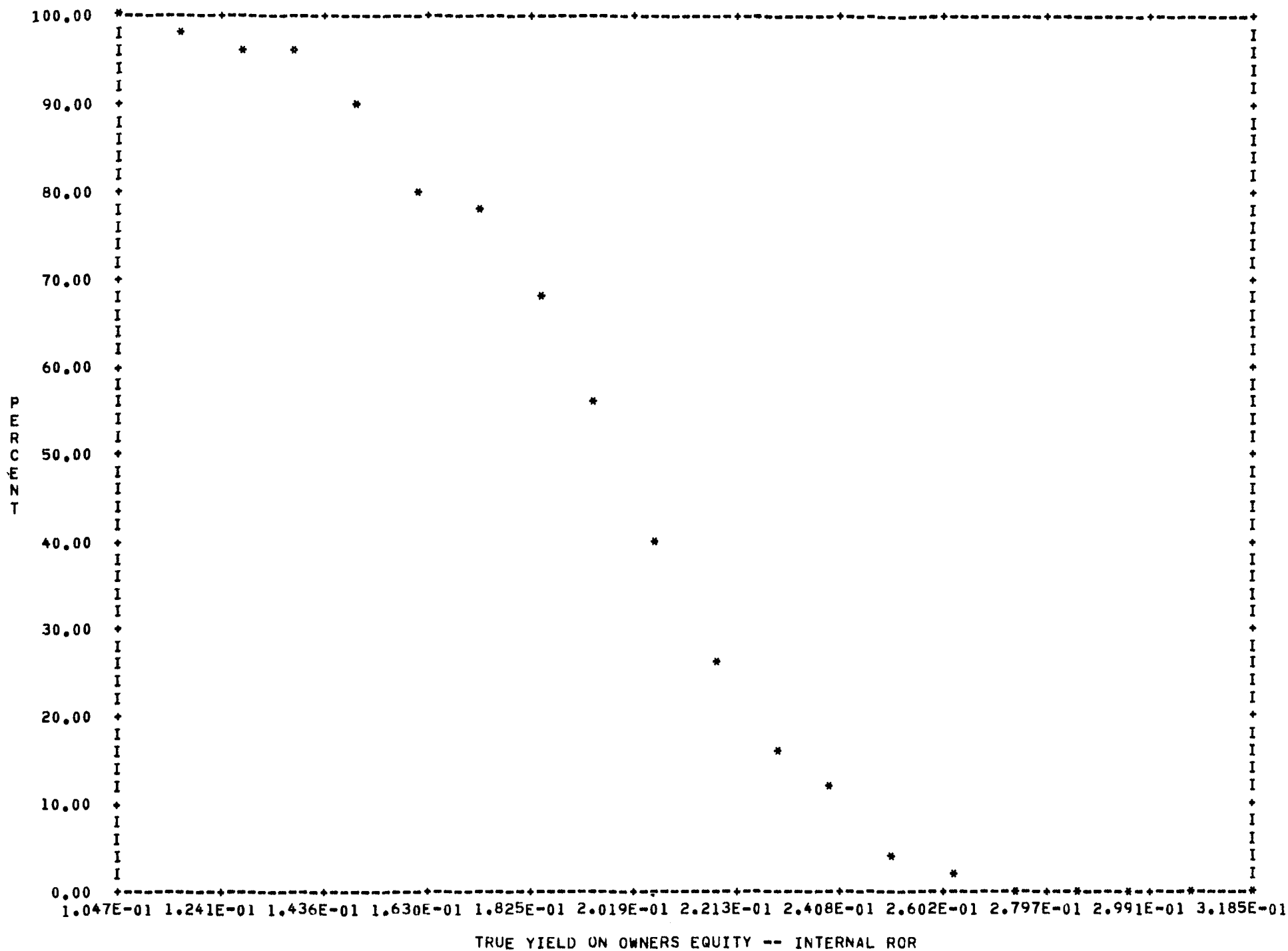
ACASH = Equity Cash Flow Before Tax

AINC = Taxable Income

CASH = After Tax Equity Cash Flow

VCASH = After Tax Cash Flow to Total Capital (= after tax equity cost flow,
 assuming 100% equity)

COV = Coverage Ratio



PROBABILITY OF ROR BEING LESS THAN .150 IS 10.000 PERCENT

REAL ESTATE APPRAISAL LEGAL FUTURE SHOCK
Princess Kaiulani Hotel
Thursday Morning Session
June 14, 1973

- I. While the computer in data processing in matters of real estate are generally thought to be appropriate only to quantitative analysis such as cash flow studies and supply and demand analysis, EDP is also very useful in the legal elements of real estate. This morning I will pose the implications of the data explosion as it affects the law and economics of real estate. This afternoon Bob Knitter will explore the computer as an instrument of the law.
 - A. A key assumption of appraisal doctrine and real estate literature is the concept of highest and best use.
 - B. The highest and best use of a site is that reasonable and probable use which is most likely to produce the highest present worth, or will support the highest present value, at the site - as of the date of the appraisal. This use is usually associated with the highest net return or net benefits to the owner over a stipulated period of time. In estimating highest and best use, the appraiser goes through essentially four stages of analysis, as indicated in earlier sessions:
 1. Possible Use. To what uses is it physically possible to put the site in question?
 2. Permissible Use (Legal). What uses are permitted by zoning and deed restrictions on the site in question?
 3. Feasible Use. Which possible and permissible uses will produce any net return to the owner of the site?
 4. Highest and Best Use. Among the feasible uses, which use will produce the highest net return or the highest present worth?
 - C. Despite the language the appraiser is actually talking about the most profitable use of the private interest which is quite a different thing than "best use" in terms of the public interest in the total mosaic of land uses which results. Indeed the appraiser should purge his materials of the arrogant presumption that he is the judge of "highest and best use."
 - D. The origins of the concept are a good example of the implications of the future shock caused by our accelerating evolution of society and its implications for the premises by which we make decisions.
 1. Medieval cities and villages of the Polynesian cultures maintain a very long term similarity in pattern and appearance.
 2. This continuity is a result of a static population count, a relatively static technology, and a cultural consensus as to how things ought to be.

- E. The industrial revolution and the migration to the new world meant that none of these controls were operative as the population soared, as technology made incomprehensible changes, and a mobile population and democratic government made any lasting cultural consensus difficult to achieve.
 - F. As a result the primary criteria was that those who could pay the most had first right to use the property or in later years, to bully the zoning administrators.
 - G. The legal institutions the case law, and administrative law of the land represent the closest thing we have to a consensus and the ability of the law to provide the evidence necessary for enforcement and reform determines the extent to which the consensus can be reimposed on a real estate industry conditioned by the earlier era of economic laissez faire.
 - H. Real estate involves a complex interfacing between land as a resource, money as a commercial commodity, and people whose activities are housed by the real estate. Commercial law about money evolved first where we now have a reasonable consensus. Currently we are attempting to reimpose a social consensus on the use of land as a finite natural resource. Consumer law is emerging to control the abuse of people affected by real estate who become more and more interdependent on system safeguards rather than individual responsibility.
- II. There are three parties to a land use decision, the producer or developer, the consumer, and the collective public interest. The planner is simply an arbitrator between these vested interests.
- A. The interest in lands can be subdivided between public claims and prerogatives, private claims and prerogatives, and a large area of undefined common claims and prerogatives.
 - B. The public reserves first claim on productivity via the real estate tax, veto power on the prerogatives of use via police powers, and the right to reacquire whatever private interest there may be through eminent domain.
 - C. Electronic data processing provides better means of measuring productivity and thus collecting the tax, it provides low cost means of enforcement of sophisticated police powers, and finally it provides a means for identifying and administering the private rights themselves.
 - D. Much what of passes for private rights is actually common property and the difference is the legal ability to defend or provide evidence of control or establish cause and effect.
 - 1. The earliest building codes related building technique to the tendency of cities to burn down, thus requiring certain types of construction, wide street for fire breaks and so on.

2. Today there is more understanding of real estate as a terrarium which affects health, behavior and the rate of exhaustion of finite resources.
 3. Combined with aerial photography EDP can identify the farmers field too rich in fertilizer, the source of a certain pollutant in the river or siltation in a lake, or the geology or micro climates of specific tract of land. Suddenly the public has the data sources necessary to extend police powers to the consequences of land use beyond the borders of a specific site. With this extension much of the undefinable which the public thinks are private rights but which were common rights becomes public right with the public able to defend and control its interest.
- E. Such an innovation vastly reduces the concept of equity. Indeed the only operational definition of equity may be the degree to which the "owner" can "divert" or avoid expenditures related to a specific piece of ground.
- F. Now the strategy of real estate development is changing as a result of these trends. A real estate enterprise has more expenditures than it does net income and yet the expenditures for the enterprise are revenues to those who provide the necessary services, supplies, or even the construction itself. Mortgage banking companies do industrial parks to capture industrial mortgages and lease-backs and lumber companies own land development companies and home builders who need their lumber.
1. In this environment, how do you define or measure net benefits or returns to the owner without identifying the most probable owner or buyer?
 2. How do you define most feasible use in terms of net income in the classic sense?
 3. Given environmental regulations which lie beyond basic zoning, how does the appraiser identify the uses physically possible.
- G. The appraiser traditionally has avoided other areas of expertise such as title, survey, engineering, or whatever, by statements of limiting conditions. Still, it is the appraisers function to measure the economic significance of a site with certain attributes in the marketplace. If he adds any more limiting conditions, of what value is his product? We submit that the appraiser will become the economic interpreter of data from a team of professionals or he will become extinct or remain in the mechanical function of property inspector.
- H. There are two forces leading to one or the other result. The ability of the professional society to assimilate accelerating technology can elevate the profession to a commanding position as the economic interpreter of the facts and data supplied by others. The counterforce leading to demotion to property inspector lies in the area of professional liability for malpractice.

1. The rate of assimilation of technology is dropping drastically. The first typewriter was patented in 1714 but 150 years elapsed before typewriters became available. It took a century to introduce the technique of canning food. For electrical appliances introduced before 1920 it took 34 years to reach peak production but the span was only 8 years for the television set and 3 years for the solid state pocket calculator.
 2. New machines not only compel change of other machines, they suggest novel solutions to social, philosophical, commercial or personal problems by altering the way a man thinks and the speed with which he can look at the work.
 3. There was a time when a doctor used penicillin at risk of committing malpractice; today his failure to use the proper antibiotic may well be grounds for malpractice.
- III. As society reimposes control on land as a public utility, on fractional real estate ownership as a security, and real estate hardware and services as a consumer product, there will be increasing reliance on appraisal as a device to provide for full disclosure of facts about the property as well as the measurement of damages. The role of the appraiser, therefore, begins to parallel some of the functions of accounting.
- A. The principal function of an independent auditor in our capitalist, free enterprise society is the examining and reporting on financial statements, attesting as to their fairness, and presenting financial positions and results of operations. Accounting firms do many other things, but . . . the principal reason for the auditor's existence . . . where securities are bought and sold and large loans are made to corporations is the attest function (quoted from Wyman G. Patten, "The Audit," Accountants' Liability, ed. by Jim McCord and published by the Practicing Law Institute, 1969). Many of the following comments reflect a seminar conducted by P.L.I.
 - B. An auditor does not bear prime responsibility for financial statements as management is in control, activates transactions, and is charged with safeguarding enterprise assets. The accountant's knowledge is limited to what he learns from examination for which he must exercise skill and due care in making his audit and in providing a written report. Since the auditor may be doing a sampling procedure, he is not responsible for sweeping up every fraud and irregularity, but his sampling method should detect some systematic mismanagement scheme.
 - C. For the accountant to be liable, he must have failed to meet some standard of performance, but that is negligence and not criminal wrongdoing.
 - D. There is a famous statement from Cooley on Torts, "Every man who offers his service to another and is employed, assumes the duty to exercise in the employment such skill as he possesses with reasonable care and diligence. In all these employments where a

peculiar skill is prerequisite, if one offers his service, he is understood as holding himself out to the public as possessing the degree of skill commonly possessed by others in the same employment. And if his pretensions are unfounded, he commits a species of fraud upon every man who employs him in reliance on his public profession. But no man, whether skilled or unskilled, undertakes that the task he assumes shall be performed successfully and without fault or error. He undertakes for good faith and integrity, but not for infallibility and he is liable to his employer for negligence, bad faith or dishonesty, but not for losses consequent upon pure errors of judgment." (There is also the possibility of liability to third parties, but in accounting liability is generally only to a specific party who had the audit performed for a specific purpose.)

- E. It should be kept in mind that negligence is conduct which does not measure up to a standard and it is not a state of mind. It may be wholly inadvertent conduct and moral fault is irrelevant. Sometimes non-lawyers misunderstand this and I think accountants have, to some extent, misunderstood the charge of negligence as involving deliberate wrongdoing. But that is not really involved in the charge of legal negligence. As a society becomes more economically complex, more sophisticated, legal protection will be needed and demanded against risks of economic harm. The legal response will be to evolve higher standards of care to which professional conduct must conform. A higher and higher standard of care evolves as the needs of society demand a more rigorous protection against risks of harm. This will happen in the area of the mechanical aspects of the audit, and it will require (and I understand that the accounting profession has consistently done this) that the profession raise its own sights higher and develop more sophisticated investigative techniques to deal with more complicated situations (quoted from Wyman G. Patten, op. cit.).
- F. Turning next to auditors' liability to third parties, the general proposition is easily stated--where there is common law deceit or its equivalent, gross negligence or recklessness, liability extends to those whose reliance may be foreseen. Where there is deliberate falsity or a reckless opinion by an expert who knows he has no basis for it or a grievous blunder which the law calls gross negligence, this invites proximate cause rule which results in very broad liability and that is what had been done by the courts.

Specifically, where auditors are concerned, if there is direct participation in fraud, aiding and abetting, recklessness or gross negligence, anyone whose reliance upon the false statement is foreseeable may recover despite the absence of privity and despite the absence of any involvement by the auditor in a commercial transaction with that person.

- G. To the relief of accountants and perhaps appraisers, there was a case in 1931 (Ultramares) in which the court expressed concern over the enormous potential liability which could come from a rule imposing liability for mere negligence to third parties whose reliance might simply be reasonably foreseeable. Since

a broad rule might destroy the accounting profession, there was no social utility in a rule which would destroy the profession to compensate the injured. So the court held that for liability to be imposed in favor of third persons, the transaction which the plaintiff claims harmed him must be the end and aim of the audit, and only then would negligence in that audit be a breach of any legal duty to the plaintiff. More recently, courts have stated the vulnerability of accounting to destruction in 1931 has no meaning today. If it is true, the accounting profession has matured economically, protection of society (consumers and investors) would be enhanced by a broad rule of liability which would stimulate the profession to develop improved and better techniques.

- H. In section 552 of the recent new edition of Restatement of Torts Second there is a new formula for negligence of any profession, which goes as follows: "One who in the course of his profession supplies negligently false information for the guidance of others is liable to persons for whose benefit and guidance he intends to supply the information, or to persons to whom he knows the recipient intends to supply the information. Liability is imposed if there is reliance on the false representations in a transaction which the auditor intends the information to influence; that is, a specific transaction wherein his intention is that the information will have an influence or one in which he knows that the recipient, the client company, so intends."
- I. How does this all apply to the appraiser? He could make a good argument based on reputation and the general level of performance that he is not a profession; he is a property inspector who performs certain computations on the basis of his observations. If on the other hand, he is a profession, then his position is analogous to that of the CPA, when as an appraiser:
 1. He attests as to the value of property for a security issue (particularly when his certified appraisal conclusion is printed prominently in a prospectus);
 2. He attests to value as the basis for a large corporation making a mortgage loan;
 3. He attests to value of a home to be purchased by a low income, unsophisticated buyer aided under some preferential mortgage loan program or another.
- J. In a period of increasing accessibility to information and dissemination of more sophisticated techniques of analysis, professional standards must be rising relative to methods for determining value. Indeed, the detail on points that need to be covered in valuation may suggest an automatic file and checklist system for formatting appraisal reports much like that suggested for divorce and bankruptcy proceedings in the system to be demonstrated by Bob Knitter. Such a system could:
 1. Create the file of information required.
 2. Remind the analyst of missing information.

3. Structure an interview with the client or field man.
4. Assimilate data from master files.
5. Produce both a typed report and a master tape from which copies could be reproduced as necessary.