THE INSTITUTIONAL MARKET FOR REAL ESTATE ANALYSIS REPORTS

by Herman Kelting, and Don Emerson, Jr.

More and more often real estate professionals are being asked for specialized analysis services, such as appraisals, market studies, financial analyses and environmental impact statements. It is particularly important for the firms that provide these types of services to know more about the institutional market for them.

A survey was conducted of 200 randomly selected savings and loan associations, 180 randomly selected, medium-sized life insurance companies and the twenty largest life insurance companies. The research activity was coordinated by the Real Estate Research Center of the University of Florida.

Who Uses Real Estate Analysis Reports?

An important measure of the demand for analysis reports is the proportion of firms in each of the industries that provide reports internally and/or request reports from others (Figure 1). The results of the study indicated that savings and loan associations are more frequent users of these reports than life insurance companies. Ninety-nine percent of savings associations provide and/or request reports while only seventy-eight percent of life insurance companies provide and/or request analysis reports. This may be explained by the investment portfolio of the firms in the two industries. Savings and loans are required by law to invest a substantial portion of their assets in real estate mortgages, while life insurance companies have more freedom to select alternative investment media such as stocks and bonds. For example, at the end of 1975, savings and loan associations had eighty-two percent of their assets in real estate mortgages, while life insurance companies had only thirty-two percent of their assets in real estate mortgages[1]. Life insurance companies' real estate equity investment totals about ten percent of their mortgage investments,[2] for a total real estate investment of about thirty-five percent of total assets.

Savings and loan associations are also more likely to request services from outside suppliers of such services. Eighty-six percent of savings and loan respondents requested reports from outside suppliers, while only sixty-one percent of insurance companies made such requests. While most savings and loans have employees performing appraisal services for single family home loans, many request outside services when funds are available and loan demand is high. Also, development loans and other large loans may require special nonappraisal analysis reports which may be performed by outside real estate analysts.

Number of Reports in Relation to Assets

An important study objective was to find a publicly available industry statistic that would permit evaluation of the demand for real estate analysis reports by firms in the two industries studied. This would allow forecasting demand for analysis reports within the context of the perceived need for such reports and the present regulatory environment. Such a forecast would be sensitive to the size of firm and to the principal types of reports utilized. (See Figure 2.)

Three functional relationships were tested and evaluated as predictive tools for the demand for analysis reports. These included:

- The relationship between total assets (publicly available) and the number of analysis reports

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FIGURE 1

Number and Percentage of Firms Providing and Requesting at Least One Analysis Report Per Year (Including Appraisals): Life Insurance Companies and Savings and Loan Associations

Firms that	Life Insurance Number of Firms		Savings and Loan Number of Firms	
provide *and* request analysis reports	28	(42%) *.01	46	(71%) *.01
only request analysis reports	13	(19%)	10	(15%)
only provide analysis reports	11	(16%)	8	(12%)
neither provide nor request analysis reports	15	(23%) *.01	1	(2%) *.01
Total firms in sample	67	(100%)	65	(100%)
total firms that provide and/or request analysis reports (lines 1 + 2 + 3)	52	(78%) *.01	64	(99%) *.01
total firms that provide analysis services, thus employing in-house real estate analysts (lines 1 + 3)	39	(58%) *.01	54	(83%) *.01
total firms that request services from outside analysts (lines 1 + 2)	41	(61%) *.01	56	(86%) *.01

* The Chi-square (X^2) test of association indicated a statistically significant association between the services indicated (rows) and the two industries (columns) at the level of significance shown. Thus, 42% of life insurance companies both provide and request analysis reports while 71% of savings and loans provide and request analysis reports. The X^2 test indicated an association between the percentages of firms providing and requesting reports and the industry membership (i.e., there is a statistically significant difference in the percentages — 42% of life companies versus 71% of savings and loans — of respondents providing and/or requesting services at the 0.01 level of significance).

The Chi-square test was also performed to test for an association between the two industries for the system of mutually exclusive provide/request activities described by lines 1 to 4 (i.e., a 4 × 2 matrix). The test indicated a statistically significant difference between industries for the activity pattern at the 0.01 level of significance.

utilized, *i.e.*, provided internally and requested from outside suppliers

- The relationship between total loans made (not publicly available) and the number of analysis reports utilized
- The relationship between total assets and individual *types* of reports provided and requested (separately and combined)

The savings and loan industry is characterized by a very strong linear relationship between asset size and total analysis reports utilized, *i.e.*, provided and requested. For example, eighty-six percent of the variability in total analysis reports is explained by asset size. In addition, for each $1,000,000 increase in asset size, the mean number of analysis reports utilized per year increases by 7.09 reports. The small standard error associated with the regression coefficient (0.36) indicates a highly significant positive relationship. The number of loans has even more explanatory power than total assets in predicting the demand for total analysis reports — ninety-three percent of the variation in total analysis reports is explained by total loans made — but unfortunately, the total number of loans made is not publicly available and therefore is not useful for predicting aggregate demand for analysis reports by firms in either industry.

The mean number of total analysis reports utilized by the sample of sixty-four data-reporting savings and loans was 2,132 for firms having a mean asset size of $317 million (not shown). The coefficient of variation, measuring the standardized dispersion of observations about the regression line, is large at seventy percent, indicating variability in the dependent variable.

These results are consistent with *a priori* beliefs of the policies of savings and loan associations. They invest large portions of their funds in real estate, and each investment in a mortgage requires a supporting appraisal or other type real estate analysis report.

Research results from the life insurance company sample failed to exhibit the highly consistent pattern of behavior between analysis reports, total loans made and total assets that was typical of savings and loan associations. Large life insurance companies with assets greater than $3 billion showed a better pattern of behavior than medium-sized insurance companies with assets less than $3 billion, although medium-sized companies have a less regular relationship between asset size and loans made.

The relationship for large life insurance companies between number of loans and total assets is strong. The percentage of explained variation in number of loans by total assets is $r^2 = 0.93$. This relationship compares very favorably with savings and loan associations ($r^2 = 0.94$). Moreover, the regression coefficient and standard error for total assets (β = .0545, std. error = 0.0057) demonstrate a strong linear relationship for large life insurance companies.

The relationship between total analysis reports used by large life companies and total loans made is more erratic; r^2 drops to 0.72 and the estimate of the regression coefficient, 1.44, has a relatively large standard error of 0.33. The standard error for savings and loan associations is 0.04 for a regression coefficient of 1.20. The implication is that large life insurance companies exhibit more erratic behavior than savings and loan associations in their utilization of real estate analysis reports. Nonetheless, there is a somewhat greater chance that large life insurance companies use less than one report (per loan made) than savings and loan associations because of the relatively large standard error of the regression coefficient.

Finally, for large life insurance companies, total assets explained only fifty-nine percent of the variation in total analysis reports used compared to r^2 = eighty-six percent for savings and loan associations.

For each one million dollars in assets of large life insurance companies, 0.073 analysis reports are utilized (compared to 7.09 reports for savings and loans). This means that an average of one analysis report is required for each fourteen million dollars in assets. The large difference between the number of reports per million dollars in assets for large life companies versus savings and loans may be explained by the large number of single family home loans made by savings and loans versus the relatively few large commercial loans made by insurance companies.

An analysis of the entire sample of medium sized life insurance companies yielded no statistically significant linear relationship between total analysis reports and total assets, the only publicly available statistic used in the study. As a result, the sample was restricted to those firms spending fifty percent or more of their in-house analysis activity on new commercial loans. This eliminated respondents who spend more than fifty percent of their analysis time for activities such as extending funds for an existing loan, purchasing an existing loan, foreclosing a property and reviewing and updating existing loans. The sample size was reduced from sixty-seven, *i.e.*, 67-9 = 58, to thirty-one.

As a result of the fifty percent new loan requirement, a significant linear relationship was shown between all analysis reports utilized and number of loans made — but the relationship between total assets and all analysis reports and between total assets and number of loans was not statistically significant. These results suggest a more erratic investment behavior by the medium sized life insurance sample. Therefore, the marketing of real estate analysis services to the medium sized life firms would require a personal knowledge of the present investment activities of the company together with knowledge of the manner in which they utilize real estate reports. In this climate, an estimate of aggregate demand for analysis reports by all firms would be extremely difficult.

Correlating Assets With Analysis Type

The relationship between total analysis reports and assets suggests an inquiry into the importance of the different types of reports requested as components of total reports. Reports requested (versus reports provided) is important because it is the chief component of business demand for independent fee counselors and appraisers. In order to evaluate the importance of demand segments for analysis reports requested from outside consultants, total assets were correlated with the number of each type of report requested. Correlation was measured by the Pearson product-moment correlation coefficient, r, which may vary from +1 for perfect positive correlation, *i.e.*, larger firms request more analysis reports of a given type, to −1 for perfect negative correlation. (Larger firms request fewer analysis reports than smaller firms.)

An examination of analysis reports requested by the savings and loan respondents (See Figure 3) indicated that there is a statistically significant relationship between association size and single family home appraisals ($r = 0.54$ for forty-seven of sixty-five respondents), and highest and best use studies (β = 0.99 for three of sixty-five respondents). While one may *a priori* believe that larger firms tend to internalize single family and commercial appraisals, thereby requesting fewer outside reports, the sample results indicate that larger firms do request more reports of the type shown even though they may have a staff performing these activities. No other type of report in the survey of savings and loan associations was correlated with assets at the 0.10 level of significance.

The correlation of report types requested with total assets for life insurance respondents yielded some-

FIGURE 2

Results of Linear Regression for Large and Medium Sized LICs and S&Ls; All Analysis Reports with Total Assets and Number of Loans; and Number of Loans With Total Assets (Assets in $1,000,000)

Dependent variable Y	Independent variable X	Standard error of the estimate after regression	Mean Dependent variable $\bar{Y}$	Coefficient of variation (5)=(3)÷(4)	Intercept a	Regression coefficient, b, as estimator of β (Std. Error)	Coefficient of determination (r^2)	Number of cases
I. *Large life insurance companies (total assets > $3 billion) for which the new loan percentage may vary from 0 to 100 percent*								
All analysis reports provided and requested	Total assets	960	1126	85%	-8.3	0.073 (*.01) (0.023)	0.59(*.05)	9
	Number of loans	780	1126	69%	97.7	1.44 (*.01) (0.33)	0.72(*.01)	9
Number of loans[1]	Total assets[1]	236	714	33%	-130	0.0545 (*.01) (0.0057)	0.93(*.01)	9
II. *Medium sized life insurance companies (total assets < $3 billion) for which the new loan percentage may vary from 50 to 100 percent (omits cases in which the percent of new loans is less than 50 percent)*								
All analysis reports provided and requested	Total assets	259	163	159%	133	0.056 (0.074)	0.02	31
	Number of loans	153	163	94%	60	1.67 (*.01) (0.22)	0.65(*.01)	31
Number of loans[1]	Total assets[1]	121	58	209%	44	-0.028 (0.03)	0.02	34
III. *Savings and loan associations*								
All analysis reports provided and requested	Total assets	1486	2132	70%	-118	7.09 (*.01) (0.36)	0.86(*.01)	64
	Number of loans	1087	2145	51%	+112	1.20 (*.01) (0.04)	0.93(*.01)	61
Number of loans[1]	Total assets[1]	788	1667	47%	-195	5.95 (*.01) (0.19)	0.94(*.01)	62

* Reject the null hypothesis, H_0: $\beta = 0$, vs. the alternative hypothesis, H_a: $\beta > 0$, at the level of significance shown; or reject the null hypothesis, H_0: $\rho = 0$, vs. the alternative hypothesis, H_a: $\rho \neq 0$, at the level of significance shown.

[1] Regressed to indicate the degree of multicolinearity between alternative independent variables.

FIGURE 3

Correlation (r) of Total Assets with the Number of Analysis Reports Requested by Type of Report for Life Insurance Companies and Savings and Loans Requesting Reports

r	*L.S.
	n respondents in group

Type of report	Life insurance companies	Savings and loan associations
Single family appraisals	.97(*.01) 14	.74(*.01) 47
Commercial appraisals		.54(*.01) 47
Demand studies	.96(*.05) 4	
Market studies	.65(*.10) 7	
Financial analyses	.55(*.05) 10	
Highest and best use studies	.98(*.01) 5	.99(*.01) 3
Site selection studies	.95(*.01) 8	
Land use control analyses	.97(*.05) 4	

* The null hypothesis, H_0: $\rho = 0$, vs. the alternative hypothesis, H_a: $\rho \neq 0$, may be rejected at the level of significance shown.

what different results. The only appraisal report that was significantly correlated with total assets was single family home appraisals. Although life insurance companies are not presently a major factor in the single family home mortgage market, some firms appear to be active; the high correlation with assets equaling 0.97 for fourteen of sixty-seven life insurance respondents indicated that larger firms are indeed active.

Life insurance companies were also noted to request certain types of nonappraisal analysis reports.

Although relatively few of the sixty-seven life insurance respondents request these types of reports, the results are interesting because unlike savings associations, insurance companies do rely on nonappraisal reports — and the numbers requested are positively correlated with total assets. Perhaps an explanation for this difference is the greater likelihood of an insurance company investing in new commercial development. If this is an appropriate explanation for the insurance companies' greater use of nonappraisal analysis reports, the implication is that these types of reports provide more information for decision making by the institution.

Analyst Activity	p	n	Level of Significance
Demand studies	0.96	4	0.05
Market Studies	0.65	7	0.10
Financial analyses	0.55	10	0.05
Highest & best use studies	0.98	5	0.01
Site selection studies	0.95	8	0.01
Land use control analyses	0.97	4	0.05

The average time for each report type provided internally may be used for time management of the analysis function and by independent fee counselors and appraisers for comparison of the work they perform for these firms.

While there is little difference in time spent by medium sized insurance companies (Figure 4) and savings and loan associations for appraisal reports, the large life insurance companies seem to spend considerably more time on appraisal reports. For commercial appraisals, the large life companies (seven respondents) spent twenty-eight hours per report, while medium life firms (fifteen respondents) spent sixteen hours and savings and loans (forty respondents) spent twelve hours per report.

For nonappraisal analysis reports provided internally, savings and loan associations spend significantly more time than the medium sized life insurance companies. Of particular note are competitive property studies (sixteen hours for savings and loans versus six hours for medium sized life insurance companies), market studies (nineteen versus four hours) and site selection studies (eighteen versus four hours).

The type of firms from which life insurance companies and savings and loan associations request real estate analysis reports is important because:

- It indicates who a suppliers' principal competitors are, and
- It provides a basis for marketing services, e.g. if savings and loans more frequently use the services of appraisal firms, then a supplier may wish to provide appraisal services.

The survey results indicated that real estate appraisal

FIGURE 4

Average Time Per Report Provided

Average Hours	(Standard Deviation)
	Number of cases

Type of report	Life insurance companies: 100% Sample of top 20:9 respondents	Life insurance companies: Sample of next 480:58 respondents	Savings and loan associations
Single family appraisals	11 (14) 4	3 (3) 8	3 (1) 47
Farm appraisals	15 (11) 5	**	4 (2) 16
Commercial appraisals	28 (26) 7	16 (25) 15	12 (11) 40
Review of outside appraisals	12 (13) 6	3 (5) 28	2 (6) 38
Competitive property studies	12 (7) 5	6 (5)(*.05) 10	16 (16) (*.05) 18
Demand studies	17 (3) 3	**	33 (22) 3
Market studies	18 (3) 2	4 (4)(*.05) 8	19 (12) (*.05) 14
Financial analyses	2 (2) 4	5 (11) 20	4 (4) 16
Highest and best use studies	3 (3) 2	6 (8) 5	7 (12) 10
Site selection studies	**	4 (1)(*.05) 4	18 (15) (*.05) 7
Environmental impact studies	**	170 (289) 3	**
Land use control analyses	**	170 (287) 3	**
Economic base analyses	**	2 (2) 2	**
Land use analyses	2 (1) 2	6 (7) 6	**
Public sector financial impact analyses	**	2 (2)	**
Sample size	9	58	65

* Hypothesis that the mean hours per report provided by savings and loan sample and sample of 480 life insurance companies are equal may be rejected at the level of significance shown.

** Less than 2 cases reported

firms are, in fact, the most frequently sought firms from which analysis reports are requested (Figure 5). Presumably, this results from the intensity of appraisal report use by both savings and loans and life insurance companies. Life insurance companies appear to be more likely to seek analysis reports from other service industries including law, real estate brokerage, management firms and engineering firms to mention a few.

While percentage differences exist between the two industries and the firms from which they request services, the ranking of suppliers is similar. For example, appraisal firms are ranked first by both industries. The Spearman rank order correlation coefficient, which may vary from +1 to –1, was 0.803,

indicating a high degree of positive correlation in the two ranking structures.

FIGURE 5

Service Industries from which Life Insurance Companies and Savings and Loan Associations Request Real Estate Analysis Reports "Frequently or on Occasion"

	Life insurance companies requesting analysis reports		Savings and loan associations requesting analysis reports	
Real estate appraisal	40	(60%)*	52	(80%)*
Surveying	14	(21%)*	26	(40%)*
Law	25	(37%)	16	(25%)
Real estate brokerage	22	(33%)	14	(22%)
Engineering	20	(30%)	10	(15%)
Accounting	5	(8%)	9	(14%)
Architectural	16	(24%)	9	(14%)
Real estate management	21	(31%)*	9	(14%)*
Contracting	15	(22%)	8	(12%)
Advertising	0	(0%)*	6	(9%)*
Real estate consulting	5	(8%)	5	(8%)
General business consulting	9	(14%)	4	(6%)
Landscape architects	5	(8%)	3	(5%)
Planning	5	(8%)	3	(5%)
Real estate syndicators	0	(0%)	1	(2%)
Sample Size	67		65	

Spearman's rank order correlation coefficient (r_s) 0.803 (**.01)

* Statistically significant association between life insurance companies and savings and loans, and the service industry from which analysis reports are requested at the 0.05 level of significance (Chi-squared test for association between industries).

** Reject the null hypothesis, $H_0: \rho_s = 0$, vs. the alternative hypothesis, $H_a: \rho_s > 0$, at the level of significance shown.

The methods used to seek out suppliers of real estate analysis reports by savings and loans and life insurance companies are very similar (Figure 6). "Recommendations by satisfied users" was top ranked in each case (fifty-five percent and sixty-eight percent) followed by "personal contacts made at trade meeting/seminar" (twenty-seven percent and forty-nine percent) and "personal-social relationships" (twenty-eight percent and forty-two percent). Also important was the use of trade directories. Twenty-five percent of life insurance companies and twenty-two percent of savings and loans utilize trade directories in their selection of suppliers of real estate analysis reports.

The survey also indicated that twenty-eight percent of life insurance companies employed designated appraisers and eight percent employed designated real estate counselors. Forty-six percent of savings and loan associations employed designated appraisers on their staffs. The relatively large percentage of savings and loan associations employing designated appraisers may be explained by the higher mortgage intensity of those firms.

FIGURE 6

Methods Used "Frequently or on Occasion" by Respondents to Seek Real Estate Analysis Services from Outside Consultants

	Life insurance companies using method		Savings and loans using method	
Recommendations by satisfied users	37	(55%)	44	(68%)
Personal contact made at trade meetings/ seminars	18	(27)*	32	(49)*
Personal (social) relationships	19	(28%)	27	(42%)
Trade directory	17	(25%)	14	(22%)
Public address by outside consultant	4	(6%)	10	(15%)
Public display of work by outside consultant	6	(9%)	5	(8%)
Yellow pages	5	(7%)	4	(6%)
Publication in trade journal	6	(9%)	3	(5%)
Walk in	4	(6%)	1	(2%)
Public relation consultants	2	(3%)	0	(0%)
Sample size	67		65	

Spearman's rank order correlation coefficient (r_s) 0.870 (**0.01)

* Statistically significant difference between industries and the given method at the 0.05 level of significance (Chi-squared test for association between industries).

** Reject the null hypothesis, $H_0: \rho_s = 0$, vs. the alternative hypothesis, $H_a: \rho_s > 0$, at the level of significance shown.

Summary

The study of the demand for real estate analysis reports by savings and loan associations and life insurance companies reveals that proportionally more savings and loans utilize these reports than life insurance companies. Moreover, the linear relationship between asset size and savings and loan was somewhat more regular for savings and loans than for large life insurance companies and much more regular than for medium sized life insurance companies. The study also indicated that the real estate mortgage investment behavior for the large life insurance companies was better related to asset size — the medium sized insurance companies seemed to display an erratic investment policy that could not be explained by linear regression.

Savings and loan associations demonstrated a strong positive correlation between asset size and single family and commercial appraisals requested from outside suppliers of these services. This indicates that larger savings and loans request relatively more outside appraisals than smaller savings and loans, disproving *a priori* beliefs that the larger firms would have larger staffs to provide these services, avoiding outside suppliers of these services.

Life insurance companies exhibited a positive correlation between single family appraisals and six types of nonappraisal analysis reports. The utilization of nonappraisal analysis reports may be explained by the heavier investment intensity of life companies in new development where nonappraisal reports are particularly useful.

Appraisal firms are the most frequently sought firms from which real estate analysis reports are requested. Recommendation by satisfied users is the most frequently encountered reason for selection of a supplier of these services. Investigation of the mean time per report provided internally indicated that such times are generally less for savings and loan associations than for life insurance companies. About twice as many savings and loans as life insurance companies employ designated appraisers (forty-six percent *vs.* twenty-eight percent).

NOTES

1. Board of Governors of the Federal Reserve System. Flow of Fund Accounts 1946-1975. Annual Total Flows and Year-end Assets and Liabilities. (December 1976), 124, 127.
2. J. David Cummins, ed., *Investment Activities of Life Insurance Companies* (Homewood, Illinois, Richard D. Irwin, 1977), 68.